

THE STATE OF NEW HAMPSHIRE



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September 19, 2011

Jill Sieveking, Acting Director
Office of Legislative Services
Room 114, State House
107 North Main Street
Concord, NH 03301-4951

Re: Filing of Adopted Rule
Puc 900, Net Metering for Customer-Owned Renewable Energy Generation
Resources of 1000 Kilowatts or Less
Final Proposal No. 2011-35
Commission Docket No. DRM 10-216

Dear Ms. Sieveking:

The Public Utilities Commission (Commission) pursuant to RSA 541-A:14, III and Chapter 3, section 2.21 of *the New Hampshire Drafting and Procedural Manual for Administrative Rules* (the *Manual*), hereby files with the Acting Director of the Office of Legislative Services in care of the Division of Administrative Rules, the enclosed adopted rule, as referred to in the caption above. The Joint Legislative Committee on Administrative Rules (Committee) voted to conditionally approve these rules at its meeting on September 15, 2011.

The Commission hereby certifies that the material enclosed is a true copy of Puc 900, Net Metering for Customer-Owned Renewable Energy Generation Resources of 1000 Kilowatts or Less as adopted by vote of the Commission on Thursday, September 15, 2011.

As required by Chapter 3, section 2.21 of the *Manual*, enclosed for filing are:

- 2 copies of the adopted rule in the format required by Chapter 4 of the *Manual*, including the appendix containing the cross reference table required by RSA 541-A:3-a,II; and
- One copy of a cover letter (this letter) containing the name and address of the agency adopting the rule; identification of the rule by rule number; the date of the rule's

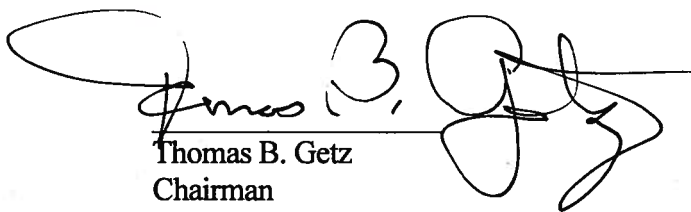
Jill Sieveking, Acting Director
DRM 10-216
Puc 900

adoption; and signature by a member of the group with rulemaking authority, certifying that the material enclosed is a true copy of the rules adopted by the agency on the date given.

It is the intention of the Commission that the enclosed rules shall become effective at 12:01 a.m. on the day after filing.

Please contact us if you have questions or concerns.

Yours truly,



Thomas B. Getz
Chairman

Enclosures

Readopt with amendment Puc 900, effective 7-18-09 (Document #9515) to read as follows:**CHAPTER Puc 900 NET METERING FOR CUSTOMER-OWNED RENEWABLE ENERGY
GENERATION RESOURCES OF 1,000 KILOWATTS OR LESS****PART Puc 901 PURPOSE**

Puc 901.01 Purpose. The purpose of Puc 900, pursuant to the mandate of RSA 362-A:9, is to establish reasonable interconnection requirements for safety, reliability and power quality for net energy metering as the public interest requires, and consistent with the legislative declaration of purpose set forth in RSA 362-A:1, in which the legislature found:

- (a) It to be in the public interest to provide for small scale and diversified sources of supplemental electrical power to lessen the state's dependence upon other sources which may, from time to time, be uncertain;
- (b) It to be in the public interest to encourage and support diversified electrical production that uses indigenous and renewable fuels and has beneficial impacts on the environment and public health; and
- (c) That net energy metering for eligible customer-generators may be one way to provide a reasonable opportunity for small customers to choose interconnected self generation, encourage private investment in renewable energy resources, stimulate in-state commercialization of innovative and beneficial new technology, enhance the future diversification of the state's energy resource mix, and reduce interconnection and administrative costs.

Puc 901.02 Applicability

- (a) Puc 904 through 908 shall be applicable only to small net-metering customers.
- (b) Puc 903.02(h) through (k) shall only apply to net surplus electricity fed into the distribution system that accumulates during the 12 monthly billing cycles preceding the March 2012 billing cycle and in subsequent billing cycles.
- (c) Interconnection for large net-metering customers shall be governed by each utility's interconnection practices as set forth in the utility's tariff filed with the commission.
- (d) With the exception of Puc 903.02(o) and Puc 905.07, and unless otherwise noted, Puc 900 shall be applicable to rural electric cooperatives for which a certificate of deregulation is on file with the commission.

PART Puc 902 DEFINITIONS

Puc 902.01 "Combined heat and power system" means a "combined heat and power system" as defined in RSA 321-A:1-a, II-d, namely "a new system installed after July 1, 2011, that produces heat and electricity from one fuel input using an eligible fuel, without restriction to generating technology, has an electric generating capacity rating of at least one kilowatt and not more than 30 kilowatts and a fuel system efficiency of not less than 80 percent in the production of heat and electricity, or has an electric generating capacity greater than 30 kilowatts and not more than one megawatt and a fuel system efficiency of not less than 65 percent in the production of heat and electricity. Fuel system efficiency shall be measured as usable thermal and electrical output in BTUs divided by fuel input in BTUs."

Puc 902.02 "Customer-generator" means "eligible customer-generator" as defined in RSA 362-A:1-a, II-b, namely "an electric utility customer who owns or operates an electrical generating facility either powered by renewable energy or which employs a heat led combined heat and power system, with a total peak generating capacity of not more than 100 kilowatts, or that first began operation after July 1, 2010 and has a total peak generating capacity of 100 kilowatts or more up to one megawatt, that is located behind a retail meter on the customer's premises, is interconnected and operates in parallel with the electric grid, and is used in the first instance to offset the customer's own electricity requirements".

Puc 902.03 "Default service" shall include energy supply services provided by a distribution utility which includes a rural electric cooperative for which a certificate of deregulation is on file with the commission.

Puc 902.04 "Distribution utility" means the company that owns and/or operates the distribution facilities delivering electricity to the customer-generator's premises.

Puc 902.05 "Electric utility customer" as used in the definition of "customer-generator" means any retail ratepayer of a distribution utility.

Puc 902.06 "Electricity suppliers" means "electricity suppliers" as defined in RSA 374-F:2, II, namely "suppliers of electricity generation services and includes actual electricity generators and brokers, aggregators, and pools that arrange for the supply of electricity generation to meet retail customer demand, which may be municipal or county entities."

Puc 902.07 "Eligible fuel" means "eligible fuel" as defined in RSA 362-A:1-a, II-c, namely, "natural gas, propane, wood pellets, hydrogen, or heating oil when combusted with a burner, including air emission standards for the device using the approved fuel."

Puc 902.08 "Generation capacity" means, for inverter based units, the kilowatt rating of the inverter, and for other interconnections, the kilowatt rating of the generation unit.

Puc 902.09 "Heat led" means "heat led" as defined in RSA 362-A:1-a, II-d, namely, "that the combined heat and power system is operated in a manner to satisfy the heat usage needs of the customer-generator."

Puc 902.10 "Islanding" means a condition in which a portion of the utility system that contains both load and dispersed generation is isolated from the remainder of the utility system.

Puc 902.11 "Large customer-generator" means a customer-generator defined under Puc 902.01 that first began operation after July 1, 2010 and has a total peak generating capacity greater than 100 kilowatts (kW) up to one megawatt (MW).

Puc 902.12 "Net energy metering" means "net energy metering" as defined in RSA 362-A:1, III-a, namely, "measuring the difference between the electricity supplied over the electric distribution system and the electricity generated by an eligible customer-generator which is fed back into the electric distribution system over a billing period."

Puc 902.13 "Renewable energy" means electricity produced by renewable resources including geothermal, tidal or wave, wind, solar, landfill gas, hydro, biomass, bio-oil, bio-synthetic gas and biodiesel resources.

Puc 902.14 “Small net-metering customer” or “small customer-generator” means a customer-generator as defined by Puc 902.01 with a total peak generating capacity of not more than 100 kW.

Puc 902.15 “Witness test” means the process used by the electric utility following the interconnection of a customer-generator’s generation facility to determine whether the interconnection affects the safety, reliability or power quality of the distribution system.

PART Puc 903 CONDITIONS TO INTERCONNECTION

Puc 903.01 General Rules, Rights and Obligations.

- (a) Any distribution utility and any electricity supplier operating within the state of New Hampshire shall, upon request, provide net energy metering to customer-generators pursuant to Puc 900 and RSA 362-A:9.
- (b) A distribution utility shall comply with Puc 900 in a non-discriminatory manner and shall not unreasonably withhold its permission to interconnect a customer-generator’s generating facility.
- (c) Any electricity supplier operating within New Hampshire that is not the default service provider shall offer net metering pursuant to Puc 900 but may provide for rates and terms as provided in RSA 362-A:9, II and Puc 903.02(e).
- (d) Any customer-generator who engages in net energy metering in New Hampshire shall comply with Puc 900.
- (e) A customer-generator shall comply with:
- (1) Applicable commission-approved rules, tariffs and terms and conditions of the distribution utility not in conflict with Puc 900;
 - (2) Any local, state or federal law, statute or regulation which applies to the design, siting, construction, installation, operation, or any other aspect of the customer-generator’s generating and interconnection facility; and
 - (3) Interconnection requirements of the distribution utility as set forth in each utility’s tariff on file with the commission.
- (f) Interconnection with the distribution utility under Puc 900 shall not authorize a customer-generator to utilize the distribution utility’s electric distribution system for the transmission or distribution of electric power.
- (g) The distribution utility shall have the right to review the design of a customer-generator’s generating and interconnection facility and to inspect such facility prior to the commencement of operation.
- (h) The distribution utility may require a customer-generator to make modifications to its facility as necessary to comply with the requirements of Puc 900.
- (i) The distribution utility’s review and authorization for operation shall not be construed as confirming or endorsing the customer-generator’s design or as warranting the generating or interconnection facility’s safety, durability or reliability.

(j) The distribution utility shall not, by reason of such review or lack of review, be responsible for the strength, adequacy, or capacity of such facility's equipment.

(k) A customer-generator's generating and interconnection facilities shall be reasonably accessible to the distribution utility's personnel as necessary for the distribution utility to perform its duties and exercise its rights under its tariffs and terms and conditions filed with and approved by the commission, and Puc 900.

(l) Any information pertaining to a generating or interconnection facility provided to a distribution utility by a customer-generator shall be treated by the distribution utility in a confidential manner.

(m) A customer-generator shall operate and maintain its generating and interconnection facility in a manner that is as safe, dependable and efficient as practicable.

(n) Customer-generators shall be responsible for all costs associated with the interconnection to the distribution system, as provided under RSA 362-A:9, XIII.

Puc 903.02 Statutory and Other Requirements.

(a) Electric distribution utilities shall make net energy metering available to customer-generators, pursuant to RSA 362-A:9 and Puc 900.

(b) Eligibility for net energy metering shall be available on a first-come, first-served basis within each distribution utility service area under the jurisdiction of the commission until such time as the total rated generating capacity owned and operated by customer-generators within the respective utility service area totals or would exceed the following amounts: Granite State Electric Company, 4.12 MW; New Hampshire Electric Cooperative, Inc., 3.16 MW; Public Service Company of New Hampshire, 36.55 MW; and Unital Energy Systems, Inc., 6.17 MW. No more than 2 MW of such total rated generating capacity throughout New Hampshire shall be from combined heat and power systems.

(c) Metering shall be done in accordance with normal metering practices as follows:

- (1) Except as provided for in subparagraphs (c) (3) and (5) below, small customer-generators shall have a single net meter that internally measures the inflow and outflow of electricity such that the net electricity usage or production can be periodically read.. Small customer-generators shall not be required to pay for the installation of this meter;
- (2) Large customer-generators shall have a bi-directional metering system that records the total amount of electricity that the customer takes from the distribution utility and the total outflow of electricity to the distribution grid. Such meter shall record measurements instantaneously or over intervals of an hour or less. Large customer-generators shall pay for the installation of the bi-directional metering system;
- (3) A distribution utility may install an additional meter or meters to monitor the flow of electricity in each direction for a small customer-generator, provided that it is not at the expense of the small customer-generator unless the additional metering is requested by the small customer-generator;
- (4) A distribution utility may install a net meter that measures energy usage or production at intervals of an hour or less, provided that it is not at the expense of the small customer-generator unless the interval meter is requested by the small customer-generator;

- (5) If the output of the customer-generator's facility will be measured for the purposes of recording renewable energy output under RSA 362-F, a second meter measuring the flow of electricity from the facility may be installed at the customer-generator's expense; and
- (6) If an additional meter or meters are installed, as described in subparagraphs (c) (3) or (5) above, the net energy metering calculation shall yield the same result as when a single meter is used, pursuant to RSA 362-A:9.

(d) A customer-generator shall be billed for electricity under the same rate schedule that such customer-generator would be billed if it had no generation.

(e) Competitive electricity suppliers registered under RSA 374-F:7 may voluntarily determine the terms, conditions, and prices under which they will agree to provide generation supply to and purchase net generation output from customer-generators.

(f) Pursuant to RSA 362-A:9, the following shall apply to net energy measurement for small customer-generators billed on a rate schedule that is not time based:

- (1) The net energy produced or consumed on a monthly basis shall be measured in accordance with normal metering practices;
- (2) Charges that are not based on kWh, including the customer charge and demand based charges, shall be billed in accordance with the applicable rate schedule;
- (3) Where the electricity supplied to the customer-generator over the electric distribution system exceeds the electricity supplied to the distribution system by the customer-generator during the billing period, the customer-generator shall be billed based on the net energy supplied in accordance with the applicable rate schedule, net of any credits pursuant to Puc 903.02(g)(5) a. below; and
- (4) Where the customer-generator's net energy usage is negative in that more electricity is fed into the distribution system than is consumed by the customer:
 - a. The surplus electricity fed into the distribution system shall be calculated by subtracting the kWh supplied over the electric distribution system from the kWh fed back into the distribution system for the billing period; and
 - b. The distribution utility shall use zero kWh when calculating all charges that are based on kWh usage; and
- (5) Where the electricity generated by the customer-generator exceeds the electricity supplied by the electric grid in any billing period, the customer-generator shall be:
 - a. Credited over subsequent billing periods for the surplus electricity fed into the distribution system and all associated kWh-based charges; or
 - b. For default service customers, if the surplus electricity production exceeds 600 kWh, the customer-generator may elect, on an annual basis, to receive a payment from the distribution utility equal in amount to the economic value of accumulated surplus as calculated pursuant to (i) below.

(g) Pursuant to RSA 362-A:9, the following shall apply to net energy measurements for large customer-generators:

- (1) The net energy produced or consumed on a monthly basis shall be measured in accordance with normal metering practices;
- (2) All charges that are not based on kWh, including the customer charge and demand-based charges, will be billed in accordance with the applicable rate schedule;
- (3) Where the electricity supplied to the customer-generator over the electric distribution system exceeds the electricity supplied to the distribution system by the customer-generator during the billing period, the customer-generator shall be billed all applicable charges on all kilowatt hours supplied to the customer over the electric distribution system less a credit on default service charges equal to the metered energy fed into the electric distribution system over a billing period;
- (4) Where the customer-generator's net energy usage is negative in that more electricity is fed into the distribution system than is delivered from the distribution system:
 - a. The surplus electricity fed into the distribution system shall be calculated by subtracting the kWh supplied over the electric distribution system from the kWh fed back into the distribution system for the billing period; and
 - b. The distribution utility shall use zero kWh when calculating all default service charges. The customer-generator shall be billed all other applicable charges on all kWh supplied to the customer over the electric distribution system; and
- (5) Where the electricity supplied to the distribution system by the customer-generator exceeds the electricity supplied to the customer-generator in any billing period, the customer-generator shall be:
 - a. Credited for surplus electricity fed into the distribution system over subsequent billing periods for default service charges only; or
 - b. For default service customers, the customer-generator may elect on an annual basis to receive a payment from the distribution utility equal in amount to the economic value of the accumulated surplus as calculated pursuant to (h) and (i) below.

