State of Utah

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Public Service Commission
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To: PURPA Work Group List, Docket File

From: Carol Revelt

Date: January 19, 2007

Re: Minutes of the January 10, 2007, Technical Conference on 2005 EPAct Amendments to PURPA – Net Metering - Docket 06-999-03

Attendees:

Rocky Mountain Power:	Dave Taylor, Bill Griffith, Doug Marx, Mike Reid
Cellnet	Ward Camp
ETC Group:	Patti Case
Itron	Dan Pfeiffer
Moon Lake	Ken Winter
Needham Hybrid Energy Homes:	Aaron Needham, Tom Cracroft
Salt Lake Community Action	Betsy Wolf
UAE:	Kelly Francone
Utah Clean Air Coalition:	Kathy VanDame
Utah Clean Energy:	Sara Wright, Sara Baldwin
UIEC:	Vicki Baldwin
Utah Rural Electric Association	Mike Peterson
Utah Solar Energy Association:	Greg Libecci
Utah State Energy Program:	Jason Berry
Division of Public Utilities:	Judith Johnson, Sam Liu, Connie White
Committee of Consumer Services:	Cheryl Murray
Public Service Commission:	Becky Wilson, Jim Logan Carol Revelt

On January 10, 2007, a technical conference was held in room 401 of the Heber Wells building with the purpose of discussing the Net Metering Standard included in the 2005 Energy Policy Act ("EPAct") amendments to the Public Utility Regulatory Policies Act ("PURPA"). During this conference an agenda and a draft recommendation for the Net Metering Standard were distributed, which are attached to this document. Copies of Rocky Mountain Power's ("RMP") Net Metering Schedule No. 135 and Utah Code § 54-15 – Net Metering of Electricity were also distributed. The following summarizes the items discussed during this technical conference.

I. Update on Status of Recommendations for Standards addressed in Prior Technical Conferences

Comments on the Division's working/shaping documents on interconnection and net metering have not yet been solicited. These documents will be distributed to the group with a comment submittal deadline of **February 7, 2007**.

The table below presents proposed dates to formally address the recommendations of the Division with respect to the five standards.

Standard Name	Division Submits Standard to Commission with Recommendation	Proposed Date for Submittal of Comments	Status
Time-Based Metering and Communications	Monday January 8, 2007	Wednesday January 24, 2007	In progress
Fuel Sources	Wednesday January 24, 2007	Wednesday February 14, 2007	Proposed
Interconnection	Friday February 23, 2007	Friday March 16, 2007	Proposed
Net Metering	Friday February 23, 2007	Friday March 16, 2007	Proposed
Fossil Fuel Generation Efficiency	Friday March 16, 2007	Friday April 6, 2007	Proposed

Follow-up

- Comments on the Division's shaping documents for Net Metering and Interconnection will be solicited.
- Concurrence with the scheduled dates in the above table will be solicited.

II. Review of Purposes of PURPA and Language in EPAct specific to the Interconnection Standard.

The Division indicated that the net metering standard appears both to encourage distributed generation and to support the first and third purposes of PURPA, namely conservation of energy supplied by electric utilities and equitable rates to electric customers. Others indicated that the purpose may be energy savings from line loss avoidance and wear and tear on the system – not individual conservation.

III. Net Metering Standard

Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term "net metering service" means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.

After reviewing the standard and the draft proposal, general discussion included the following:

Rocky Mountain Power Schedule 135/Technical Issues

- Schedule 135 follows state statute § 54-15 – Net Metering of Electricity. Tariff is applicable to fuel cells and renewable generating facilities (sun, wind, or water) of not more than 25kW and controlled by an inverter. Tariff does not apply to bio-gas.
- For RMP – the "cap" indicated in § 54-15-103(2)(a) approximately 3000 kW or .1% of the 2001 peak demand. Currently the capacity of net metering customers is 110kW.
- Current net metering statistics: 1) approximately 81-84 customers in Utah; 2) energy source distribution --- three solar-wind installations, one 25kW wind installation, and the remaining are small solar installations.
- The net metering meter runs backward when the customer is providing energy to RMP. In the event that the energy purchased from RMP is less than energy supplied to RMP, RMP credits the customer for its excess energy according to a specified formula. Any excess credits expire at the end of the year. Customers are fully using their credits during the year as no credits have expired.
- Accounting for net metering requires a fair amount of work as net metering billing has not been automated – reprogramming system for net metering billing would exceed the costs for the current method of billing.
- Digital electricity meters can run backwards if they have been programmed. Electromechanical meters will spin pointer backward.
- Cost of a solid state bi-directional meter is approximately $145 installed (approximately $100 for the meter, $40 for installation). One participant indicated that this cost sounds high and wondered if a request for proposal had been issued. Company indicated that the cost right now may be different as this is the cost for the customers who have already been put on net metering.
- There is no charge for interconnection or for the meter. The Utah net metering law requires an inverter to interconnect to the distribution system.
- The interconnection issue is very important as it affects the design of the system. RMP indicated that it has concerns where individual States are increasing the capacity limits for net metering as the net metering interconnection gives you a "pass" with respect to interconnection issues.

