

# Virginia Net Metering Service



## Customer Information Package



January 29, 2012

Virginia's Net Metering program is designed for customers desiring to install and interconnect qualifying renewable fuel generators. It is intended for those that are generating electricity to offset all or part of their own energy requirements and is not applicable for those desiring to generate power for resale.

Enclosed you will find documents for the more commonly installed photovoltaic and wind turbine generating systems 10 kW or less in size. Documents for larger systems may be requested from Carol Huffman at [crhuffman@aep.com](mailto:crhuffman@aep.com) or (540) 427-3653.

The package includes our Virginia Net Metering Service Rider (Schedule N.M.S.). This document specifies the conditions of your electric service after you have interconnected with us. Please note that the maximum allowed generator size for a residential account is 20 kW. Also specified are your liability insurance requirements while interconnected. The inverter must be UL1741 compliant so that it shuts itself down when there is a power outage for obvious safety reasons. A labeled, lockable, load breaking disconnect is required outside near our electric meter so that the renewable fuel generator can be isolated, if necessary. Wind turbines should be located 1.5 times their height away from any overhead power lines. Other requirements are specified in the tariff.

The Virginia State Corporation Commission's 2 page notification form (NMIN) is also included in the package. This form must include a licensed electrician's signature to certify that the system has been installed in accordance with the National Electric Code as well as the manufacturer's specifications and that there is a properly working disconnect provided for us. The vendor of the inverter must also sign to certify that the inverter is indeed UL1741 compliant.

This form, along with a one line diagram and/or sketch layout and proof of insurance should be mailed to:

Appalachian Power  
Attn: Carol Huffman – River Ave.  
P.O. Box 2021  
Roanoke, VA 24022

The system will be inspected for the above requirements and your meter will be replaced with one that can measure energy flow in both directions. You will then be billed only for your NET usage.

**Connecting customer-owned generation in parallel with Appalachian Power's distribution system requires written consent.**

## VA. S.C.C. TARIFF NO. 24

**OPTIONAL RIDER N.M.S.  
(Net Metering Service Rider)****AVAILABILITY OF SERVICE**

Available for new or existing customers who take Standard Service from the Company, own and operate an eligible renewable fuel generator designed to operate in parallel with the Company's system and who request Net Metering Service (NMS) from the Company. NMS Customers must take service under Standard Schedule R.S., Standard Schedule S.W.S., Standard Schedule S.G.S., Standard Schedule M.G.S, Standard Schedule G.S., Standard Schedule L.G.S, or Standard Schedule L.P.S. Those Customers who utilize time-of-day provisions must have service that has two or more time of use tiers for energy-based charges and an electricity supply demand charge. The total capacity of all NMS Customers shall be limited to 1% of the Company's Virginia peak load forecast for load served under the Company's Standard Schedules, and shall be available to customers with eligible renewable fuel generators on a first come, first serve basis. In the event a prospective net metering customer has submitted a notification form required by Rule 20VAC5-315-30 ("Interconnection Form") and that customer's interconnection would cause the Company to exceed the "Renewable Generator Limit", the Company will provide the proper notification to the customer and the Commission's Division of Energy Regulation

**DEFINITIONS**

The following terms shall solely be used to define the applicability of Rider N.M.S.

"Billing period credit" means, for a non time-of-use net metering customer, the quantity of electricity generated and fed back into the electric grid by the customer's renewable fuel generator in excess of the electricity supplied to the customer over the billing period. For time-of-use net metering customers, billing period credits are determined separately for each time-of-use tier.

"Excess generation" means the amount of electricity generated by the renewable fuel generator in excess of the electricity consumed by the customer over the course of the net metering period. For time-of-use net metering customers, excess generation is determined separately for each time-of-use tier.

"Net metering customer (Customer)" means a customer owning and operating, or contracting with other persons to own or operate, or both, a renewable fuel generator under a net metering service arrangement.

"Net metering period" means such successive 12-month period beginning with the first meter reading date following the date of final interconnection of the renewable fuel generator with the electric distribution company's facilities.

"Net metering service" means providing retail electric service to a customer operating a renewable fuel generator and measuring the difference, over the net metering period, between electricity supplied to the customer from the electric grid and the electricity generated and fed back to the electric grid by the customer.