(h) On or before June 1 of each year each distribution utility shall provide customer-generators taking default service that have accumulated a surplus in excess of 600 kWh at the end of their March billing cycle with written notice that provides:

- (1) The number of accumulated surplus kWh;
- (2) A statement that the customer-generator will continue to accumulate any net surplus unless it elects one of the following two options:
 - a. Receive a bill credit equal to the economic value of the applicable surplus; or
 - b. Elect payment by check of the economic value of the surplus;

- (3) The capacity in kW, if any, associated with such surplus generation, whether actual, pursuant to (i)(5) below, or estimated, pursuant to (i)(6) or (7) below, as applicable; and
- (4) The average rate, expressed in dollars or cents per kWh, that the energy component of such surplus will be valued at, the rate for the capacity value of such surplus, expressed in dollars or cents per kW, and the total economic value of such surplus, expressed in dollar and cents.

(i) Unless an electric distribution utility elects otherwise as provided in paragraph (k) below, and except as may be provided otherwise pursuant to paragraph (p) below, the commission shall annually determine the rates for utility avoided costs for energy and capacity consistent with the requirements of the Public Utilities Regulatory Policy Act of 1978 (PURPA) (16 USC § 824a-3 and 18 CFR § 292.304) and as set forth below:

- (1) On or before April 15 of each year, the commission shall publish on its website its calculation of the rates for avoided costs of energy and capacity for the previous year ending March 31 to be used by utilities to calculate the economic value of surplus net metered generation for the previous year which may be paid or credited starting in the May billing cycle, along with supporting calculations, an explanation of assumptions and data sources, and estimated portions of annual surplus generated during the hour or hours used to calculate avoided capacity costs pursuant to (6) and (7) below (capacity factors) if actual hourly surplus generation data is not used for such calculation pursuant to (5) below;
- (2) The rates for avoided energy costs shall be based on the short-term avoided energy costs for the New Hampshire load zone in the wholesale electricity market administered by ISO New England, Inc., consisting of the hourly real time locational marginal price (LMP) of electricity plus generation related ancillary service charges, all adjusted for the average line loss in New Hampshire between the wholesale metering point and the retail metering point;
- (3) The rate for the avoided generation related capacity costs shall be based on the applicable ISO New England, Inc. Forward Capacity Market (FCM) price for the power year most closely matching the 12 months ending in the March billing cycle. The avoided FCM price shall be adjusted to account for any peak energy rent payments made from the energy market that reduce direct capacity costs charged to load and for average line loss in New Hampshire between the wholesale metering point and the retail metering point. Such adjusted price shall be used to determine the rate for avoided capacity costs in dollars per kW to be used by utilities to calculate the value of generation capacity associated with surplus generation on a customer by customer basis. If there is more than one hour in each power year on which ISO New England, Inc. allocates FCM costs to load, the commission shall structure the rate proportionally to ISO New England, Inc.'s allocation of such costs;
- (4) In determining the customer specific value of avoided capacity costs each utility shall multiply the quantity (in kW) of each customer-generator's surplus generation fed into the distribution grid at the hour or hours of capacity peak on which the FCM costs are allocated to load, whether actual, pursuant to (5) below, or estimated, pursuant to (6) or (7) below, as applicable, by the rate or rates determined by the commission pursuant to (1) and (3) above;
- (5) If hourly meter data is available for a customer-generator's net meter and the utility has the technical capability to utilize that data for avoided cost calculations, the utility, at its election by written notice to the commission on or before May 1 of each year, shall calculate the value of avoided capacity costs or avoided energy costs, or both, for each such customer-generator using actual hourly surplus generation data. The value of avoided energy costs shall be

individually calculated by weighting the actual avoided energy costs for each hour of the 12 months ending the immediately preceding March 31, as determined by the commission pursuant to (1) and (2) above, by the actual hourly surplus electricity fed into the distribution system in each hour for the same period to determine a customer-specific average rate for the energy value of net surplus generation;

- (6) For all types of net metered systems other than solar photovoltaic (PV) systems, and for which actual hourly data is not utilized pursuant to (5) above:
- a. The rate for avoided energy costs shall be calculated by using a simple average of hourly cost data from ISO New England, Inc. for the 12 months ending the immediately preceding March 31, assuming that surplus generation is, on average, equally distributed over all hours of the year; and
 - b. The portion of surplus generation estimated to be produced during the hour or hours of capacity peak on which FCM costs are allocated to load shall be equal to the number of such hours divided by 8760;
- (7) For net metered PV systems for which actual hourly data is not utilized pursuant to (5) above, the rate for avoided energy costs shall be calculated as a weighted average annual rate by weighting the actual avoided costs for each hour of the 12 months ending the immediately preceding March 31 by the hourly generation output profile for PV systems in New Hampshire determined as follows:
- a. If verifiable hourly generation output data is available and on file at the commission by April 5 for the applicable year from at least 25 kW of PV system capacity operating within New Hampshire, then the output profile for PV systems shall be the hourly average of all such data; or
 - b. If such data is not available the hourly generation output profile shall be the modeled hourly PV performance data output produced by the U.S. Department of Energy, National Renewable Energy Laboratory, PVWatts software, version 1, (available at http://www.nrel.gov/rredc/pvwatts/site_specific.html) with the default settings for Concord, New Hampshire; and
 - c. The portion of surplus generation estimated to be produced during the hour or hours of capacity peak on which FCM costs are allocated to load shall be in the same proportion as the output profile utilized pursuant to (7) a. or b. above.

(j) To correct an error in its determination of avoided costs, the commission shall, on its own motion, the motion of a utility, or the motion of a third party revise its determination of rates for avoided costs and capacity factors as necessary. Any amounts paid or credited at the originally published rates and capacity factors shall be subject to reconciliation by the revised rates and factors.

(k) Annually, by written notice to the commission on or before May 1 of each year, each electric distribution utility may elect, by filing notice with the commission, to purchase or value surplus generation for the preceding year ending in the March billing cycle at a rate that is equal to the generation supply component of the applicable default service rate, instead of the avoided cost rates determined by the commission pursuant to paragraph (i) above, provided that payment is issued to customer-generators at least as often as whenever the value of such credit, in excess of amounts owned by the customer-generator, is greater than \$50.

(l) Upon exit from the net energy metering system, there shall be no payment or credit to a customer-generator for any remaining excess generation.

(m) The commission shall waive any provision of Puc 900 or RSA 362-A after notice and an opportunity for a hearing, if it determines that waiver of the applicable statute or rule section is a net energy metering arrangement that is part of a utility strategy to minimize distribution costs, pursuant to RSA 362-A:9.

(n) The commission shall consider any request for a waiver, whether filed pursuant to (l) above or otherwise, pursuant to Puc 201.05, titled waiver of rules.

(o) A distribution utility may perform an annual calculation to determine the net effect of net metering on its default service and distribution revenues and expenses in the prior calendar year. Pursuant to Puc 203, the commission shall determine by order, after notice and hearing, the utility-specific method of performing the calculation and applying the results, as well as a reconciliation mechanism to collect or credit any such net effects with appropriate carrying charges and credits applied.

(p) Pursuant to Puc 203, upon petition by a utility or on its own motion, the commission shall by order, after notice and hearing, establish on a utility-specific basis a methodology by which customer-generators may be provided service under time-based net energy metering tariffs provided that it determines the resulting rates are just and reasonable and in accordance with RSA 362-A:9, VIII.

(q) Renewable energy certificates associated with the customer-generator's facility shall remain the property of the customer-generator until such certificates are sold or transferred.

PART Puc 904 INTERCONNECTION APPLICATION PROCESS

Puc 904.01 Pre-application Review.

(a) Before purchasing or installing net energy metering equipment, a customer-generator may request that the customer-generator's distribution utility informally review the proposed project and provide information on:

(1) Whether the customer-generator's distribution utility is under the cap established by RSA 362-A:9,I;

(2) Whether the customer-generator's generation facility and electric grid interface unit, in the opinion of the distribution utility, is likely to comply with the requirements of Puc 900; and

(3) Whether the customer-generator is in an area or service location which is likely to require any upgrade or study.

(b) At the pre-application stage the distribution utility shall provide the customer-generator its best evaluation, given the information it has available, but shall not be required to conduct a study or elaborate review of the project.

Puc 904.02 Interconnection Application.

(a) To initiate the process to engage in net energy metering, a customer-generator shall file with its distribution utility and, if applicable, its electricity supplier, an interconnection application form.

(b) When filing an application with the distribution utility, to obtain evidence of the filing and the date of filing, the applicant shall:

- (1) File the application by certified mail;
- (2) Obtain a dated acknowledgment of receipt from the distribution utility; or
- (3) Obtain written or electronic verification of receipt from the distribution utility by other means consistent with (1) and (2) above.

(c) The interconnection application form shall include the following:

(1) Applicant information which shall include:

- a. The customer-generator's name;
- b. The customer-generator's full mailing address;
- c. The facility location, if different from above;
- d. The customer-generator's daytime and evening telephone numbers;
- e. The information provided in a., b., and d. above for an alternative contact person when the customer-generator is unavailable;
- f. The name of the local distribution utility and the customer-generator's account number;
and
- g. If different than the distribution utility, the name of the customer-generator's electricity supplier and the customer-generator's account number;

(2) Generating facility information, including:

- a. The generator type, whether solar, wind, hydro or other renewable source as listed in RSA 362-F:4, I, (a) through (f);
- b. The generator manufacturer, model name and number;
- c. The number of phases of the unit, whether single or 3-phase;
- d. The power rating of the generation output of the system in kilowatts;
- e. If applicable, the inverter manufacturer, model name and number;
- f. Whether a battery backup will be used or not; and
- g. Whether an exterior manual disconnect switch for utility use shall be installed, if the generation output of the unit is less than or equal to 10 kilowatts in size; and

(3) Installation information and certification, which shall include:

- a. Whether the generator shall be owner installed;
- b. The installation date;
- c. The anticipated interconnection date;
- d. The name, complete address, telephone number and license number of the installing electrician, if applicable;
- e. The name and company affiliation of the vendor selling the generator to the customer-generator;
- f. The signature, with the date of signature, of the vendor, certifying that the system hardware is in compliance with Puc 900;
- g. Certification, if applicable, that the system has been installed in compliance with the local municipal building and electrical codes in the form of:
 1. A signed and dated certificate by the applicable local code official; or
 2. A copy of a signed and dated final inspection certificate from the municipality; and
- h. A signed and dated certification by the customer-generator that:
 1. The customer-generator has installed and shall operate the generation system in compliance with applicable electrical standards;
 2. The initial start-up test required by Puc 905.04 has been successfully completed; and
 3. To the best of the customer-generator's knowledge, all of the information contained in the interconnection notice is true and correct; and
- i. Responses to the questions posed in Puc 904.01.

(d) A customer-generator may submit an interconnection application to its distribution utility when the customer-generator's facility has not been fully installed and tested, but shall:

- (1) Provide in writing in connection with the interconnection application, a description of any manner in which the facility is not fully connected, tested or is not yet otherwise in compliance;
- (2) Fulfill any unmet requirements prior to interconnecting; and
- (3) Upon completion of unmet interconnection requirements, provide the distribution utility with any necessary updated written certifications required by this part.

(e) The distribution utility shall not interconnect the facility until all requirements pursuant to (d) above are met.

(f) Upon request, the distribution utility shall provide the customer-generator written confirmation that the interconnection application has been received and the date of receipt as follows:

- (1) When the application is filed in person, immediately; or
 - (2) When the application is filed by mail or other means, within 10 business days of receipt, with written acknowledgement that states that:
 - a. The application is complete; or
 - b. That the application is incomplete and what information is necessary to complete the requirements.
- (g) When the distribution utility provides a receipt for an application it may clarify that the receipt acknowledges the date and fact of a filing, but not the approval of the filing.

Puc 904.03 Mutual Indemnity Provision.

(a) Unless both parties to the agreement have agreed, pursuant to (g) below, to not enter into or maintain the mutual indemnity agreement, prior to interconnection, the customer-generator, his or her distribution utility, and, if applicable, the customer-generator's electricity supplier shall:

- (1) Execute the mutual indemnity agreement described in (b) below; and
- (2) Maintain the terms of the agreement while the net energy metered unit is interconnected.

(b) With regard to the mutual indemnity agreement, each party to the agreement shall provide as follows:

(1) Each party shall hold harmless, and indemnify the other party and its directors, officers, agents and employees against any and all loss, liability, damage, or expense, including any direct, indirect or consequential loss, liability, damage, or expense, but not including attorneys' fees unless awarded by a court of competent jurisdiction, for injury or death to persons, including employees of either party, and damage to property, including property of either party, arising out of or in connection with intentional, willful, wanton, reckless or negligent conduct regarding:

- a. The engineering, design, construction, maintenance, repair, operation, supervision, inspection, testing, protection or ownership of the party's facilities; or
- b. The making of replacements, additions, or improvements to, or reconstruction of, the party's facilities;

(2) Neither party shall be indemnified by the agreement for any loss, liability, damage, or expense resulting from its sole negligence or willful misconduct; and

(3) Notwithstanding the indemnity provisions contained in the agreement, except for a party's willful misconduct or sole negligence, each party shall be responsible for damage to its own facilities resulting from electrical disturbances or faults.

(c) The mutual indemnity agreement shall become effective as between the respective parties executing and exchanging the document, upon interconnection of the customer-generator to the electric grid

and mutual execution and exchange of the document by the distribution utility, the customer-generator and, if applicable, the electricity supplier.

(d) The distribution utility shall also execute the mutual indemnity agreement described in this section.

(e) The customer-generator, distribution utility, and, if applicable, the electricity supplier, shall each execute duplicate originals of the mutual indemnity agreement set forth in (b) above and each party to the agreement shall retain one executed original of the agreement.

(f) If an electricity supplier sells electric power to the customer-generator, it may require that the customer-generator enter into a mutual indemnity agreement with it, as described in this section.

(g) Notwithstanding (c) through (f) above, the customer-generator and the distribution utility with whom he or she interconnects and/or the electricity supplier of the customer-generator, separately or together, may at any time, by mutual agreement, elect not to enter into or to void the indemnity agreement set forth in (b) above.

(h) The provisions of the indemnity agreement described in this section shall not be construed to relieve any insurer of its obligations to pay any insurance claims in accordance with the provisions of any valid insurance policy.

Puc 904.04 Application Completeness Review.

(a) The interconnection process shall be deemed as beginning when the customer-generator submits a complete application pursuant to this part.

(b) The distribution utility shall evaluate the application for completeness and notify the customer-generator in writing within 10 business days of the application's receipt whether the application is or is not complete and, if the application is not complete, inform the customer-generator in writing what information is missing.

(c) The distribution utility shall verify that the customer-generator's facility equipment passes the requirements of Puc 905.

(d) If the distribution utility approves the application, the distribution utility shall sign the application and return the approved application to the customer-generator.

(e) If the distribution utility determines that interconnection of the customer generation facility would jeopardize the safety, reliability or power quality of the local distribution system, the distribution utility shall require the customer-generator to pay for necessary modifications to the distribution system before the application is approved.

(f) In the event that the distribution utility requires the customer-generator to pay for system modifications pursuant to (e) above, the distribution utility shall provide the customer-generator a description of work and an estimate of the cost for approval.

(g) If the customer-generator agrees to pay for the system modifications, the customer-generator shall sign the description of the work and submit a signed copy and the payment of the estimated costs to the distribution utility.

(h) Upon receipt of the customer-generator's approval and payment, the distribution utility shall perform the system modifications.

(i) Upon completion of the system modifications, the distribution utility shall sign the application approval and provide a copy of the signed approval to the customer-generator.

Puc 904.05 Installation and Interconnection of Facility.

(a) Upon receipt of an application signed by the distribution utility, the customer-generator may install the generating facility.

(b) Following installation of the facility, the customer-generator shall arrange for inspection of the completed installation by the local building inspector or, if one is not available, a New Hampshire licensed electrician.

(c) The person who inspects the installation pursuant to (b) above shall sign a certificate of completion.

(d) If the facility was installed by an electrical contractor, the customer-generator shall also have the contractor complete a certificate of completion.

(e) When the customer-generator has the signatures pursuant to (c) and (d) above, the customer-generator shall provide the distribution utility with a copy of the certificates of completion.

(f) Following receipt of the certificate(s) of completion, the distribution utility may inspect the customer-generator's facility for compliance with standards by arranging for a witness test.

(g) Until a witness test has been performed, the customer-generator shall have no right to operate in parallel unless a witness test has been previously waived by the distribution utility on the application form.

(h) If the distribution utility elects to conduct a witness test, the distribution utility will attempt to conduct it within 10 business days of the receipt of the certificate of completion.

(i) All projects larger than 10 kW shall be subject to a witness test unless the distribution utility has waived the witness test on the application form.

(j) If the witness test shows that the facility is appropriately installed and functioning without jeopardizing the safety, reliability or power quality of the distribution system, the distribution utility shall notify the customer-generator in writing that the interconnection is authorized.

(k) If the witness test results indicate that the facility installation jeopardizes the safety, reliability or power quality of the distribution system, the distribution utility shall disconnect the facility provided that the distribution utility inform the customer-generator in writing what actions are required to mitigate the safety, reliability or power quality issues along approval of the facility interconnection.

(l) If the customer-generator does not substantially complete construction within 12 months after receiving application approval from the distribution utility, the distribution utility shall require the customer-generator to reapply for interconnection.

(m) As to a generating facility up to 25 kW that does not interface with the electric grid by means of an inverter, the distribution utility shall have a period of 75 days from the initial filing of the interconnection application to:

- (1) Assess the proposed system and the customer-generator's site characteristics;
- (2) Communicate with the customer-generator regarding adequate protective interface devices; and
- (3) Allow the applicant to interconnect or provide the customer-generator specific written reasons for objecting to interconnection.

(n) If the customer-generator and the distribution utility agree that the application reasonably requires more time before the distribution utility responds as provided in (m) above, as applicable, they may agree to extend the deadline for response.

(o) Except as provided in (n) above, if the distribution utility is not able to respond to the applicant within the 10 day review period for inverter based systems or 75 day review period for non-inverter based systems and the customer-generator does not agree to an extension of the response time, the distribution utility shall:

- (1) Notify the commission and the customer-generator in writing no later than the expiration of the relevant period;
- (2) Petition the commission for an extension of a specified length; and
- (3) Cite the specific reasons why the deadline was not met and the basis for the length of the requested extension.

(p) The commission shall grant an extension for review of the application for the shortest time reasonable, if any, if it determines that it is necessary to provide the distribution utility additional time to assess the effect of the proposal on safety, reliability or power quality of the electric distribution system in light of:

- (1) The complexity of the characteristics of the site;
- (2) The complexity of the proposed generation and interconnection facilities; or
- (3) Delay occasioned by:
 - a. Failure of the customer-generator to timely provide the distribution utility information necessary to assess the potential impact of the system on safety, reliability or power quality of the electric grid;
 - b. Untimely response by the customer-generator to the distribution utility in response to a distribution utility request for information; or
 - c. Circumstances beyond the control of the distribution utility that prevent the utility from responding within the time limits established by this section.

(q) The distribution utility shall notify the customer-generator as soon as reasonably possible of any required information not included in the customer-generator's interconnection application filing, but not later than 30 days following filing of an application that the customer-generator indicates is complete.

(r) If the distribution utility has not met the applicable deadline for responding to a completed application pursuant to (m) above and has not petitioned for an extension pursuant to (o) and (p) above, the customer-generator may:

- (1) Contact the distribution utility and commission and request resolution; or
- (2) File a complaint with the commission.

(s) Prior to operation, during normal business hours, the customer-generator shall:

- (1) Provide the distribution utility the opportunity to inspect the unit; and
- (2) Upon request, demonstrate to the distribution utility the operation of the unit.

(t) The distribution utility shall interconnect with any customer-generator which:

- (1) Receives electric service from the distribution utility;
- (2) Has completed the application process required by this section; and
- (3) Has installed a net energy metering system that complies with the interconnection and technical specification requirements of Puc 900.

(u) Facilities that meet the interconnection requirements of Puc 900 shall not be required by the distribution utility to meet additional requirements, perform or pay for additional tests, or pay additional interconnection-related charges, unless as otherwise provided.

(v) Nothing in (u) above shall prohibit a party from petitioning the commission, pursuant to Puc 201.05, as to any net energy metered facility, to require additional interconnection requirements, performance of or payment for additional tests, or payment of additional interconnection-related charges.

(w) A net metered customer-generator, a distribution company or an electricity supplier may install additional controls or meters or conduct additional tests, beyond those required by Puc 900, but if entry to the customer-generator's premises is necessary, shall first obtain consent to access the premises pursuant to Puc 908.03.

(x) The expenses associated with the additional tests, meters, and/or equipment described in (l) above shall be borne by the party desiring the additional tests, meters and/or equipment.

(y) For facilities larger than 25 kW, the distribution utility shall require a site specific interconnection review that may require additional protective equipment and may exceed the 75 day time frame by up to an additional 60 days.

Puc 904.06 Upgrades or Changes in the Net Metering System.

(a) The customer-generator shall provide the distribution utility with a written update of any of the information required to be provided on the interconnection application as any changes occur.

(b) The customer-generator shall re-certify to their distribution utility the applicable certifications required by Puc 904.05(c) and (d), when any of the following occurs:

- (1) The generation capacity is increased or its source is changed;
- (2) Any key component of the system, such as the inverter, is replaced or upgraded; or
- (3) The relays for a non-inverter system, are replaced, rewired or upgraded.

Puc 904.07 Insurance. The customer-generator shall not be required by the distribution utility or electricity supplier to purchase or maintain property insurance or comprehensive personal liability insurance to protect against potential liability resulting from the installation, operation or ownership of the generation and interconnection facility.

PART Puc 905 TECHNICAL REQUIREMENTS FOR INTERCONNECTION FOR FACILITIES

Puc 905.01 Requirements for Disconnect Switches.

(a) No facility which connects to the electric grid by means of a single-phase or 3-phase inverter that complies with Puc 906.01 shall be required to install and maintain a manual disconnect switch for utility use, unless:

- (1) The customer-generator's revenue meter is not routinely accessible to the utility;
- (2) The facility uses multiple inverters connected in series; or
- (3) The utility connection is through a transformer rated meter.

(b) For purposes of this section, a "transformer rated meter" means a meter panel or switchboard employing the use of potential and current transformers.

(c) If the distribution utility finds it necessary for scheduled maintenance of which the customer-generator has received reasonable notice or in an emergency situation, to disconnect from the electric grid a customer-generator who does not maintain a manual disconnect switch for utility use, the utility may do so by:

- (1) Pulling the customer-generator's meter;
- (2) Disconnecting the customer-generator's service at the site transformer; or
- (3) Executing any other reasonable method of disconnection.

(d) If the customer-generator has been notified of a scheduled maintenance or other event requiring disrupting generation or service, as an alternative to having his or her service disconnected, and upon agreement of the distribution utility, the customer-generator or their representative may be present at the scheduled time of disruption of service and demonstrate to the utility representative that generation has been isolated from the utility grid and remains isolated for the duration of the required period.

(e) If the customer-generator schedules a meeting with the distribution utility for disconnection of the system, as described in (c) above, and the customer-generator does not meet at the scheduled time, the distribution utility may disconnect the service as provided in (b) above.

(f) If the customer-generator does not install a manual disconnect device accessible to the utility, the customer-generator:

(1) Shall assume all risks and consequences associated with the loss of power to the customer-generator's premises during any period when the distribution utility is required to disconnect the customer-generator's electric service; and

(2) Acknowledges that the service disconnection shall interrupt all electric service to the customer-generator site.

(g) Any customer-generator may agree to install a manual disconnect device accessible to the distribution utility.

(h) If the customer-generator elects not to install a disconnect switch for use by the distribution utility, the customer-generator shall install a warning label, to be provided by their distribution utility, on or near their service meter location.

Puc 905.02 Disconnect Switch.

(a) For purposes of this section, a "gang-operated" switch means a switch in which the separate switches for each phase are operated as a group from a single control.

(b) A facility that elects to install a manual disconnect switch for utility use shall meet the following requirements:

(1) The disconnect switch shall be an external, manual, visible, gang-operated, load break disconnecting switch;

(2) The customer-generator shall purchase, install, own, and maintain the disconnect switch;

(3) The disconnect switch shall be located between the power producing equipment and its interconnection point with the distribution utility system;

(4) The disconnect switch shall meet applicable standards established by Underwriters Laboratories, American National Standards Institute, the National Electrical Code and Institute of Electrical and Electronic Engineers;

(5) The disconnect switch shall be clearly marked, "Generator Disconnect Switch", with permanent letters 3/8 inch or larger;

(6) The disconnect switch shall be located at a location on the property of the customer-generator mutually agreeable to the customer-generator and the distribution utility;

(7) The disconnect switch shall be readily accessible for operation and locking by distribution utility personnel; and

(8) The disconnect switch must be lockable in the open position with a standard padlock with a 3/8 inch shank.

Puc 905.03 Configuration of the Transformer Serving the Customer-Generator's Generation Site.

(a) The existing site transformer serving the customer-generator load may be used if its use will not significantly degrade the power quality or voltage regulation on the secondary distribution system and if such usage will not create problems for distribution utility system relaying.

(b) For single phase distributed generators connected to 4-wire multi-grounded neutral systems, the high side of the step-up transformer shall be connected phase to neutral.

(c) A phase to phase high side connection shall be allowed if it does not degrade power quality or voltage regulation on the distribution system.

(d) For single phase distributed generators connected to 3-wire or 4-wire impedance grounded systems, the step-up transformer high-side winding shall be connected phase to phase.

(e) For 3-phase distributed generators connected to 4-wire multi-grounded distribution systems, the step-up transformer may be an existing grounded-wye to grounded-wye transformer. "Wye" as used in this paragraph, means the configuration in which one end of each transformer winding is connected to a common point and the other to its appropriate line terminal, resembling the letter "Y".

(f) In cases as described in the paragraph above, the generator shall be impedance grounded as necessary to achieve effective grounding but limit the desensitization of the distribution utility system ground fault relaying.

(g) The generation system site shall be impedance grounded, as described in (f) above, if necessary, in a manner adequate to assure that the unit does not:

- (1) Significantly degrade the power quality or voltage regulation on the distribution system;
- (2) Create significant safety problems; or
- (3) Create problems for distribution utility system relaying.

(h) To guard against over voltages on the unfaulted phases of a 3-phase utility primary, if the transformer serving the customer-generator site is ungrounded, over voltage protection shall be used to:

- (1) Detect a situation where the utility has tripped due to a phase to ground fault, and the connected ungrounded generator might not yet have tripped; and
- (2) Trip the generator at high speed.

(i) The cost of any improvements necessary to the site transformer serving the net metered facility shall be borne according to the distribution utility's approved tariff on file with the commission.

Puc 905.04 Initial Testing.

(a) After installation of the generation facility and before final approval and interconnection to the electric grid, the customer-generator shall, in addition to the certifications required in connection with the

interconnection application, conduct a load-break test on the generator, as described in (b) below, to confirm that the anti-islanding controls are functioning.

(b) When conducting a load-break test, the customer-generator shall demonstrate that after the main disconnect switch or circuit breaker of the residence or building is opened, the generation unit shuts down within 2 seconds.

(c) If the generation unit fails to shut down within 2 seconds after conducting the test as provided in (b) above, the customer-generator shall inform its distribution utility.

(d) The customer-generator shall provide an initial test on a non-inverter interfaced system, by demonstrating that:

- (1) The relays function as designed;
- (2) The relays have been calibrated to settings as provided by the distribution utility pursuant to Puc 907.01(f);
- (3) All key components of the system function as designed; and
- (4) The anti-islanding function of the unit works properly.

(e) The testing of the relays of a non-inverter interfaced system shall be conducted by an individual that:

- (1) Utilizes test equipment:
 - a. Necessary to adequately test the key components of the system;
 - b. That is calibrated within tolerances sufficient to assure accurate testing; and
 - c. That is calibrated with a frequency consistent with industry standards;
- (2) Has received the education and training necessary to conduct the sophisticated testing of relays and other components of a non-inverter based generator; and
- (3) Maintains any professional accreditation or certification necessary for the testing of this nature.

(f) The individual conducting the testing of a non-inverter based system required by this section shall, upon request, provide the distribution utility information on his or her background and credentials, and equipment, maintenance and calibration of the equipment sufficient to allow the utility to assess the individual's competence to undertake the required testing.

(g) Upon request, the customer-generator shall allow the distribution utility to have a representative present for the initial or periodic testing required by this part.

Puc 905.05 Periodic Testing.

(a) As to a generator facility which interfaces with the electric grid by an inverter, the customer-generator shall, if requested to do so by its distribution utility, conduct a load-break test, as described in Puc 905.04(b), once per year after installation.

(b) As to a generator that interfaces with the electric grid by a non-inverter, the customer-generator shall:

(1) Conduct a load-break test, as described in Puc 905.04, once per year after installation; and

(2) Verify the proper calibration and protective function of the components and systems of the generation unit, which shall include the testing prescribed by the unit manufacturer:

a. Once every 4 years or according to the schedule recommended by the manufacturer, whichever is more frequent, for facilities rated greater than 25 kW; or

b. Once every 4 years for facilities rated 25 kW or less.

(c) The testing of the calibration and protective function of the components and systems of a non-inverter interfaced system shall be conducted by an entity qualified as provided in Puc 905.04(e) and (f).

(d) The customer-generator shall:

(1) Create a written record of the dates and procedures for tests conducted pursuant to this section; and

(2) Maintain the written record of verification testing for inspection by the distribution utility for a period of 4 years from the date of the respective test.

Puc 905.06 Studies and Analysis.

(a) A distribution utility may conduct detailed load flow, voltage regulation, or short circuit coordination studies of the primary feeder if it determines that the addition of a net metered generation unit will push the aggregate capacity of distributed generation on the feeder to the threshold level, described in (b) and (c) below.