"Person" means any individual, corporation, partnership, association, company, business, trust, joint venture, or other private legal entity and the Commonwealth or any municipality.

"Renewable Energy Certificate (REC)" represents the renewable energy attributes associated with the production of one megawatt-hour (MWh) of electrical energy generated by a renewable fuel generator.

## VA. S.C.C. TARIFF NO. 24

OPTIONAL RIDER N.M.S.  
(Net Metering Service Rider)

## DEFINITIONS (Cont.)

"Renewable fuel generator" is an electrical generating facility which complies with all of the following requirements:

- (a) has an alternating current capacity less than or equal to 20kW for customers taking service under Standard Schedule R.S.;
- (b) uses as its total source of fuel, renewable energy, as defined in § 56-576 of the Code of Virginia. "Renewable energy" means energy derived from sunlight, wind, falling water, biomass, sustainable or otherwise, (the definitions of which shall be liberally construed), energy from waste, municipal solid waste, wave motion, tides, and geothermal power, and does not include energy derived from coal, oil, natural gas or nuclear power. Renewable energy shall also include the proportion of the thermal or electric energy from a facility that results from the co-firing of biomass;
- (c) the Net metering customer's facility is located on the customer's premises and is connected to the customer's wiring on the customer's side of the interconnection with the Company;
- (d) is designed and installed to operate in parallel with the Company's system without adversely affecting the operation of equipment and service of the Company and its customers and without presenting safety hazards to Company and customer personnel; and
- (e) is intended primarily to offset all or part of the customer's own electricity requirements.

## CONDITIONS OF SERVICE

## A. Notification

1. For a renewable fuel generator with an alternating current capacity of 25 kW or less, the customer shall submit the commission-approved Interconnection Form to the Company at least thirty (30) days prior to the date the customer intends to interconnect the renewable fuel generator to the Company's facilities. For a renewable fuel generator with an alternating current capacity greater than 25 kW, the customer shall submit the approved Interconnection Form to the Company at least sixty (60) days prior to the date the customer intends to interconnect the renewable fuel generator to the Company's facilities. The submission may either be directly to the Company or by registered mail with return receipt. All sections, including appropriate signatures, of the Interconnection Form must be completed for the notification to be valid. The customer shall have all equipment necessary to complete the interconnection prior to such notification. For renewable fuel generators with capacities greater than 25 kW, the customer should contact the Company prior to making financial commitments. If mailed, the date of notification shall be the third day following the mailing of the Interconnection Form. The Company shall provide a copy of the Interconnection Form to the customer upon request.

2. The Company shall, within thirty (30) days of the date of notification for renewable fuel generators with a rated capacity of 25 kW or less, and within sixty (60) days of the date of notification for renewable fuel generators with a rated capacity greater than 25 kW, either return to the customer a copy of the valid Interconnection Notification form or return any incomplete form. Within this period, the Company shall also make a determination whether there is cause to file a request for waiver with the VA. S.C.C. The Company shall also provide the customer with contemporaneous notice if it files a request for waiver with the VA. S.C.C. The customer shall not interconnect with the Company's facilities until the VA. S.C.C. has addressed the waiver and the customer must then comply with any conditions as a result of the VA. S.C.C.'s action. A request for waiver shall extend the time during which the Company may determine whether the customer has satisfied all of the requirements for interconnection of its renewable fuel generator. If the Company determines that the Interconnection Notification form was incomplete or that any of the other requirements for interconnection were not satisfied, the customer shall submit another completed Interconnection Notification form and notify the Company once the customer has completed all work necessary to satisfy the deficiencies prior to interconnection. This notification requirement shall not replace or supersede any other applicable waiting period, or require interconnection authorization when other applicable law, rule, regulation or code would permit authorization to be withheld or delayed.

## VA. S.C.C. TARIFF NO. 24

OPTIONAL RIDER N.M.S.  
(Net Metering Service Rider)

## CONDITIONS OF SERVICE (Cont'd)

3.The Net energy metering customer shall immediately notify the Company of any changes in the ownership of, operational responsibility for, or contact information for the generator.

**B. Conditions of Interconnection**

1.Renewable fuel generator equipment shall be installed in accordance with the manufacturer's specifications as well as all applicable provisions of the National Electrical Code. Renewable fuel generator equipment and installations shall comply with all applicable safety and performance standards of the National Electrical Code, the Institute of Electrical and Electronic Engineers and accredited testing laboratories in accordance with IEEE Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems, July 2003.