(b) The distribution utility may deem the threshold of concern for aggregate distributed generation as reached if:

(1) The lower of 7.5% of the peak feeder demand as measured at the substation or 20% of the peak feeder demand downstream of the point of interconnection is reached;

(2) More than one net metered unit is proposed to be installed on the same secondary shared by many customers; or

(3) Any other reasonable means, consistent with (1) or (2) above, of determining that a study is necessary.

(c) The distribution utility shall deem the threshold of concern for aggregate distributed generation as reached if it determines that the addition of the proposed generation unit poses a reasonable threat to the continued safety, reliability or power quality to any significant portion of the electric grid.

Puc 905.07 Payment for Upgrades or Improvements to the Electric Grid.

If an upgrade or an improvement to the electric grid up to the customer-generator's meter is necessary for the distribution utility to interconnect to the customer-generator's net energy metered system, the expense shall be borne according to the utility's approved tariff on file with the commission.

PART Puc 906 COMPLIANCE PATH FOR INVERTER UNITS

Puc 906.01 Inverter Requirements.

(a) A net energy metered project which connects to the electric grid by means of a single-phase or 3-phase inverter shall be deemed to be compliant with the technical specifications for the generation unit itself, as established by Puc 900, if the unit complies with the minimum requirements set forth in the following national standards:

(1) The "IEEE Standard 1547 (2003) for Interconnecting Distributed Power Resources with Electric Power Systems" issued by the Institute of Electrical and Electronic Engineers, Inc., New York, NY, 2003; and

(2) The "UL 1741, Standard for Inverters, Converters, Controllers with Interconnection System Equipment for Use with Distributed Generation Resources", issued by Underwriters Laboratories, Inc., of 333 Pfingsten Road, Northbrook, Illinois 60062, 2010.

(b) A net metered system shall be installed in accordance with the State Building Code, including the National Electrical Code, pursuant to RSA 155-A:1, IV as may be modified from time to time by the State Building Code Review Board pursuant to RSA 155-A:10, V.

PART Puc 907 COMPLIANCE PATH FOR GENERATION UNITS NOT USING AN INVERTER

Puc 907.01 Interconnection Requirements.

(a) Except as provided in (b) below, any net energy metered generation system which interfaces with the electric grid by means other than an inverter shall:

(1) Meet the following safety and service quality requirements:

a. The system shall not compromise the safety of the distribution utility personnel, the customer-generator or other customers on the electric grid;

b. The system shall have:

1. Adequate non-islanding protection;

2. Utility-grade protective devices to separate the facility from the electric distribution system, including:

(i) Time over-frequency protection;

- (ii) Time under-frequency protection;
- (iii) Time over-voltage protection; and
- (iv) Time under-voltage protection;

3. Protection devices at the primary voltage level for ground fault and ground current contribution;

4. Adequate short circuit interrupting devices; and

5. Reliable power sources for shunt-tripped short circuit interrupting “devices;”

c. The generation facility shall not reduce the quality of service on the electric distribution system, including voltage fluctuations, excessive voltage and current harmonic content; and

d. Facilities greater than 35 kW shall certify that they are in compliance with IEEE Standard 1547 for harmonics;

(2) Interface with the electric distribution system according to the following requirements:

a. The system shall synchronize with the primary voltage level on the distribution grid;

b. The transformer winding connection to be used at the primary voltage interconnecting point shall be adequate to coordinate with the distribution grid;

c. The generation facility shall synchronize with the electric grid; and

d. The generation facility shall correct the power factor, if necessary;

(3) Not impair the quality of service standards maintained by the electric distribution system;

(4) Provide other protections and devices necessary, consistent with the requirements of this section, to assure safety, quality of service, reliability and power quality of the electric distribution system; and

(5) As to relays, use utility grade relays.

(b) A non-inverter based system shall be installed in accordance with the National Electrical Code, 2008, issued by the National Fire Protection Association, Quincy, Massachusetts.

(c) When seeking to interconnect with the distribution utility, the applicant shall provide the distribution utility the following:

(1) The interconnection application form required by Puc 904.02;

(2) Alternating current (AC) and direct current (DC) elementary and schematic diagrams describing the planned protection package; and

(3) A one-line diagram of the net energy metering system showing how the system protection shall be wired.

(d) The customer-generator shall provide for testing of the relays of the net energy metering system once the settings have been applied to confirm that they perform the intended function.

(e) As to the testing of relays described in (d) above:

(1) The testing shall be conducted by a individual qualified for testing as described in Puc 905.04(e) and (f); and

(2) The customer-generator shall provide the distribution utility the opportunity to:

a. Be present at and observe the testing; or

b. Conduct the testing of the relays by a qualified utility representative.

(f) If the customer-generator and the electric distribution utility cannot agree to the interconnection requirements, they shall file with the commission for review and determination.

(g) In determining interconnection requirements for a non-inverter system, the commission shall consider safety, reliability and power quality in the context of the legislative intent of RSA 362-A:9.

PART Puc 908 PROCEDURAL REQUIREMENTS FOR INTERCONNECTED UNITS

Puc 908.01 Emergencies, Maintenance.

(a) The customer-generator shall, during the period it operates as a customer-generator, provide the distribution utility a current telephone number(s).

(b) The distribution utility shall make arrangements for routine utility repairs or inspections that might involve the net energy metered system during normal business hours.

(c) The customer-generator shall not supply power to the electric distribution grid during any outages of the distribution system that serves the customer-generator.

(d) The customer-generator's generating facility may be operated during outages referred to in (b) above only with an open tie to the distribution utility.

(e) The customer-generator's generating facility shall not:

(1) Create an islanding situation on the grid; or

(2) Energize a de-energized utility circuit for any reason.

Puc 908.02 Procedures for Disconnection.

(a) When an emergency condition, described in (b) below, exists and when it is necessary under the circumstances to do so, the distribution utility may disconnect the customer-generator's net energy metered system and electric service.

(b) An emergency condition shall have occurred when the interconnection represents a condition which:

- (1) Is likely to result in imminent significant disruption of service to the distribution utility's customers;
- (2) Is imminently likely to endanger life or property;
- (3) Constitutes emergency or pre-emergency conditions on the utility system;
- (4) Constitutes a hazardous condition; or
- (5) Reveals that a protective device tampering has occurred on the customer-generator's generation facility.

(c) The distribution utility may open the disconnect switch or disconnect the customer-generator's service, as applicable, after notice to the customer-generator has been delivered and a reasonable time to correct the condition, consistent with the conditions, has elapsed, if:

- (1) The customer-generator has failed to make available records of required verification tests and, in the case of a non-inverter interfaced system, maintenance of its protective devices;
- (2) The customer-generator's generation facility:
 - a. Impedes the normal use of distribution utility equipment or equipment belonging to other distribution utility customers in a negative manner; or
 - b. Impedes the normal quality of service of adjoining customers in a negative manner; or
- (3) Has been modified so that it is not in compliance with Puc 900.

(d) When the customer-generator has corrected the problem and restored the system to compliance with Puc 900 and notifies the distribution utility of such compliance, the utility shall:

- (1) Within 2 business days:
 - a. Provide written verification to the customer-generator of their compliance; or
 - b. Provide written notice to the customer-generator of the specifics of their continued non-compliance; and
- (2) When the system is in compliance, reconnect or allow re-connection as soon as possible under the circumstances.

(e) The customer-generator may reconnect to the electric grid in coordination with the distribution utility, upon receipt of verification as provided in (d) above if the customer-generator, upon distribution utility request or otherwise, disconnected itself from the grid.

(f) If the distribution utility disconnects the customer-generator's net metering system for one of the emergency conditions referred to in (a) above, it shall notify the customer-generator of the disconnection:

(1) Within 24 hours of the disconnection; or

(2) As soon as possible in circumstances where a widespread emergency or other significant extenuating circumstances preclude utility personnel contacting the customer-generator within the 24 hour period.

(g) If the emergency referred to in (a) above was not caused by the net metered system, then the distribution utility shall reconnect the system upon cessation of the emergency.

(h) Notwithstanding any special notification and re-connection requirements for customer-generators established by Puc 908, the distribution utility shall not be required to provide for special notification or re-connection for a customer-generator that differs from its usual and regular policies and protocol in a disconnection situation, if:

(1) The disconnection is not for reasons associated with the net metered system; and

(2) The distribution utility does not open the customer-generator's disconnect switch or pull the customer-generator's meter.

(i) If the emergency referred to in (a) above was caused by the net metered system, then the distribution utility shall communicate the nature of the problem to the customer-generator within 5 days, and attempt to resolve the issue with the customer-generator.

(j) Within 30 days of the disconnection referred to in (h) above, the distribution utility shall file a disconnection petition with the commission if the distribution utility and the customer-generator have not reached a mutually agreed-upon resolution.

(k) Non-emergency disconnections of the net metered system by a distribution utility shall follow the same process as emergency disconnections of such systems, except that the utility shall:

(1) Give the customer-generator no less than 5 working days' prior notice of the disconnection; and

(2) Communicate in the notice to the customer-generator the reasons for the disconnection.

(l) If the net metered system is not the reason for the disconnection, the distribution utility shall reconnect the system as soon as the activity, such as line maintenance, necessitating the disconnection, ceases.

(m) When a utility disconnects the metering system of a customer-generator, the customer-generator may file a complaint with the commission at any time after disconnection.

(n) If a disconnection complaint is filed with the commission, it shall hold a hearing on the matter within 30 days and rule on whether the net metering system has violated a condition necessary for it to operate.

(o) In any hearing as referred to in (m) above, the disconnecting utility shall carry the burden of proof.

(p) A customer-generator shall not re-close a disconnect device which has been opened and tagged by its distribution utility or attempt to re-install a pulled meter without the prior permission of the distribution utility, or in the event of a dispute, the commission.

(q) A customer-generator shall be allowed to disconnect the net energy metered generation from the distribution utility without prior notice in order to self-generate but shall notify the distribution utility as soon as practical following disconnection.

Puc 908.03 Distribution Utility Access to Net Metered System.

(a) The distribution utility may inspect the net energy metered system at its own expense at a time mutually agreeable to the customer-generator upon reasonable notice to the customer-generator.

(b) Except in emergency circumstances, the distribution utility shall provide not less than 5 business days notice to the customer-generator to enter the customer-generator's property to inspect the net metered system, install additional controls or meters or conduct additional tests.

(c) A customer-generator shall not withhold allowing access to the distribution utility to inspect the net metered system, install additional controls or meters or conduct additional tests.

Puc 908.04 Complaints and Investigations.

(a) The procedures set forth in Puc 200 shall be applicable to filing and resolution of any complaint and investigation arising out of Puc 900.

(b) Any party may file with the commission a complaint or request for resolution of a dispute relating to Puc 900.

Puc 908.05 Notifying Public of Net Energy Metering.

(a) When a customer initiates an inquiry and requests information on net energy metering, the distribution utility shall provide a copy of Puc 900 to the customer and the name and telephone number of a contact person(s) at the utility and a description of net energy metering.

(b) The distribution utility shall provide to each customer in a billing insert or a billing message in the customer bill stating a brief description of the availability of net energy metering of one paragraph or more in length.

(c) The distribution utility shall provide the information described in (b) above at annual intervals.

Puc 908.06 Violations of Authorization to Interconnect.

(a) After notice and an opportunity for a hearing, the commission shall revoke, suspend, or condition the authorization for a customer-generator to interconnect a net energy metered system, or take such other action consistent with the above that it deems provident if it finds good cause.

(b) Good cause, as referred to in (a) above shall exist if the commission finds one or more of the following:

(1) The customer-generator was granted authority to operate based on false or misleading information supplied by the applicant which:

a. Is material; and

b. The applicant knew or should have known was false or misleading;

(2) The system was not installed or is not being operated substantially in accordance with the National Electrical Code or applicable interconnection requirements;

(3) The customer-generator has failed to comply with the conditions of approval to operate or representations made in their filing for approval to operate; or

(4) Other conditions, consistent with (1) through (3) above, exist which the commission finds, necessitates revocation, suspension or placing conditions on the authorization to interconnect.

(c) In determining the consequences of its finding in (a) above, the commission shall consider the following:

(1) The severity of the consequences resulting from the violation such that the more severe the infraction, the more severe the consequence;

(2) Mitigating circumstances, such as how quickly the customer-generator took action to rectify the situation, how much control the customer-generator had over the situation, and other circumstance which would tend to lessen fault; and

(3) Prior violations of Puc 900.

Puc 908.07 Utilities shall Report Number and Size of Net Energy Metered Units.

(a) Each distribution utility shall:

(1) Track the number and size of net energy metered systems on their lines;

(2) Report to the commission annually by April 1 of each year for the prior year, the following as regards net energy metered units:

a. The number of units operating;

b. The generation output rating of the units in kilowatts; and

c. The total capacity of units' generation output operating on the utility's distribution system relative to the limits identified in Puc 903.02(b) of annual peak energy demand limitation mandated by RSA 362-A:9,I; and

(3) Notify the commission within 10 business days when the distribution utility has reached the limits identified in Puc 903.02(b) of its annual peak energy demand limit mandated by RSA 362-A:9,I.

Puc 908.08 Existing Systems Grandfathered.

(a) Net energy metering systems that have been interconnected with the distribution utility with the knowledge of the distribution utility as of the initial effective date of Puc 900 shall:

(1) Be deemed to be registered; and

(2) Not be required, due to the adoption of Puc 900, to:

a. Re-apply for interconnection pursuant to Puc 904; or

b. Upgrade to meet the applicable requirements for interconnection of Puc 905, the requirements for inverter units of Puc 906, or the requirements for non-inverters of Puc 907.

(b) The grandfathered systems referred to in (a) above shall comply with the procedural requirements for interconnected units contained in Puc 908.

(c) A customer-generator may repair his or her net energy metered system that is grandfathered under (a) above, such as by repairing relays in a non-inverter system, but if a customer-generator changes the inverter or adds to the generation output or otherwise upgrades or alters the system as provided in Puc 904.05, the customer-generator shall update the qualifications of the system as provided in Puc 904.05.

(d) The distribution utility or electricity supplier may request and the customer-generator shall provide, as to any system grandfathered under this section, the information required in connection with the interconnection application form set forth in Puc 904.02, and the customer-generator shall, without request, update such information as it may change.

(e) A generation system that has been interconnected with its distribution utility prior to the initial adoption of Puc 900 without the knowledge of the distribution utility shall not be grandfathered for purposes of this section.

Puc 908.09 Relationship to Other Commission Rules.

(a) Unless otherwise specified, Puc 900 shall not supersede any other rule of the commission but, supplement such rules.

Puc 908.10 Transferability.

(a) An customer-generator's certificate to operate a net metered system shall transfer to the new owner when the property with the net metered system is sold or otherwise conveyed, if the new owner provides the distribution utility in writing:

(1) Any changed information provided in connection with the interconnection application described in Puc 904.02; and

(2) An agreement to operate and maintain the net metering system according to Puc 900, RSA 362-A and other applicable requirements.

(b) The distribution utility shall not deny a new owner acquiring a currently duly registered net energy metering facility, which otherwise complies with the requirements of Puc 900, the right to register, as long as the new owner complies with (a) above.

(c) The new customer-generator owner, as described in (a) and (b) above, shall notify the distribution utility of the transfer and of the applicable information required by the interconnection application in Puc 904.02.

(d) Transfers of a net metered facility as described in the section shall not be construed as exiting from the system and Puc 903.02(1) shall not apply to any such transfer.

(e) If any change or upgrade in a system would otherwise require new approval pursuant to Puc 904.05, mere ownership transfer shall not relieve the customer-generator from the requirement.

APPENDIX

Rule(s)	State Statute (RSA)	Federal Statute	Federal Regulation
Puc 900 (other specific statute provisions implemented by specific rules are listed below)	RSA 362-A: 9,X		
Puc 901	RSA 362-A:1		
Puc 902.01	RSA 362-A:1-a		
Puc 902.05	RSA 374-F:2, II		
Puc 902.09	RSA 362-A:1-a, III-a		
Puc 903	RSA 362-A:9		
Puc 903.01(c)	RSA 362-A:9, III		
Puc 903.01(n)	RSA 362-A:9, XIII		
Puc 903.02(e)	RSA 374-F:7		
Puc 904.01 (a)(1)	RSA 362-A:9,I		
Puc 904.02	RSA 362-F:4, I (a) through (f), RSA 541-A:16,I(b)		
Puc 908.03	RSA 365:8,I		
Puc 908.05	RSA 541-A:30,II		
Puc 908.06	RSA 374:15		
Puc 908.07	RSA 362-A:9, I		

Readopt with amendment Puc 900, effective 7-18-09 (Document #9515) to read as follows:

**CHAPTER Puc 900 NET METERING FOR CUSTOMER-OWNED RENEWABLE ENERGY
GENERATION RESOURCES OF 1,000 KILOWATTS OR LESS**

PART Puc 901 PURPOSE

Puc 901.01 Purpose. The purpose of Puc 900, pursuant to the mandate of RSA 362-A:9, is to establish reasonable interconnection requirements for safety, reliability and power quality for net energy metering as the public interest requires, and consistent with the legislative declaration of purpose set forth in RSA 362-A:1, in which the legislature found:

(a) It to be in the public interest to provide for small scale and diversified sources of supplemental electrical power to lessen the state's dependence upon other sources which may, from time to time, be uncertain;

(b) It to be in the public interest to encourage and support diversified electrical production that uses indigenous and renewable fuels and has beneficial impacts on the environment and public health; and

(c) That net energy metering for eligible customer-generators may be one way to provide a reasonable opportunity for small customers to choose interconnected self generation, encourage private investment in renewable energy resources, stimulate in-state commercialization of innovative and beneficial new technology, enhance the future diversification of the state's energy resource mix, and reduce interconnection and administrative costs.

Puc 901.02 Applicability

(a) Puc 904 through 908 shall be applicable only to small net-metering customers.

(b) Puc 903.02(h) through (k) shall only apply to net surplus electricity fed into the distribution system that accumulates during the 12 monthly billing cycles preceding the March 2012 billing cycle and in subsequent billing cycles.

(c) Interconnection for large net-metering customers shall be governed by each utility's interconnection practices as set forth in the utility's tariff filed with the commission.

(d) With the exception of Puc 903.02(o) and Puc 905.07, and unless otherwise noted, Puc 900 shall be applicable to rural electric cooperatives for which a certificate of deregulation is on file with the commission.

PART Puc 902 DEFINITIONS

Puc 902.01 "Combined heat and power system" means a "combined heat and power system" as defined in RSA 321-A:1-a, II-d, namely "a new system installed after July 1, 2011, that produces heat and electricity from one fuel input using an eligible fuel, without restriction to generating technology, has an electric generating capacity rating of at least one kilowatt and not more than 30 kilowatts and a fuel system efficiency of not less than 80 percent in the production of heat and electricity, or has an electric generating capacity greater than 30 kilowatts and not more than one megawatt and a fuel system efficiency of not less than 65 percent in the production of heat and electricity. Fuel system efficiency shall be measured as usable thermal and electrical output in BTUs divided by fuel input in BTUs."

Puc 902.02 "Customer-generator" means "eligible customer-generator" as defined in RSA 362-A:1-a, II-b, namely "an electric utility customer who owns or operates an electrical generating facility either powered by renewable energy or which employs a heat led combined heat and power system, with a total peak generating capacity of not more than 100 kilowatts, or that first began operation after July 1, 2010 and has a total peak generating capacity of 100 kilowatts or more up to one megawatt, that is located behind a retail meter on the customer's premises, is interconnected and operates in parallel with the electric grid, and is used in the first instance to offset the customer's own electricity requirements".

Puc 902.03 "Default service" shall include energy supply services provided by a distribution utility which includes a rural electric cooperative for which a certificate of deregulation is on file with the commission.

Puc 902.04 "Distribution utility" means the company that owns and/or operates the distribution facilities delivering electricity to the customer-generator's premises.

Puc 902.05 "Electric utility customer" as used in the definition of "customer-generator" means any retail ratepayer of a distribution utility.

Puc 902.06 "Electricity suppliers" means "electricity suppliers" as defined in RSA 374-F:2, II, namely "suppliers of electricity generation services and includes actual electricity generators and brokers, aggregators, and pools that arrange for the supply of electricity generation to meet retail customer demand, which may be municipal or county entities."

Puc 902.07 "Eligible fuel" means "eligible fuel" as defined in RSA 362-A:1-a, II-c, namely, "natural gas, propane, wood pellets, hydrogen, or heating oil when combusted with a burner, including air emission standards for the device using the approved fuel."

Puc 902.08 "Generation capacity" means, for inverter based units, the kilowatt rating of the inverter, and for other interconnections, the kilowatt rating of the generation unit.

Puc 902.09 "Heat led" means "heat led" as defined in RSA 362-A:1-a, II-d, namely, "that the combined heat and power system is operated in a manner to satisfy the heat usage needs of the customer-generator."

Puc 902.10 "Islanding" means a condition in which a portion of the utility system that contains both load and dispersed generation is isolated from the remainder of the utility system.

Puc 902.11 "Large customer-generator" means a customer-generator defined under Puc 902.01 that first began operation after July 1, 2010 and has a total peak generating capacity greater than 100 kilowatts (kW) up to one megawatt (MW).

Puc 902.12 "Net energy metering" means "net energy metering" as defined in RSA 362-A:1, III-a, namely, "measuring the difference between the electricity supplied over the electric distribution system and the electricity generated by an eligible customer-generator which is fed back into the electric distribution system over a billing period."

Puc 902.13 "Renewable energy" means electricity produced by renewable resources including geothermal, tidal or wave, wind, solar, landfill gas, hydro, biomass, bio-oil, bio-synthetic gas and biodiesel resources.

Puc 902.14 “Small net-metering customer” or “small customer-generator” means a customer-generator as defined by Puc 902.01 with a total peak generating capacity of not more than 100 kW.

Puc 902.15 “Witness test” means the process used by the electric utility following the interconnection of a customer-generator’s generation facility to determine whether the interconnection affects the safety, reliability or power quality of the distribution system.

PART Puc 903 CONDITIONS TO INTERCONNECTION

Puc 903.01 General Rules, Rights and Obligations.

- (a) Any distribution utility and any electricity supplier operating within the state of New Hampshire shall, upon request, provide net energy metering to customer-generators pursuant to Puc 900 and RSA 362-A:9.
- (b) A distribution utility shall comply with Puc 900 in a non-discriminatory manner and shall not unreasonably withhold its permission to interconnect a customer-generator’s generating facility.
- (c) Any electricity supplier operating within New Hampshire that is not the default service provider shall offer net metering pursuant to Puc 900 but may provide for rates and terms as provided in RSA 362-A:9, II and Puc 903.02(e).
- (d) Any customer-generator who engages in net energy metering in New Hampshire shall comply with Puc 900.
- (e) A customer-generator shall comply with:
 - (1) Applicable commission-approved rules, tariffs and terms and conditions of the distribution utility not in conflict with Puc 900;
 - (2) Any local, state or federal law, statute or regulation which applies to the design, siting, construction, installation, operation, or any other aspect of the customer-generator’s generating and interconnection facility; and
 - (3) Interconnection requirements of the distribution utility as set forth in each utility’s tariff on file with the commission.
- (f) Interconnection with the distribution utility under Puc 900 shall not authorize a customer-generator to utilize the distribution utility’s electric distribution system for the transmission or distribution of electric power.
- (g) The distribution utility shall have the right to review the design of a customer-generator’s generating and interconnection facility and to inspect such facility prior to the commencement of operation.
- (h) The distribution utility may require a customer-generator to make modifications to its facility as necessary to comply with the requirements of Puc 900.
- (i) The distribution utility’s review and authorization for operation shall not be construed as confirming or endorsing the customer-generator’s design or as warranting the generating or interconnection facility’s safety, durability or reliability.

(j) The distribution utility shall not, by reason of such review or lack of review, be responsible for the strength, adequacy, or capacity of such facility's equipment.

(k) A customer-generator's generating and interconnection facilities shall be reasonably accessible to the distribution utility's personnel as necessary for the distribution utility to perform its duties and exercise its rights under its tariffs and terms and conditions filed with and approved by the commission, and Puc 900.

(l) Any information pertaining to a generating or interconnection facility provided to a distribution utility by a customer-generator shall be treated by the distribution utility in a confidential manner.

(m) A customer-generator shall operate and maintain its generating and interconnection facility in a manner that is as safe, dependable and efficient as practicable.

(n) Customer-generators shall be responsible for all costs associated with the interconnection to the distribution system, as provided under RSA 362-A:9, XIII.

Puc 903.02 Statutory and Other Requirements.

(a) Electric distribution utilities shall make net energy metering available to customer-generators, pursuant to RSA 362-A:9 and Puc 900.

(b) Eligibility for net energy metering shall be available on a first-come, first-served basis within each distribution utility service area under the jurisdiction of the commission until such time as the total rated generating capacity owned and operated by customer-generators within the respective utility service area totals or would exceed the following amounts: Granite State Electric Company, 4.12 MW; New Hampshire Electric Cooperative, Inc., 3.16 MW; Public Service Company of New Hampshire, 36.55 MW; and Unutil Energy Systems, Inc., 6.17 MW. No more than 2 MW of such total rated generating capacity throughout New Hampshire shall be from combined heat and power systems.

(c) Metering shall be done in accordance with normal metering practices as follows:

- (1) Except as provided for in subparagraphs (c) (3) and (5) below, small customer-generators shall have a single net meter that internally measures the inflow and outflow of electricity such that the net electricity usage or production can be periodically read.. Small customer-generators shall not be required to pay for the installation of this meter;
- (2) Large customer-generators shall have a bi-directional metering system that records the total amount of electricity that the customer takes from the distribution utility and the total outflow of electricity to the distribution grid. Such meter shall record measurements instantaneously or over intervals of an hour or less. Large customer-generators shall pay for the installation of the bi-directional metering system;
- (3) A distribution utility may install an additional meter or meters to monitor the flow of electricity in each direction for a small customer-generator, provided that it is not at the expense of the small customer-generator unless the additional metering is requested by the small customer-generator;
- (4) A distribution utility may install a net meter that measures energy usage or production at intervals of an hour or less, provided that it is not at the expense of the small customer-generator unless the interval meter is requested by the small customer-generator;

- (5) If the output of the customer-generator's facility will be measured for the purposes of recording renewable energy output under RSA 362-F, a second meter measuring the flow of electricity from the facility may be installed at the customer-generator's expense; and
 - (6) If an additional meter or meters are installed, as described in subparagraphs (c) (3) or (5) above, the net energy metering calculation shall yield the same result as when a single meter is used, pursuant to RSA 362-A:9.
- (d) A customer-generator shall be billed for electricity under the same rate schedule that such customer-generator would be billed if it had no generation.
- (e) Competitive electricity suppliers registered under RSA 374-F:7 may voluntarily determine the terms, conditions, and prices under which they will agree to provide generation supply to and purchase net generation output from customer-generators.
- (f) Pursuant to RSA 362-A:9, the following shall apply to net energy measurement for small customer-generators billed on a rate schedule that is not time based:
- (1) The net energy produced or consumed on a monthly basis shall be measured in accordance with normal metering practices;
 - (2) Charges that are not based on kWh, including the customer charge and demand based charges, shall be billed in accordance with the applicable rate schedule;
 - (3) Where the electricity supplied to the customer-generator over the electric distribution system exceeds the electricity supplied to the distribution system by the customer-generator during the billing period, the customer-generator shall be billed based on the net energy supplied in accordance with the applicable rate schedule, net of any credits pursuant to Puc 903.02(g)(5) a. below; and
 - (4) Where the customer-generator's net energy usage is negative in that more electricity is fed into the distribution system than is consumed by the customer:
 - a. The surplus electricity fed into the distribution system shall be calculated by subtracting the kWh supplied over the electric distribution system from the kWh fed back into the distribution system for the billing period; and
 - b. The distribution utility shall use zero kWh when calculating all charges that are based on kWh usage; and
 - (5) Where the electricity generated by the customer-generator exceeds the electricity supplied by the electric grid in any billing period, the customer-generator shall be:
 - a. Credited over subsequent billing periods for the surplus electricity fed into the distribution system and all associated kWh-based charges; or
 - b. For default service customers, if the surplus electricity production exceeds 600 kWh, the customer-generator may elect, on an annual basis, to receive a payment from the distribution utility equal in amount to the economic value of accumulated surplus as calculated pursuant to (i) below.

(g) Pursuant to RSA 362-A:9, the following shall apply to net energy measurements for large customer-generators:

- (1) The net energy produced or consumed on a monthly basis shall be measured in accordance with normal metering practices;
- (2) All charges that are not based on kWh, including the customer charge and demand-based charges, will be billed in accordance with the applicable rate schedule;
- (3) Where the electricity supplied to the customer-generator over the electric distribution system exceeds the electricity supplied to the distribution system by the customer-generator during the billing period, the customer-generator shall be billed all applicable charges on all kilowatt hours supplied to the customer over the electric distribution system less a credit on default service charges equal to the metered energy fed into the electric distribution system over a billing period;
- (4) Where the customer-generator's net energy usage is negative in that more electricity is fed into the distribution system than is delivered from the distribution system:
 - a. The surplus electricity fed into the distribution system shall be calculated by subtracting the kWh supplied over the electric distribution system from the kWh fed back into the distribution system for the billing period; and
 - b. The distribution utility shall use zero kWh when calculating all default service charges. The customer-generator shall be billed all other applicable charges on all kWh supplied to the customer over the electric distribution system; and
- (5) Where the electricity supplied to the distribution system by the customer-generator exceeds the electricity supplied to the customer-generator in any billing period, the customer-generator shall be:
 - a. Credited for surplus electricity fed into the distribution system over subsequent billing periods for default service charges only; or
 - b. For default service customers, the customer-generator may elect on an annual basis to receive a payment from the distribution utility equal in amount to the economic value of the accumulated surplus as calculated pursuant to (h) and (i) below.

(h) On or before June 1 of each year each distribution utility shall provide customer-generators taking default service that have accumulated a surplus in excess of 600 kWh at the end of their March billing cycle with written notice that provides:

- (1) The number of accumulated surplus kWh;
- (2) A statement that the customer-generator will continue to accumulate any net surplus unless it elects one of the following two options:
 - a. Receive a bill credit equal to the economic value of the applicable surplus; or
 - b. Elect payment by check of the economic value of the surplus;

- (3) The capacity in kW, if any, associated with such surplus generation, whether actual, pursuant to (i)(5) below, or estimated, pursuant to (i)(6) or (7) below, as applicable; and
- (4) The average rate, expressed in dollars or cents per kWh, that the energy component of such surplus will be valued at, the rate for the capacity value of such surplus, expressed in dollars or cents per kW, and the total economic value of such surplus, expressed in dollar and cents.