In addition, non-static inverter-connected renewable fuel generator equipment and installations shall comply with the Company's Interconnection Guidelines. The Company shall provide a copy of its Interconnection Guidelines to the customer upon request.

2.In the case of renewable fuel generators with an alternating current capacity greater than 25 kW, the following requirements shall be met before interconnection may occur:

a. Electric Distribution Facilities and Customer Impact Limitations. A renewable fuel generator shall not be permitted to interconnect to the Company's distribution facilities if the interconnection would reasonably lead to damage of any of the Company's facilities or would reasonably lead to voltage regulation or power quality problems at other customer revenue meters due to the incremental effect of the Company's electric distribution system, unless the customer reimburses the Company for its cost to modify any facilities needed to accommodate the interconnection. . In addition, the customer shall reimburse the Company for all state and federal income taxes associated with such reimbursement.

b. Secondary, Service and Service Entrance Limitations. The capacity of the renewable fuel generator shall be less than the capacity of the Company-owned secondary, service, and service entrance cable connected to the point of interconnection, unless the customer reimburses the Company for its cost to modify any facilities needed to accommodate the interconnection. . In addition, the customer shall reimburse the Company for all state and federal income taxes associated with such reimbursement.

c. Transformer Loading Limitations. The renewable fuel generator shall not have the ability to overload the Company's transformer, or any transformer winding, beyond manufacturer or nameplate ratings, unless the customer reimburses the Company for its costs to modify any facilities needed to accommodate the interconnection. In addition, the customer shall reimburse the Company for all state and federal income taxes associated with such reimbursement.

d. Integration With Company Facilities Grounding. The grounding scheme of the renewable fuel generator shall comply with IEEE 1547, Standard for Interconnecting Distributed Resources With Electric Power Systems, July 2003, and shall be consistent with the grounding scheme used by the Company. If requested by a prospective net metering customer, the Company shall assist the customer in selecting a grounding scheme the coordinates with the Company's distribution system.

e. Balance Limitation. The renewable fuel generator shall not create a voltage imbalance of more than 3.0% at any other customer's revenue meter if the Company's transformer, with the secondary connected to the point of interconnection, is a three-phase transformer, unless the customer reimburses the Company for its cost to modify any facilities needed to accommodate the interconnection. In addition, the customer shall reimburse the Company for all state and federal income taxes associated with such reimbursement.

## VA. S.C.C. TARIFF NO. 24

**OPTIONAL RIDER N.M.S.  
(Net Metering Service Rider)  
(continued)**

3. The customer is required to maintain liability insurance which provides coverage in the event of losses or damages arising from the use of the customer's renewable fuel generator. If the customer's renewable fuel generator does not exceed 10 kW, then such coverage shall be in the amount of at least \$100,000 per claim. If the customer's renewable fuel generator exceeds 10 kW, then such coverage shall be in the amount of at least \$300,000 per claim. The customer must submit evidence of such insurance to the Company with the Interconnection Notification form.

The Company's receipt of evidence of liability insurance does not imply an endorsement of the terms and conditions of the coverage.

4. Following Notification by the customer, the Company shall have the right to inspect and test the renewable fuel generator equipment and installation prior to interconnection. The nature and extent of these tests shall be determined solely by the Company. The Company reserves the right to conduct additional tests and inspections and to install additional equipment or meters at any time following interconnection of the renewable fuel generator.
5. The renewable fuel generator installation must have a visibly open, lockable, manual disconnect switch which is accessible by the Company and clearly labeled. . A licensed certified technician must certify via the Interconnection Form that the disconnection switch has been installed properly. The Company reserves the right to install any additional equipment, including controls and meters, at the facility.
6. The customer shall periodically maintain and test the renewable fuel generator in accordance with the manufacturer's specifications and all applicable safety and performance standards. The customer shall notify the Company at least fourteen (14) days prior to making any material changes to the renewable fuel generator facility or installation, including, but not necessarily limited to, any modification to the equipment or protective equipment settings or disconnection of the renewable fuel generator from the Company's system, excluding temporary disconnects for routine maintenance. Following a notification of disconnection of the renewable fuel generator, the customer must again complete the notification process specified above prior to any subsequent reconnection.