(i) Unless an electric distribution utility elects otherwise as provided in paragraph (k) below, and except as may be provided otherwise pursuant to paragraph (p) below, the commission shall annually determine the rates for utility avoided costs for energy and capacity consistent with the requirements of the Public Utilities Regulatory Policy Act of 1978 (PURPA) (16 USC § 824a-3 and 18 CFR § 292.304) and as set forth below:

- (1) On or before April 15 of each year, the commission shall publish on its website its calculation of the rates for avoided costs of energy and capacity for the previous year ending March 31 to be used by utilities to calculate the economic value of surplus net metered generation for the previous year which may be paid or credited starting in the May billing cycle, along with supporting calculations, an explanation of assumptions and data sources, and estimated portions of annual surplus generated during the hour or hours used to calculate avoided capacity costs pursuant to (6) and (7) below (capacity factors) if actual hourly surplus generation data is not used for such calculation pursuant to (5) below;
- (2) The rates for avoided energy costs shall be based on the short-term avoided energy costs for the New Hampshire load zone in the wholesale electricity market administered by ISO New England, Inc., consisting of the hourly real time locational marginal price (LMP) of electricity plus generation related ancillary service charges, all adjusted for the average line loss in New Hampshire between the wholesale metering point and the retail metering point;
- (3) The rate for the avoided generation related capacity costs shall be based on the applicable ISO New England, Inc. Forward Capacity Market (FCM) price for the power year most closely matching the 12 months ending in the March billing cycle. The avoided FCM price shall be adjusted to account for any peak energy rent payments made from the energy market that reduce direct capacity costs charged to load and for average line loss in New Hampshire between the wholesale metering point and the retail metering point. Such adjusted price shall be used to determine the rate for avoided capacity costs in dollars per kW to be used by utilities to calculate the value of generation capacity associated with surplus generation on a customer by customer basis. If there is more than one hour in each power year on which ISO New England, Inc. allocates FCM costs to load, the commission shall structure the rate proportionally to ISO New England, Inc.'s allocation of such costs;
- (4) In determining the customer specific value of avoided capacity costs each utility shall multiply the quantity (in kW) of each customer-generator's surplus generation fed into the distribution grid at the hour or hours of capacity peak on which the FCM costs are allocated to load, whether actual, pursuant to (5) below, or estimated, pursuant to (6) or (7) below, as applicable, by the rate or rates determined by the commission pursuant to (1) and (3) above;
- (5) If hourly meter data is available for a customer-generator's net meter and the utility has the technical capability to utilize that data for avoided cost calculations, the utility, at its election by written notice to the commission on or before May 1 of each year, shall calculate the value of avoided capacity costs or avoided energy costs, or both, for each such customer-generator using actual hourly surplus generation data. The value of avoided energy costs shall be

individually calculated by weighting the actual avoided energy costs for each hour of the 12 months ending the immediately preceding March 31, as determined by the commission pursuant to (1) and (2) above, by the actual hourly surplus electricity fed into the distribution system in each hour for the same period to determine a customer-specific average rate for the energy value of net surplus generation;

- (6) For all types of net metered systems other than solar photovoltaic (PV) systems, and for which actual hourly data is not utilized pursuant to (5) above:
- a. The rate for avoided energy costs shall be calculated by using a simple average of hourly cost data from ISO New England, Inc. for the 12 months ending the immediately preceding March 31, assuming that surplus generation is, on average, equally distributed over all hours of the year; and
 - b. The portion of surplus generation estimated to be produced during the hour or hours of capacity peak on which FCM costs are allocated to load shall be equal to the number of such hours divided by 8760;
- (7) For net metered PV systems for which actual hourly data is not utilized pursuant to (5) above, the rate for avoided energy costs shall be calculated as a weighted average annual rate by weighting the actual avoided costs for each hour of the 12 months ending the immediately preceding March 31 by the hourly generation output profile for PV systems in New Hampshire determined as follows:
- a. If verifiable hourly generation output data is available and on file at the commission by April 5 for the applicable year from at least 25 kW of PV system capacity operating within New Hampshire, then the output profile for PV systems shall be the hourly average of all such data; or
 - b. If such data is not available the hourly generation output profile shall be the modeled hourly PV performance data output produced by the U.S. Department of Energy, National Renewable Energy Laboratory, PVWatts software, version 1, (available at http://www.nrel.gov/rredc/pvwatts/site_specific.html) with the default settings for Concord, New Hampshire; and
 - c. The portion of surplus generation estimated to be produced during the hour or hours of capacity peak on which FCM costs are allocated to load shall be in the same proportion as the output profile utilized pursuant to (7) a. or b. above.

(j) To correct an error in its determination of avoided costs, the commission shall, on its own motion, the motion of a utility, or the motion of a third party revise its determination of rates for avoided costs and capacity factors as necessary. Any amounts paid or credited at the originally published rates and capacity factors shall be subject to reconciliation by the revised rates and factors.

(k) Annually, by written notice to the commission on or before May 1 of each year, each electric distribution utility may elect, by filing notice with the commission, to purchase or value surplus generation for the preceding year ending in the March billing cycle at a rate that is equal to the generation supply component of the applicable default service rate, instead of the avoided cost rates determined by the commission pursuant to paragraph (i) above, provided that payment is issued to customer-generators at least as often as whenever the value of such credit, in excess of amounts owned by the customer-generator, is greater than \$50.

(l) Upon exit from the net energy metering system, there shall be no payment or credit to a customer-generator for any remaining excess generation.

(m) The commission shall waive any provision of Puc 900 or RSA 362-A after notice and an opportunity for a hearing, if it determines that waiver of the applicable statute or rule section is a net energy metering arrangement that is part of a utility strategy to minimize distribution costs, pursuant to RSA 362-A:9.

(n) The commission shall consider any request for a waiver, whether filed pursuant to (l) above or otherwise, pursuant to Puc 201.05, titled waiver of rules.

(o) A distribution utility may perform an annual calculation to determine the net effect of net metering on its default service and distribution revenues and expenses in the prior calendar year. Pursuant to Puc 203, the commission shall determine by order, after notice and hearing, the utility-specific method of performing the calculation and applying the results, as well as a reconciliation mechanism to collect or credit any such net effects with appropriate carrying charges and credits applied.

(p) Pursuant to Puc 203, upon petition by a utility or on its own motion, the commission shall by order, after notice and hearing, establish on a utility-specific basis a methodology by which customer-generators may be provided service under time-based net energy metering tariffs provided that it determines the resulting rates are just and reasonable and in accordance with RSA 362-A:9, VIII.

(q) Renewable energy certificates associated with the customer-generator's facility shall remain the property of the customer-generator until such certificates are sold or transferred.

PART Puc 904 INTERCONNECTION APPLICATION PROCESS

Puc 904.01 Pre-application Review.

(a) Before purchasing or installing net energy metering equipment, a customer-generator may request that the customer-generator's distribution utility informally review the proposed project and provide information on:

(1) Whether the customer-generator's distribution utility is under the cap established by RSA 362-A:9,I;

(2) Whether the customer-generator's generation facility and electric grid interface unit, in the opinion of the distribution utility, is likely to comply with the requirements of Puc 900; and

(3) Whether the customer-generator is in an area or service location which is likely to require any upgrade or study.

(b) At the pre-application stage the distribution utility shall provide the customer-generator its best evaluation, given the information it has available, but shall not be required to conduct a study or elaborate review of the project.

Puc 904.02 Interconnection Application.

(a) To initiate the process to engage in net energy metering, a customer-generator shall file with its distribution utility and, if applicable, its electricity supplier, an interconnection application form.

(b) When filing an application with the distribution utility, to obtain evidence of the filing and the date of filing, the applicant shall:

- (1) File the application by certified mail;
- (2) Obtain a dated acknowledgment of receipt from the distribution utility; or
- (3) Obtain written or electronic verification of receipt from the distribution utility by other means consistent with (1) and (2) above.

(c) The interconnection application form shall include the following:

(1) Applicant information which shall include:

- a. The customer-generator's name;
- b. The customer-generator's full mailing address;
- c. The facility location, if different from above;
- d. The customer-generator's daytime and evening telephone numbers;
- e. The information provided in a., b., and d. above for an alternative contact person when the customer-generator is unavailable;
- f. The name of the local distribution utility and the customer-generator's account number; and
- g. If different than the distribution utility, the name of the customer-generator's electricity supplier and the customer-generator's account number;

(2) Generating facility information, including:

- a. The generator type, whether solar, wind, hydro or other renewable source as listed in RSA 362-F:4, I, (a) through (f);
- b. The generator manufacturer, model name and number;
- c. The number of phases of the unit, whether single or 3-phase;
- d. The power rating of the generation output of the system in kilowatts;
- e. If applicable, the inverter manufacturer, model name and number;
- f. Whether a battery backup will be used or not; and
- g. Whether an exterior manual disconnect switch for utility use shall be installed, if the generation output of the unit is less than or equal to 10 kilowatts in size; and

(3) Installation information and certification, which shall include:

- a. Whether the generator shall be owner installed;
- b. The installation date;
- c. The anticipated interconnection date;
- d. The name, complete address, telephone number and license number of the installing electrician, if applicable;
- e. The name and company affiliation of the vendor selling the generator to the customer-generator;
- f. The signature, with the date of signature, of the vendor, certifying that the system hardware is in compliance with Puc 900;
- g. Certification, if applicable, that the system has been installed in compliance with the local municipal building and electrical codes in the form of:
 - 1. A signed and dated certificate by the applicable local code official; or
 - 2. A copy of a signed and dated final inspection certificate from the municipality; and
- h. A signed and dated certification by the customer-generator that:
 - 1. The customer-generator has installed and shall operate the generation system in compliance with applicable electrical standards;
 - 2. The initial start-up test required by Puc 905.04 has been successfully completed; and
 - 3. To the best of the customer-generator's knowledge, all of the information contained in the interconnection notice is true and correct; and
- i. Responses to the questions posed in Puc 904.01.

(d) A customer-generator may submit an interconnection application to its distribution utility when the customer-generator's facility has not been fully installed and tested, but shall:

- (1) Provide in writing in connection with the interconnection application, a description of any manner in which the facility is not fully connected, tested or is not yet otherwise in compliance;
- (2) Fulfill any unmet requirements prior to interconnecting; and
- (3) Upon completion of unmet interconnection requirements, provide the distribution utility with any necessary updated written certifications required by this part.

(e) The distribution utility shall not interconnect the facility until all requirements pursuant to (d) above are met.

(f) Upon request, the distribution utility shall provide the customer-generator written confirmation that the interconnection application has been received and the date of receipt as follows:

- (1) When the application is filed in person, immediately; or
 - (2) When the application is filed by mail or other means, within 10 business days of receipt, with written acknowledgement that states that:
 - a. The application is complete; or
 - b. That the application is incomplete and what information is necessary to complete the requirements.
- (g) When the distribution utility provides a receipt for an application it may clarify that the receipt acknowledges the date and fact of a filing, but not the approval of the filing.

Puc 904.03 Mutual Indemnity Provision.

(a) Unless both parties to the agreement have agreed, pursuant to (g) below, to not enter into or maintain the mutual indemnity agreement, prior to interconnection, the customer-generator, his or her distribution utility, and, if applicable, the customer-generator's electricity supplier shall:

- (1) Execute the mutual indemnity agreement described in (b) below; and
- (2) Maintain the terms of the agreement while the net energy metered unit is interconnected.

(b) With regard to the mutual indemnity agreement, each party to the agreement shall provide as follows:

(1) Each party shall hold harmless, and indemnify the other party and its directors, officers, agents and employees against any and all loss, liability, damage, or expense, including any direct, indirect or consequential loss, liability, damage, or expense, but not including attorneys' fees unless awarded by a court of competent jurisdiction, for injury or death to persons, including employees of either party, and damage to property, including property of either party, arising out of or in connection with intentional, willful, wanton, reckless or negligent conduct regarding:

- a. The engineering, design, construction, maintenance, repair, operation, supervision, inspection, testing, protection or ownership of the party's facilities; or
- b. The making of replacements, additions, or improvements to, or reconstruction of, the party's facilities;

(2) Neither party shall be indemnified by the agreement for any loss, liability, damage, or expense resulting from its sole negligence or willful misconduct; and

(3) Notwithstanding the indemnity provisions contained in the agreement, except for a party's willful misconduct or sole negligence, each party shall be responsible for damage to its own facilities resulting from electrical disturbances or faults.

(c) The mutual indemnity agreement shall become effective as between the respective parties executing and exchanging the document, upon interconnection of the customer-generator to the electric grid

and mutual execution and exchange of the document by the distribution utility, the customer-generator and, if applicable, the electricity supplier.

(d) The distribution utility shall also execute the mutual indemnity agreement described in this section.

(e) The customer-generator, distribution utility, and, if applicable, the electricity supplier, shall each execute duplicate originals of the mutual indemnity agreement set forth in (b) above and each party to the agreement shall retain one executed original of the agreement.

(f) If an electricity supplier sells electric power to the customer-generator, it may require that the customer-generator enter into a mutual indemnity agreement with it, as described in this section.

(g) Notwithstanding (c) through (f) above, the customer-generator and the distribution utility with whom he or she interconnects and/or the electricity supplier of the customer-generator, separately or together, may at any time, by mutual agreement, elect not to enter into or to void the indemnity agreement set forth in (b) above.

(h) The provisions of the indemnity agreement described in this section shall not be construed to relieve any insurer of its obligations to pay any insurance claims in accordance with the provisions of any valid insurance policy.

Puc 904.04 Application Completeness Review.

(a) The interconnection process shall be deemed as beginning when the customer-generator submits a complete application pursuant to this part.

(b) The distribution utility shall evaluate the application for completeness and notify the customer-generator in writing within 10 business days of the application's receipt whether the application is or is not complete and, if the application is not complete, inform the customer-generator in writing what information is missing.

(c) The distribution utility shall verify that the customer-generator's facility equipment passes the requirements of Puc 905.

(d) If the distribution utility approves the application, the distribution utility shall sign the application and return the approved application to the customer-generator.

(e) If the distribution utility determines that interconnection of the customer generation facility would jeopardize the safety, reliability or power quality of the local distribution system, the distribution utility shall require the customer-generator to pay for necessary modifications to the distribution system before the application is approved.

(f) In the event that the distribution utility requires the customer-generator to pay for system modifications pursuant to (e) above, the distribution utility shall provide the customer-generator a description of work and an estimate of the cost for approval.

(g) If the customer-generator agrees to pay for the system modifications, the customer-generator shall sign the description of the work and submit a signed copy and the payment of the estimated costs to the distribution utility.

(h) Upon receipt of the customer-generator's approval and payment, the distribution utility shall perform the system modifications.

(i) Upon completion of the system modifications, the distribution utility shall sign the application approval and provide a copy of the signed approval to the customer-generator.

Puc 904.05 Installation and Interconnection of Facility.

(a) Upon receipt of an application signed by the distribution utility, the customer-generator may install the generating facility.

(b) Following installation of the facility, the customer-generator shall arrange for inspection of the completed installation by the local building inspector or, if one is not available, a New Hampshire licensed electrician.

(c) The person who inspects the installation pursuant to (b) above shall sign a certificate of completion.

(d) If the facility was installed by an electrical contractor, the customer-generator shall also have the contractor complete a certificate of completion.

(e) When the customer-generator has the signatures pursuant to (c) and (d) above, the customer-generator shall provide the distribution utility with a copy of the certificates of completion.

(f) Following receipt of the certificate(s) of completion, the distribution utility may inspect the customer-generator's facility for compliance with standards by arranging for a witness test.

(g) Until a witness test has been performed, the customer-generator shall have no right to operate in parallel unless a witness test has been previously waived by the distribution utility on the application form.

(h) If the distribution utility elects to conduct a witness test, the distribution utility will attempt to conduct it within 10 business days of the receipt of the certificate of completion.

(i) All projects larger than 10 kW shall be subject to a witness test unless the distribution utility has waived the witness test on the application form.

(j) If the witness test shows that the facility is appropriately installed and functioning without jeopardizing the safety, reliability or power quality of the distribution system, the distribution utility shall notify the customer-generator in writing that the interconnection is authorized.

(k) If the witness test results indicate that the facility installation jeopardizes the safety, reliability or power quality of the distribution system, the distribution utility shall disconnect the facility provided that the distribution utility inform the customer-generator in writing what actions are required to mitigate the safety, reliability or power quality issues along approval of the facility interconnection.

(l) If the customer-generator does not substantially complete construction within 12 months after receiving application approval from the distribution utility, the distribution utility shall require the customer-generator to reapply for interconnection.

(m) As to a generating facility up to 25 kW that does not interface with the electric grid by means of an inverter, the distribution utility shall have a period of 75 days from the initial filing of the interconnection application to:

- (1) Assess the proposed system and the customer-generator's site characteristics;
- (2) Communicate with the customer-generator regarding adequate protective interface devices; and
- (3) Allow the applicant to interconnect or provide the customer-generator specific written reasons for objecting to interconnection.

(n) If the customer-generator and the distribution utility agree that the application reasonably requires more time before the distribution utility responds as provided in (m) above, as applicable, they may agree to extend the deadline for response.

(o) Except as provided in (n) above, if the distribution utility is not able to respond to the applicant within the 10 day review period for inverter based systems or 75 day review period for non-inverter based systems and the customer-generator does not agree to an extension of the response time, the distribution utility shall:

- (1) Notify the commission and the customer-generator in writing no later than the expiration of the relevant period;
- (2) Petition the commission for an extension of a specified length; and
- (3) Cite the specific reasons why the deadline was not met and the basis for the length of the requested extension.

(p) The commission shall grant an extension for review of the application for the shortest time reasonable, if any, if it determines that it is necessary to provide the distribution utility additional time to assess the effect of the proposal on safety, reliability or power quality of the electric distribution system in light of:

- (1) The complexity of the characteristics of the site;
- (2) The complexity of the proposed generation and interconnection facilities; or
- (3) Delay occasioned by:
 - a. Failure of the customer-generator to timely provide the distribution utility information necessary to assess the potential impact of the system on safety, reliability or power quality of the electric grid;
 - b. Untimely response by the customer-generator to the distribution utility in response to a distribution utility request for information; or
 - c. Circumstances beyond the control of the distribution utility that prevent the utility from responding within the time limits established by this section.

(q) The distribution utility shall notify the customer-generator as soon as reasonably possible of any required information not included in the customer-generator's interconnection application filing, but not later than 30 days following filing of an application that the customer-generator indicates is complete.

(r) If the distribution utility has not met the applicable deadline for responding to a completed application pursuant to (m) above and has not petitioned for an extension pursuant to (o) and (p) above, the customer-generator may:

- (1) Contact the distribution utility and commission and request resolution; or
 - (2) File a complaint with the commission.
- (s) Prior to operation, during normal business hours, the customer-generator shall:
- (1) Provide the distribution utility the opportunity to inspect the unit; and
 - (2) Upon request, demonstrate to the distribution utility the operation of the unit.
- (t) The distribution utility shall interconnect with any customer-generator which:
- (1) Receives electric service from the distribution utility;
 - (2) Has completed the application process required by this section; and
 - (3) Has installed a net energy metering system that complies with the interconnection and technical specification requirements of Puc 900.

(u) Facilities that meet the interconnection requirements of Puc 900 shall not be required by the distribution utility to meet additional requirements, perform or pay for additional tests, or pay additional interconnection-related charges, unless as otherwise provided.

(v) Nothing in (u) above shall prohibit a party from petitioning the commission, pursuant to Puc 201.05, as to any net energy metered facility, to require additional interconnection requirements, performance of or payment for additional tests, or payment of additional interconnection-related charges.

(w) A net metered customer-generator, a distribution company or an electricity supplier may install additional controls or meters or conduct additional tests, beyond those required by Puc 900, but if entry to the customer-generator's premises is necessary, shall first obtain consent to access the premises pursuant to Puc 908.03.

(x) The expenses associated with the additional tests, meters, and/or equipment described in (l) above shall be borne by the party desiring the additional tests, meters and/or equipment.

(y) For facilities larger than 25 kW, the distribution utility shall require a site specific interconnection review that may require additional protective equipment and may exceed the 75 day time frame by up to an additional 60 days.

Puc 904.06 Upgrades or Changes in the Net Metering System.

(a) The customer-generator shall provide the distribution utility with a written update of any of the information required to be provided on the interconnection application as any changes occur.

(b) The customer-generator shall re-certify to their distribution utility the applicable certifications required by Puc 904.05(c) and (d), when any of the following occurs:

- (1) The generation capacity is increased or its source is changed;
- (2) Any key component of the system, such as the inverter, is replaced or upgraded; or
- (3) The relays for a non-inverter system, are replaced, rewired or upgraded.

Puc 904.07 Insurance. The customer-generator shall not be required by the distribution utility or electricity supplier to purchase or maintain property insurance or comprehensive personal liability insurance to protect against potential liability resulting from the installation, operation or ownership of the generation and interconnection facility.

PART Puc 905 TECHNICAL REQUIREMENTS FOR INTERCONNECTION FOR FACILITIES

Puc 905.01 Requirements for Disconnect Switches.

(a) No facility which connects to the electric grid by means of a single-phase or 3-phase inverter that complies with Puc 906.01 shall be required to install and maintain a manual disconnect switch for utility use, unless:

- (1) The customer-generator's revenue meter is not routinely accessible to the utility;
- (2) The facility uses multiple inverters connected in series; or
- (3) The utility connection is through a transformer rated meter.

(b) For purposes of this section, a "transformer rated meter" means a meter panel or switchboard employing the use of potential and current transformers.

(c) If the distribution utility finds it necessary for scheduled maintenance of which the customer-generator has received reasonable notice or in an emergency situation, to disconnect from the electric grid a customer-generator who does not maintain a manual disconnect switch for utility use, the utility may do so by:

- (1) Pulling the customer-generator's meter;
- (2) Disconnecting the customer-generator's service at the site transformer; or
- (3) Executing any other reasonable method of disconnection.

(d) If the customer-generator has been notified of a scheduled maintenance or other event requiring disrupting generation or service, as an alternative to having his or her service disconnected, and upon agreement of the distribution utility, the customer-generator or their representative may be present at the scheduled time of disruption of service and demonstrate to the utility representative that generation has been isolated from the utility grid and remains isolated for the duration of the required period.

(e) If the customer-generator schedules a meeting with the distribution utility for disconnection of the system, as described in (c) above, and the customer-generator does not meet at the scheduled time, the distribution utility may disconnect the service as provided in (b) above.

(f) If the customer-generator does not install a manual disconnect device accessible to the utility, the customer-generator:

(1) Shall assume all risks and consequences associated with the loss of power to the customer-generator's premises during any period when the distribution utility is required to disconnect the customer-generator's electric service; and

(2) Acknowledges that the service disconnection shall interrupt all electric service to the customer-generator site.

(g) Any customer-generator may agree to install a manual disconnect device accessible to the distribution utility.

(h) If the customer-generator elects not to install a disconnect switch for use by the distribution utility, the customer-generator shall install a warning label, to be provided by their distribution utility, on or near their service meter location.

Puc 905.02 Disconnect Switch.

(a) For purposes of this section, a "gang-operated" switch means a switch in which the separate switches for each phase are operated as a group from a single control.

(b) A facility that elects to install a manual disconnect switch for utility use shall meet the following requirements:

(1) The disconnect switch shall be an external, manual, visible, gang-operated, load break disconnecting switch;

(2) The customer-generator shall purchase, install, own, and maintain the disconnect switch;

(3) The disconnect switch shall be located between the power producing equipment and its interconnection point with the distribution utility system;

(4) The disconnect switch shall meet applicable standards established by Underwriters Laboratories, American National Standards Institute, the National Electrical Code and Institute of Electrical and Electronic Engineers;

(5) The disconnect switch shall be clearly marked, "Generator Disconnect Switch", with permanent letters 3/8 inch or larger;

(6) The disconnect switch shall be located at a location on the property of the customer-generator mutually agreeable to the customer-generator and the distribution utility;

(7) The disconnect switch shall be readily accessible for operation and locking by distribution utility personnel; and

(8) The disconnect switch must be lockable in the open position with a standard padlock with a 3/8 inch shank.

Puc 905.03 Configuration of the Transformer Serving the Customer-Generator's Generation Site.

(a) The existing site transformer serving the customer-generator load may be used if its use will not significantly degrade the power quality or voltage regulation on the secondary distribution system and if such usage will not create problems for distribution utility system relaying.

(b) For single phase distributed generators connected to 4-wire multi-grounded neutral systems, the high side of the step-up transformer shall be connected phase to neutral.

(c) A phase to phase high side connection shall be allowed if it does not degrade power quality or voltage regulation on the distribution system.

(d) For single phase distributed generators connected to 3-wire or 4-wire impedance grounded systems, the step-up transformer high-side winding shall be connected phase to phase.

(e) For 3-phase distributed generators connected to 4-wire multi-grounded distribution systems, the step-up transformer may be an existing grounded-wye to grounded-wye transformer. "Wye" as used in this paragraph, means the configuration in which one end of each transformer winding is connected to a common point and the other to its appropriate line terminal, resembling the letter "Y".

(f) In cases as described in the paragraph above, the generator shall be impedance grounded as necessary to achieve effective grounding but limit the desensitization of the distribution utility system ground fault relaying.

(g) The generation system site shall be impedance grounded, as described in (f) above, if necessary, in a manner adequate to assure that the unit does not:

- (1) Significantly degrade the power quality or voltage regulation on the distribution system;
- (2) Create significant safety problems; or
- (3) Create problems for distribution utility system relaying.

(h) To guard against over voltages on the unfaulted phases of a 3-phase utility primary, if the transformer serving the customer-generator site is ungrounded, over voltage protection shall be used to:

- (1) Detect a situation where the utility has tripped due to a phase to ground fault, and the connected ungrounded generator might not yet have tripped; and
- (2) Trip the generator at high speed.

(i) The cost of any improvements necessary to the site transformer serving the net metered facility shall be borne according to the distribution utility's approved tariff on file with the commission.

Puc 905.04 Initial Testing.

(a) After installation of the generation facility and before final approval and interconnection to the electric grid, the customer-generator shall, in addition to the certifications required in connection with the

interconnection application, conduct a load-break test on the generator, as described in (b) below, to confirm that the anti-islanding controls are functioning.

(b) When conducting a load-break test, the customer-generator shall demonstrate that after the main disconnect switch or circuit breaker of the residence or building is opened, the generation unit shuts down within 2 seconds.

(c) If the generation unit fails to shut down within 2 seconds after conducting the test as provided in (b) above, the customer-generator shall inform its distribution utility.

(d) The customer-generator shall provide an initial test on a non-inverter interfaced system, by demonstrating that:

- (1) The relays function as designed;
- (2) The relays have been calibrated to settings as provided by the distribution utility pursuant to Puc 907.01(f);
- (3) All key components of the system function as designed; and
- (4) The anti-islanding function of the unit works properly.

(e) The testing of the relays of a non-inverter interfaced system shall be conducted by an individual that:

- (1) Utilizes test equipment:
 - a. Necessary to adequately test the key components of the system;
 - b. That is calibrated within tolerances sufficient to assure accurate testing; and
 - c. That is calibrated with a frequency consistent with industry standards;
- (2) Has received the education and training necessary to conduct the sophisticated testing of relays and other components of a non-inverter based generator; and
- (3) Maintains any professional accreditation or certification necessary for the testing of this nature.

(f) The individual conducting the testing of a non-inverter based system required by this section shall, upon request, provide the distribution utility information on his or her background and credentials, and equipment, maintenance and calibration of the equipment sufficient to allow the utility to assess the individual's competence to undertake the required testing.

(g) Upon request, the customer-generator shall allow the distribution utility to have a representative present for the initial or periodic testing required by this part.

Puc 905.05 Periodic Testing.

(a) As to a generator facility which interfaces with the electric grid by an inverter, the customer-generator shall, if requested to do so by its distribution utility, conduct a load-break test, as described in Puc 905.04(b), once per year after installation.

(b) As to a generator that interfaces with the electric grid by a non-inverter, the customer-generator shall:

(1) Conduct a load-break test, as described in Puc 905.04, once per year after installation; and

(2) Verify the proper calibration and protective function of the components and systems of the generation unit, which shall include the testing prescribed by the unit manufacturer:

a. Once every 4 years or according to the schedule recommended by the manufacturer, whichever is more frequent, for facilities rated greater than 25 kW; or

b. Once every 4 years for facilities rated 25 kW or less.

(c) The testing of the calibration and protective function of the components and systems of a non-inverter interfaced system shall be conducted by an entity qualified as provided in Puc 905.04(e) and (f).

(d) The customer-generator shall:

(1) Create a written record of the dates and procedures for tests conducted pursuant to this section; and

(2) Maintain the written record of verification testing for inspection by the distribution utility for a period of 4 years from the date of the respective test.

Puc 905.06 Studies and Analysis.

(a) A distribution utility may conduct detailed load flow, voltage regulation, or short circuit coordination studies of the primary feeder if it determines that the addition of a net metered generation unit will push the aggregate capacity of distributed generation on the feeder to the threshold level, described in (b) and (c) below.

(b) The distribution utility may deem the threshold of concern for aggregate distributed generation as reached if:

(1) The lower of 7.5% of the peak feeder demand as measured at the substation or 20% of the peak feeder demand downstream of the point of interconnection is reached;

(2) More than one net metered unit is proposed to be installed on the same secondary shared by many customers; or

(3) Any other reasonable means, consistent with (1) or (2) above, of determining that a study is necessary.

(c) The distribution utility shall deem the threshold of concern for aggregate distributed generation as reached if it determines that the addition of the proposed generation unit poses a reasonable threat to the continued safety, reliability or power quality to any significant portion of the electric grid.

Puc 905.07 Payment for Upgrades or Improvements to the Electric Grid.

If an upgrade or an improvement to the electric grid up to the customer-generator's meter is necessary for the distribution utility to interconnect to the customer-generator's net energy metered system, the expense shall be borne according to the utility's approved tariff on file with the commission.

PART Puc 906 COMPLIANCE PATH FOR INVERTER UNITS

Puc 906.01 Inverter Requirements.

(a) A net energy metered project which connects to the electric grid by means of a single-phase or 3-phase inverter shall be deemed to be compliant with the technical specifications for the generation unit itself, as established by Puc 900, if the unit complies with the minimum requirements set forth in the following national standards:

(1) The "IEEE Standard 1547 (2003) for Interconnecting Distributed Power Resources with Electric Power Systems" issued by the Institute of Electrical and Electronic Engineers, Inc., New York, NY, 2003; and

(2) The "UL 1741, Standard for Inverters, Converters, Controllers with Interconnection System Equipment for Use with Distributed Generation Resources", issued by Underwriters Laboratories, Inc., of 333 Pfingsten Road, Northbrook, Illinois 60062, 2010.