In addition, the customer shall notify the Company immediately regarding either any damage to the renewable fuel generator facility or safety-related emergency disconnections.

## VA. S.C.C. TARIFF NO. 24

**OPTIONAL RIDER N.M.S.  
(Net Metering Service Rider)  
(continued)****CONDITIONS OF SERVICE** (Cont'd)

7. Interconnection authorization is not transferable or assignable to other persons or service locations.

**FACILITIES CHARGES**

The customer is responsible for all equipment and installation costs of the renewable fuel generator facility.

The Company shall inspect the inverter settings of a static inverter-connected renewable fuel generator with capacity in excess of 10 kW prior to interconnection. The customer shall pay \$50 to the Company for each inspection.

The Company shall inspect the protective equipment settings of a non-static inverter-connected renewable fuel generator prior to interconnection. The customer shall pay \$50 to the Company for each inspection.

The customer shall pay to the Company any additional charges, as determined by the Company, for equipment, labor, metering, testing or inspections requested by the customer. In addition, the customer shall reimburse the Company for all state and federal income taxes associated with such additional charges.

**METERING**

Net metered energy shall be measured in accordance with standard metering practices by metering equipment capable of measuring (but not necessarily displaying) power flow in both directions.

In instances where a net metering customer has requested, and where the Company would not have otherwise installed, metering equipment that is intended to be read off-site, the Company may charge the Net metering customer its actual cost of installing any additional equipment necessary to implement net metering service.

A time-of-use Net metering customer shall bear the incremental metering costs associated with Net Metering.

Any incremental metering costs associated with measuring the total output of the renewable fuel generator for the purposes of receiving Renewable Energy Certificates shall be installed at the customer's expense.

**MONTHLY CHARGES**

All monthly charges shall be in accordance with the Standard Schedule under which the customer takes service. Such charges shall be based on the customer's net energy for the billing period, to the extent that the net energy exceeds zero. To the extent that a non time of use customer's net energy is zero or negative during the billing period, the customer shall pay only the non-usage sensitive charges, including any applicable standby charges, of the standard Schedule. To the extent that a time-of-use customer's net energy is zero or negative during the billing period, the customer shall pay only the demand charge or charges, non-usage sensitive charges, and any applicable standby charges of the standard Schedule. The customer shall receive no compensation from the Company for Excess Generation during the billing period. The Excess generation during the billing period shall be carried forward and credited against positive energy usage (by tiers, in the case of time-of-use customers) in subsequent billing periods.

## VA. S.C.C. TARIFF NO. 24

**OPTIONAL RIDER N.M.S.  
(Net Metering Service Rider)  
(continued)****MONTHLY CHARGES- (cont.)**

The Net Metering Period shall be defined as each successive 12-month period beginning with the first meter reading date following the date of interconnection of the renewable fuel generator with the Company's facilities. Any Excess generation at the end of a Net Metering Period shall be carried forward to the next Net Metering Period only to the extent that the Excess generation does not exceed the customer's billed consumption for the current net metering period, adjusted to exclude accumulated billing period credits carried forward and applied from the previous Net Metering Period (recognizing tiers for time-of-use customers).

Upon written request of the customer, the Company and the customer shall enter into a power purchase agreement for the customer's Excess generation for one or more Net Metering Periods. For Net Metering Periods beginning on or after January 1, 2009, the written request of the customer must be submitted prior to the beginning of the Net Metering Period. The power purchase agreement shall be consistent with the Commission's Rules Governing Net Energy Metering (20 VAC 5-315-50 et seq.) and will obligate the Company to purchase the customer's negative net energy for requested Net Metering Periods at a price equal to the PJM Interconnection, L.L.C. (PJM) day-ahead annual, simple average LMP (locational marginal price) in the case of time-of-use customers the simple average of hourly LMP's by tiers, for the AEP Zone, as published by the PJM Market Monitoring Unit, for the most recent calendar year ending on or before the end of each Net Metering Period. The Company shall make full payment annually to the customer within 30 days following the latter of the end of the Net Metering Period or the date of the PJM Market Monitoring Unit's publication of the previous calendar year's AEP Zone day-ahead annual, simple average LMP, or hourly LMP as appropriate.