(b) A net metered system shall be installed in accordance with the State Building Code, including the National Electrical Code, pursuant to RSA 155-A:1, IV as may be modified from time to time by the State Building Code Review Board pursuant to RSA 155-A:10, V.

PART Puc 907 COMPLIANCE PATH FOR GENERATION UNITS NOT USING AN INVERTER

Puc 907.01 Interconnection Requirements.

(a) Except as provided in (b) below, any net energy metered generation system which interfaces with the electric grid by means other than an inverter shall:

(1) Meet the following safety and service quality requirements:

a. The system shall not compromise the safety of the distribution utility personnel, the customer-generator or other customers on the electric grid;

b. The system shall have:

1. Adequate non-islanding protection;

2. Utility-grade protective devices to separate the facility from the electric distribution system, including:

(i) Time over-frequency protection;

- (ii) Time under-frequency protection;
 - (iii) Time over-voltage protection; and
 - (iv) Time under-voltage protection;
3. Protection devices at the primary voltage level for ground fault and ground current contribution;
 4. Adequate short circuit interrupting devices; and
 5. Reliable power sources for shunt-tripped short circuit interrupting “devices;”
- c. The generation facility shall not reduce the quality of service on the electric distribution system, including voltage fluctuations, excessive voltage and current harmonic content; and
 - d. Facilities greater than 35 kW shall certify that they are in compliance with IEEE Standard 1547 for harmonics;
- (2) Interface with the electric distribution system according to the following requirements:
 - a. The system shall synchronize with the primary voltage level on the distribution grid;
 - b. The transformer winding connection to be used at the primary voltage interconnecting point shall be adequate to coordinate with the distribution grid;
 - c. The generation facility shall synchronize with the electric grid; and
 - d. The generation facility shall correct the power factor, if necessary;
 - (3) Not impair the quality of service standards maintained by the electric distribution system;
 - (4) Provide other protections and devices necessary, consistent with the requirements of this section, to assure safety, quality of service, reliability and power quality of the electric distribution system; and
 - (5) As to relays, use utility grade relays.
- (b) A non-inverter based system shall be installed in accordance with the National Electrical Code, 2008, issued by the National Fire Protection Association, Quincy, Massachusetts.
 - (c) When seeking to interconnect with the distribution utility, the applicant shall provide the distribution utility the following:
 - (1) The interconnection application form required by Puc 904.02;
 - (2) Alternating current (AC) and direct current (DC) elementary and schematic diagrams describing the planned protection package; and

- (3) A one-line diagram of the net energy metering system showing how the system protection shall be wired.
- (d) The customer-generator shall provide for testing of the relays of the net energy metering system once the settings have been applied to confirm that they perform the intended function.
- (e) As to the testing of relays described in (d) above:
 - (1) The testing shall be conducted by a individual qualified for testing as described in Puc 905.04(e) and (f); and
 - (2) The customer-generator shall provide the distribution utility the opportunity to:
 - a. Be present at and observe the testing; or
 - b. Conduct the testing of the relays by a qualified utility representative.
- (f) If the customer-generator and the electric distribution utility cannot agree to the interconnection requirements, they shall file with the commission for review and determination.
- (g) In determining interconnection requirements for a non-inverter system, the commission shall consider safety, reliability and power quality in the context of the legislative intent of RSA 362-A:9.

PART Puc 908 PROCEDURAL REQUIREMENTS FOR INTERCONNECTED UNITS

Puc 908.01 Emergencies, Maintenance.

- (a) The customer-generator shall, during the period it operates as a customer-generator, provide the distribution utility a current telephone number(s).
- (b) The distribution utility shall make arrangements for routine utility repairs or inspections that might involve the net energy metered system during normal business hours.
- (c) The customer-generator shall not supply power to the electric distribution grid during any outages of the distribution system that serves the customer-generator.
- (d) The customer-generator's generating facility may be operated during outages referred to in (b) above only with an open tie to the distribution utility.
- (e) The customer-generator's generating facility shall not:
 - (1) Create an islanding situation on the grid; or
 - (2) Energize a de-energized utility circuit for any reason.

Puc 908.02 Procedures for Disconnection.

- (a) When an emergency condition, described in (b) below, exists and when it is necessary under the circumstances to do so, the distribution utility may disconnect the customer-generator's net energy metered system and electric service.

(b) An emergency condition shall have occurred when the interconnection represents a condition which:

- (1) Is likely to result in imminent significant disruption of service to the distribution utility's customers;
- (2) Is imminently likely to endanger life or property;
- (3) Constitutes emergency or pre-emergency conditions on the utility system;
- (4) Constitutes a hazardous condition; or
- (5) Reveals that a protective device tampering has occurred on the customer-generator's generation facility.

(c) The distribution utility may open the disconnect switch or disconnect the customer-generator's service, as applicable, after notice to the customer-generator has been delivered and a reasonable time to correct the condition, consistent with the conditions, has elapsed, if:

- (1) The customer-generator has failed to make available records of required verification tests and, in the case of a non-inverter interfaced system, maintenance of its protective devices;
- (2) The customer-generator's generation facility:
 - a. Impedes the normal use of distribution utility equipment or equipment belonging to other distribution utility customers in a negative manner; or
 - b. Impedes the normal quality of service of adjoining customers in a negative manner; or
- (3) Has been modified so that it is not in compliance with Puc 900.

(d) When the customer-generator has corrected the problem and restored the system to compliance with Puc 900 and notifies the distribution utility of such compliance, the utility shall:

- (1) Within 2 business days:
 - a. Provide written verification to the customer-generator of their compliance; or
 - b. Provide written notice to the customer-generator of the specifics of their continued non-compliance; and
- (2) When the system is in compliance, reconnect or allow re-connection as soon as possible under the circumstances.

(e) The customer-generator may reconnect to the electric grid in coordination with the distribution utility, upon receipt of verification as provided in (d) above if the customer-generator, upon distribution utility request or otherwise, disconnected itself from the grid.

(f) If the distribution utility disconnects the customer-generator's net metering system for one of the emergency conditions referred to in (a) above, it shall notify the customer-generator of the disconnection:

(1) Within 24 hours of the disconnection; or

(2) As soon as possible in circumstances where a widespread emergency or other significant extenuating circumstances preclude utility personnel contacting the customer-generator within the 24 hour period.

(g) If the emergency referred to in (a) above was not caused by the net metered system, then the distribution utility shall reconnect the system upon cessation of the emergency.

(h) Notwithstanding any special notification and re-connection requirements for customer-generators established by Puc 908, the distribution utility shall not be required to provide for special notification or re-connection for a customer-generator that differs from its usual and regular policies and protocol in a disconnection situation, if:

(1) The disconnection is not for reasons associated with the net metered system; and

(2) The distribution utility does not open the customer-generator's disconnect switch or pull the customer-generator's meter.

(i) If the emergency referred to in (a) above was caused by the net metered system, then the distribution utility shall communicate the nature of the problem to the customer-generator within 5 days, and attempt to resolve the issue with the customer-generator.

(j) Within 30 days of the disconnection referred to in (h) above, the distribution utility shall file a disconnection petition with the commission if the distribution utility and the customer-generator have not reached a mutually agreed-upon resolution.

(k) Non-emergency disconnections of the net metered system by a distribution utility shall follow the same process as emergency disconnections of such systems, except that the utility shall:

(1) Give the customer-generator no less than 5 working days' prior notice of the disconnection; and

(2) Communicate in the notice to the customer-generator the reasons for the disconnection.

(l) If the net metered system is not the reason for the disconnection, the distribution utility shall reconnect the system as soon as the activity, such as line maintenance, necessitating the disconnection, ceases.

(m) When a utility disconnects the metering system of a customer-generator, the customer-generator may file a complaint with the commission at any time after disconnection.

(n) If a disconnection complaint is filed with the commission, it shall hold a hearing on the matter within 30 days and rule on whether the net metering system has violated a condition necessary for it to operate.

(o) In any hearing as referred to in (m) above, the disconnecting utility shall carry the burden of proof.

(p) A customer-generator shall not re-close a disconnect device which has been opened and tagged by its distribution utility or attempt to re-install a pulled meter without the prior permission of the distribution utility, or in the event of a dispute, the commission.

(q) A customer-generator shall be allowed to disconnect the net energy metered generation from the distribution utility without prior notice in order to self-generate but shall notify the distribution utility as soon as practical following disconnection.

Puc 908.03 Distribution Utility Access to Net Metered System.

(a) The distribution utility may inspect the net energy metered system at its own expense at a time mutually agreeable to the customer-generator upon reasonable notice to the customer-generator.

(b) Except in emergency circumstances, the distribution utility shall provide not less than 5 business days notice to the customer-generator to enter the customer-generator's property to inspect the net metered system, install additional controls or meters or conduct additional tests.

(c) A customer-generator shall not withhold allowing access to the distribution utility to inspect the net metered system, install additional controls or meters or conduct additional tests.

Puc 908.04 Complaints and Investigations.

(a) The procedures set forth in Puc 200 shall be applicable to filing and resolution of any complaint and investigation arising out of Puc 900.

(b) Any party may file with the commission a complaint or request for resolution of a dispute relating to Puc 900.

Puc 908.05 Notifying Public of Net Energy Metering.

(a) When a customer initiates an inquiry and requests information on net energy metering, the distribution utility shall provide a copy of Puc 900 to the customer and the name and telephone number of a contact person(s) at the utility and a description of net energy metering.

(b) The distribution utility shall provide to each customer in a billing insert or a billing message in the customer bill stating a brief description of the availability of net energy metering of one paragraph or more in length.

(c) The distribution utility shall provide the information described in (b) above at annual intervals.

Puc 908.06 Violations of Authorization to Interconnect.

(a) After notice and an opportunity for a hearing, the commission shall revoke, suspend, or condition the authorization for a customer-generator to interconnect a net energy metered system, or take such other action consistent with the above that it deems provident if it finds good cause.

(b) Good cause, as referred to in (a) above shall exist if the commission finds one or more of the following:

(1) The customer-generator was granted authority to operate based on false or misleading information supplied by the applicant which:

a. Is material; and

- b. The applicant knew or should have known was false or misleading;
 - (2) The system was not installed or is not being operated substantially in accordance with the National Electrical Code or applicable interconnection requirements;
 - (3) The customer-generator has failed to comply with the conditions of approval to operate or representations made in their filing for approval to operate; or
 - (4) Other conditions, consistent with (1) through (3) above, exist which the commission finds, necessitates revocation, suspension or placing conditions on the authorization to interconnect.
- (c) In determining the consequences of its finding in (a) above, the commission shall consider the following:
 - (1) The severity of the consequences resulting from the violation such that the more severe the infraction, the more severe the consequence;
 - (2) Mitigating circumstances, such as how quickly the customer-generator took action to rectify the situation, how much control the customer-generator had over the situation, and other circumstance which would tend to lessen fault; and
 - (3) Prior violations of Puc 900.

Puc 908.07 Utilities shall Report Number and Size of Net Energy Metered Units.

- (a) Each distribution utility shall:

- (1) Track the number and size of net energy metered systems on their lines;
- (2) Report to the commission annually by April 1 of each year for the prior year, the following as regards net energy metered units:
 - a. The number of units operating;
 - b. The generation output rating of the units in kilowatts; and
 - c. The total capacity of units' generation output operating on the utility's distribution system relative to the limits identified in Puc 903.02(b) of annual peak energy demand limitation mandated by RSA 362-A:9,I; and
- (3) Notify the commission within 10 business days when the distribution utility has reached the limits identified in Puc 903.02(b) of its annual peak energy demand limit mandated by RSA 362-A:9,I.

Puc 908.08 Existing Systems Grandfathered.

- (a) Net energy metering systems that have been interconnected with the distribution utility with the knowledge of the distribution utility as of the initial effective date of Puc 900 shall:

- (1) Be deemed to be registered; and

(2) Not be required, due to the adoption of Puc 900, to:

a. Re-apply for interconnection pursuant to Puc 904; or

b. Upgrade to meet the applicable requirements for interconnection of Puc 905, the requirements for inverter units of Puc 906, or the requirements for non-inverters of Puc 907.

(b) The grandfathered systems referred to in (a) above shall comply with the procedural requirements for interconnected units contained in Puc 908.

(c) A customer-generator may repair his or her net energy metered system that is grandfathered under (a) above, such as by repairing relays in a non-inverter system, but if a customer-generator changes the inverter or adds to the generation output or otherwise upgrades or alters the system as provided in Puc 904.05, the customer-generator shall update the qualifications of the system as provided in Puc 904.05.

(d) The distribution utility or electricity supplier may request and the customer-generator shall provide, as to any system grandfathered under this section, the information required in connection with the interconnection application form set forth in Puc 904.02, and the customer-generator shall, without request, update such information as it may change.

(e) A generation system that has been interconnected with its distribution utility prior to the initial adoption of Puc 900 without the knowledge of the distribution utility shall not be grandfathered for purposes of this section.

Puc 908.09 Relationship to Other Commission Rules.

(a) Unless otherwise specified, Puc 900 shall not supersede any other rule of the commission but, supplement such rules.

Puc 908.10 Transferability.

(a) An customer-generator's certificate to operate a net metered system shall transfer to the new owner when the property with the net metered system is sold or otherwise conveyed, if the new owner provides the distribution utility in writing:

(1) Any changed information provided in connection with the interconnection application described in Puc 904.02; and

(2) An agreement to operate and maintain the net metering system according to Puc 900, RSA 362-A and other applicable requirements.

(b) The distribution utility shall not deny a new owner acquiring a currently duly registered net energy metering facility, which otherwise complies with the requirements of Puc 900, the right to register, as long as the new owner complies with (a) above.

(c) The new customer-generator owner, as described in (a) and (b) above, shall notify the distribution utility of the transfer and of the applicable information required by the interconnection application in Puc 904.02.

(d) Transfers of a net metered facility as described in the section shall not be construed as exiting from the system and Puc 903.02(1) shall not apply to any such transfer.

(e) If any change or upgrade in a system would otherwise require new approval pursuant to Puc 904.05, mere ownership transfer shall not relieve the customer-generator from the requirement.

APPENDIX

Rule(s)	State Statue (RSA)	Federal Statute	Federal Regulation
Puc 900 (other specific statute provisions implemented by specific rules are listed below)	RSA 362-A: 9,X		
Puc 901	RSA 362-A:1		
Puc 902.01	RSA 362-A:1-a		
Puc 902.05	RSA 374-F:2, II		
Puc 902.09	RSA 362-A:1-a, III-a		
Puc 903	RSA 362-A:9		
Puc 903.01(c)	RSA 362-A:9, III		
Puc 903.01(n)	RSA 362-A:9, XIII		
Puc 903.02(e)	RSA 374-F:7		
Puc 904.01 (a)(1)	RSA 362-A:9,I		
Puc 904.02	RSA 362-F:4, I (a) through (f), RSA 541-A:16,I(b)		
Puc 908.03	RSA 365:8,I		
Puc 908.05	RSA 541-A:30,II		
Puc 908.06	RSA 374:15		
Puc 908.07	RSA 362-A:9, I		