Excess generation is not transferable, and the Customer, absent a signed power purchase agreement as outlined above, shall receive no compensation from the Company for any Excess generation upon termination of service from the Company, or upon the customer's choice of a qualified ESP.

**RENEWABLE ENERGY CREDITS**

A net metering customer owns any renewable energy certificates associated with the total output of its Renewable Fuel Generator.

The Company is only obligated to purchase a net metering customer's RECs if the net metering customer has exercised its one time option at the time of signing a power purchase agreement with the Company to include a provision requiring the purchase by the Company of all generated RECs over the duration of the power purchase agreement.

Payment for all whole RECs purchased by the Company during a Net Metering Period in accordance with the purchase power agreement shall be made at the same time as the payment for any Excess generation.

The Company will post a credit to the Customer's account. or the Customer may elect a direct payment.

Any fractional REC remaining shall not receive immediate payment, but, may be carried forward to subsequent net metering periods for the duration of the power purchase agreement.

The rate of the payment by the Company for a Customer's RECs shall be the daily unweighted average of the "CR" component of Virginia Electric and Power Company's Virginia jurisdiction Rider G tariff in effect over the period for which the rate of payment for the excess generation is determined.

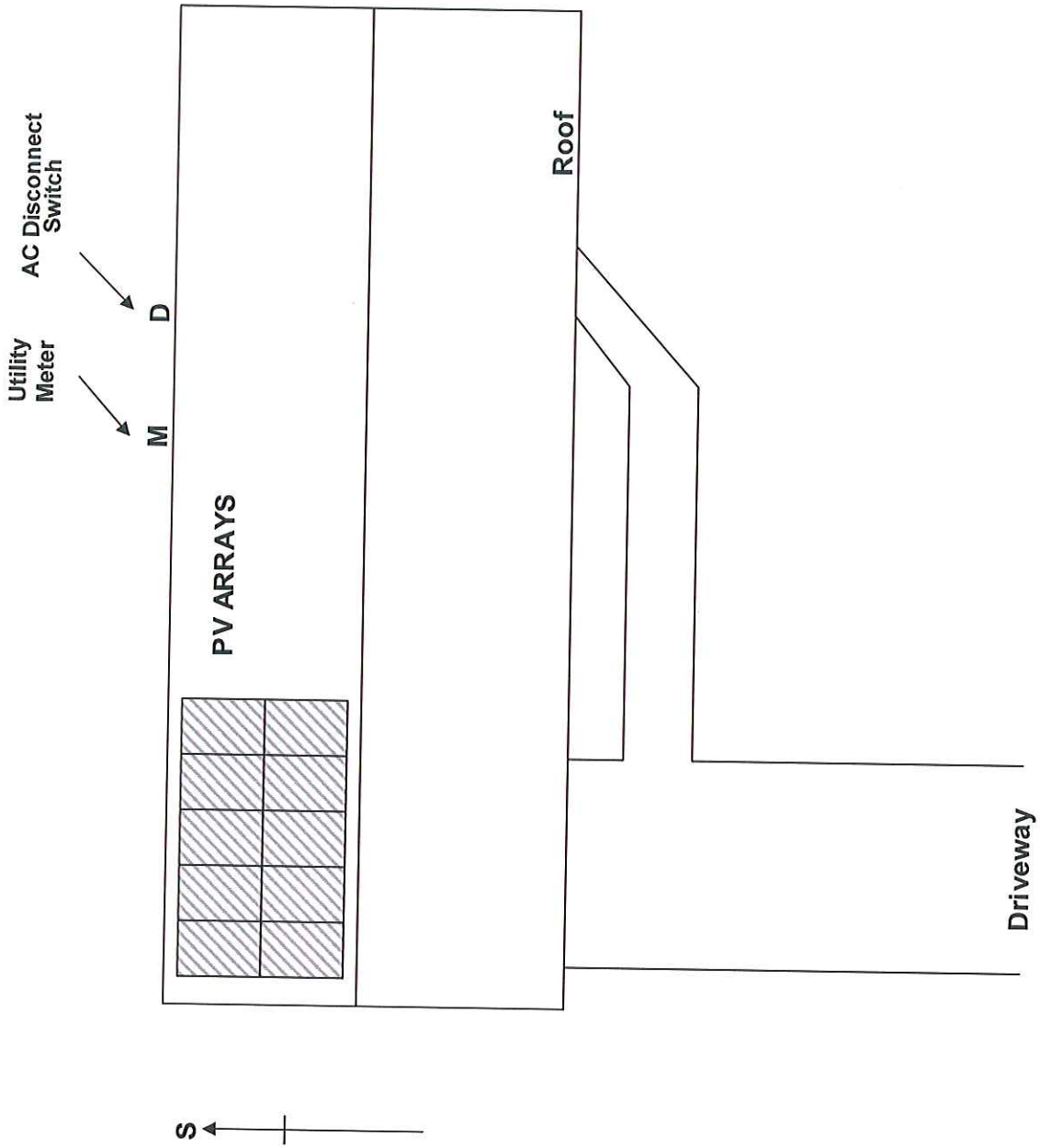
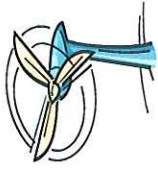
**SPECIAL TERMS AND CONDITIONS**

This Schedule is subject to the Company's Terms and Conditions of Standard Service.

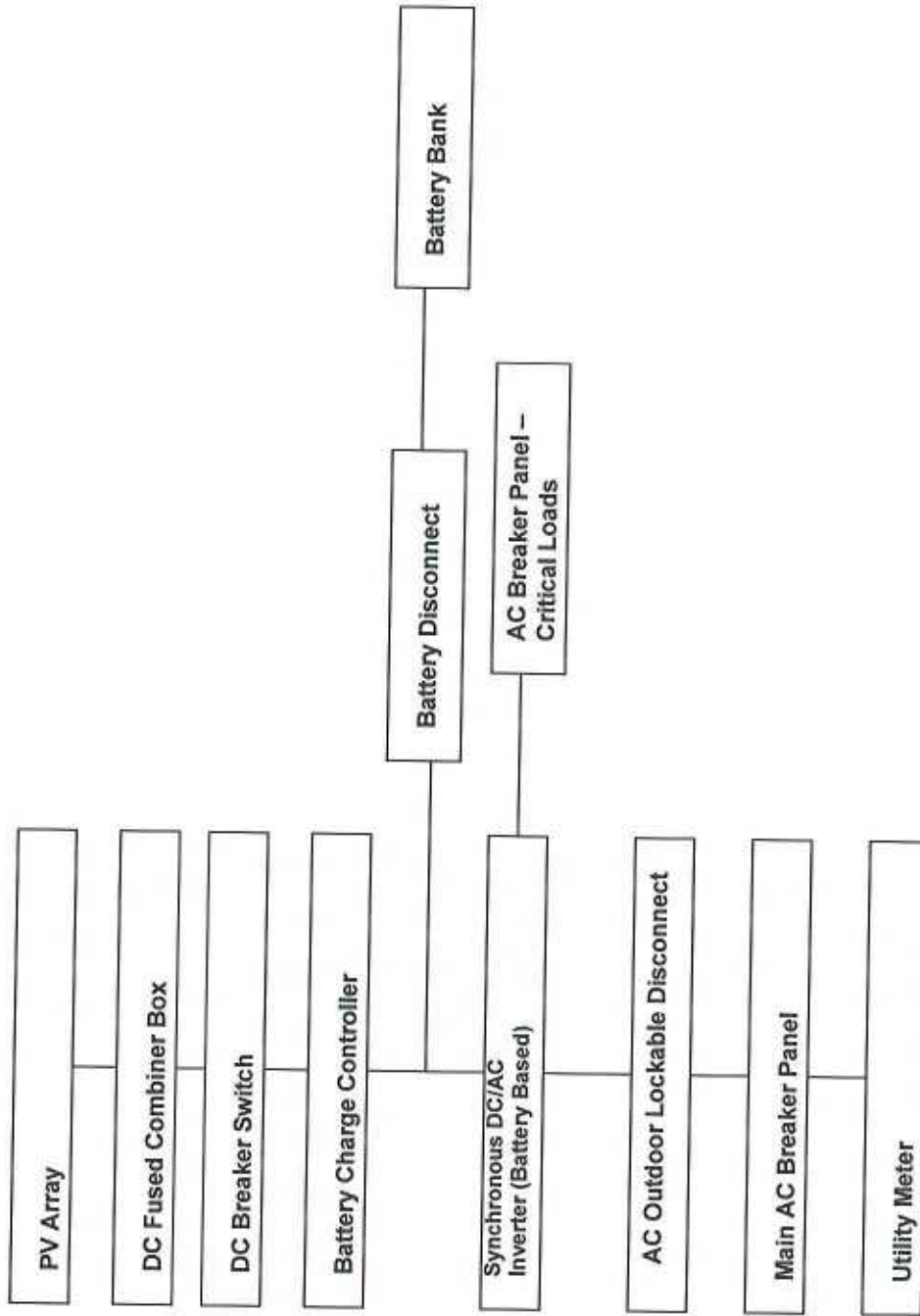


# Sample Sketch Layout

Wind  
Turbine



# Sample Electrical One-Line





A unit of American Electric Power

**NET METERING INTERCONNECTION NOTIFICATION**

PURSUANT TO RULE 20 VAC 5-315-30 OF THE COMMISSION'S REGULATIONS GOVERNING NET ENERGY METERING, APPLICANT HEREBY GIVES NOTICE OF INTENT TO OPERATE A GENERATING FACILITY.

**Section 1. Applicant Information**

Name: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Street Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Phone Number(s): \_\_\_\_\_  
Fax Number: \_\_\_\_\_ Email Address: \_\_\_\_\_  
Facility Location (if different from above): \_\_\_\_\_  
Distribution Utility: **Appalachian Power Company**  
Distribution Utility Account Number: \_\_\_\_\_  
Energy Service Provider (ESP) (if different than electric distribution company): \_\_\_\_\_  
ESP Account Number (if applicable): \_\_\_\_\_  
Proposed Interconnection Date: \_\_\_\_\_

**Section 2. Generating Facility Information**

Facility Owner and/or Operator name (if different from Applicant): \_\_\_\_\_  
Business relationship to Applicant: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Street Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Phone Number(s): \_\_\_\_\_  
Fax Number: \_\_\_\_\_ Email Address: \_\_\_\_\_  
Fuel Type: \_\_\_\_\_  
Generator Manufacturer and Model: \_\_\_\_\_  
Rated Capacity in kilowatts: AC \_\_\_\_\_ DC \_\_\_\_\_  
Inverter Manufacturer and Model: \_\_\_\_\_  
Battery Backup (circle one): Yes No

**Section 3. Information for Generators with an AC capacity in excess of 25 kilowatts**

Generator Type (circle one): Inverter      Induction      Synchronous \_\_\_\_\_  
Frequency: \_\_\_\_\_ Hz;    Number of phases (circle one):    One      Three  
Rated Capacity: DC \_\_\_\_\_ kW; AC apparent \_\_\_\_\_ kVA; AC real \_\_\_\_\_ kW;  
Power factor \_\_\_\_\_ %; AC voltage \_\_\_\_\_; AC amperage \_\_\_\_\_

Facility schematic and equipment layout must be attached to this form.

A prospective net metering customer considering installing a renewable fuel generator with a capacity in excess of 25 kW is strongly encouraged to contact the electric distribution company prior to making financial commitments to the project.

**Section 4. Vendor Certification**

The system hardware is listed by Underwriters Laboratories to be in compliance with UL1741.

Signed (Vendor): \_\_\_\_\_ Date: \_\_\_\_\_  
Name (printed): \_\_\_\_\_ Phone Number: \_\_\_\_\_  
Company: \_\_\_\_\_

**Section 5. Electrician Certification**

The system has been installed in accordance with the manufacturer's specifications as well as all applicable provisions of the National Electrical Code.

Signed (Licensed Electrician): \_\_\_\_\_ Date: \_\_\_\_\_  
Name (printed): \_\_\_\_\_  
License Number: \_\_\_\_\_ Phone Number: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

**I hereby certify that, to the best of my knowledge, all of the information provided in this Notice is true and correct.**

Signature of Applicant: \_\_\_\_\_ Date: \_\_\_\_\_

Utility signature signifies only receipt of this form, in compliance with the Commission’s net energy metering regulations, Regulation 20VAC 5-3154-30.

Signed (Utility Representative): \_\_\_\_\_ Date: \_\_\_\_\_

Please send this completed form to:      **Carol Huffman – River Ave  
Appalachian Power  
PO Box 2021  
Roanoke VA 24022-2021**