Regulatory History/Legislation

- Fuel cells were added to the net metering tariff because when the statute was being developed some people thought that fuel cell technology would be available at a cost of $3,000/kW. (A fuel cell is an electrochemical device that combines hydrogen and oxygen to produce electricity, with water and heat as its by-product.)
- The .1% cap, which was supported by the Committee of Consumer Services and others, was included in the Utah statute as a built in limit/protection and was meant to be re-evaluated in the future. Most states have caps – they are a check/optional "off ramp" for the program. A cap helps to ensure that subsidization issues are re-evaluated. The California and Washington RPS standards also have caps.
- Oregon legislation recently provided the Oregon Commission the authority to change net metering law to increase applicability to 2 MW. Several other states net metering tariffs exceed Utah's 25kW limit.

Barriers

- The net metering tariff is not available to systems which are not controlled by inverters, i.e. no credits can be received from installations not controlled by an inverter.
- The net metering tariff is not available to systems greater than 25 kW.
- One barrier is the economics. However, experience has shown that new homes can be designed as an integrated package for cost effectiveness by making use of incentives, tax credits, mortgage down payment, home design, etc.
- Is the net metering law a minimum? Can a company go above and beyond the law?
- State energy program officials often communicate with each other. One official indicated that the Public Service Company of New Mexico's small photovoltaic tariff offered a generous price per kWh with the goal of encouraging good participation. Participation rates, however, did not reach the levels hoped for in spite of the price offered. Consensus was that upfront costs were the prohibiting factor – i.e., $10k for a 1kW photovoltaic system.

Limitations/Questions

- What does "participating" mean in § 54-15-103(2)(a)?
- What will happen when the Company reaches the .1% participation limit? Several indicated at that point the Company is no longer required to offer the net metering program but is also not prohibited from offering it.
- What would happen if a customer had a net metering agreement in place and sold their property at the time the cap had been exceeded? Would the new agreement between the power company and the new customer be "grandfathered" in?
- What factors affect participation rates? Is it economics? Is it knowledge? Is more education necessary about renewable energy credits, tax incentives, etc.?
- One participant indicated that they are trying to educate the public, not the building community. In order to find the competitive edge one has to look to all energy efficiency programs and package incentives and tax credits with financing and down payment, etc. The U.S. Department of Energy's Shea Home Study will be circulated.
- One builder is looking to build 500 energy efficient homes in Utah – not all in RMP's service territory. There may be several planned urban developments (PUDs) in RMP's service territory with 1 MW of capacity. This would be 1/3rd of RMP's cap. What happens when so many installations in one area? Do interconnection issues come into play?
- The issue of time-of-use ("TOU") rates coupled with net metering was discussed. The technology is available to perform both with the same meter. The dual functionality may or may not increase the cost of the meter much. Idaho's time-of-use rate is widely used -- it is based on the BPA credit which makes off-peak rates quite low. No one at the conference indicated that they were on time-of-use rates. Some indicated that small users receive zero benefits. Some had difficulty understanding the tariff in order to evaluate it.
- Can net metering and TOU programs help reduce system peak usage? This should be investigated.
- PacifiCorp/RMP invests millions per year in DSM programs. They are concerned about artificial stimulants beyond what economics would support as economics can change in the future.

PURPA Issues

- In the working draft the Division recommends the Commission find that the existing net metering statute and the PURPA standard are equivalent. The Division also recommends an investigation into why the net metering tariff has low participation in Utah.
- The consensus was that the law and the standard are equivalent.

IV. Future Actions

Please see the table in Section 1 regarding a tentative schedule of actions for this docket.

Agenda

PURPA Net Metering Standard Technical Conference

January 10, 2006
1:30 p.m. in Room 401 of Heber M. Wells Building

I. Update on status of recommendations for Standards addressed in prior technical conferences
   a. Schedule for comments on Interconnection
   b. Schedule for comments on Net Metering

II. Purpose of PURPA Net Metering Standard

III. PacifiCorp's summary of existing net metering schedules/procedures, and response to the discussion items identified below as applicable to the PURPA Net Metering Standard.

IV. The Division of Public Utilities' response to the discussion items listed below as applicable to the PURPA Net Metering Standard

V. Other parties responses to the PURPA discussion items listed below as applicable to the PURPA Net Metering

VI. General Discussion/Barriers

VII. Schedule for Division's Recommendations to the Commission on the various PURPA Standards and responsive comments.

   a. Time-Based metering and Communication
   b. Fossil Fuel Generation Efficiency
   c. Fuel Diversity
   d. Net Metering
   e. Interconnection

Discussion Items Identified during the October 6, 2006 Work Group Meeting

a. The purpose of the standard.
b. Address whether any current standards in place in Utah are equivalent/comparable
c. Prior state actions and their effectiveness
d. Recommendation regarding adoption of the standard
e. Criteria and measurements to determine utility adherence to the standard
f. Identify issues to be addressed in the Energy Efficiency Docket.
g. Other considerations specific to the standard

<u>PURPA Net Metering Standard</u> Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term "net metering service" means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.

PURPA
NET METERING STANDARD
RECOMMENDATONS
Working Document
January 9, 2007

PURPA Net Metering Standard:

Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term "net metering service" means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.

Q. PURPOSE OF THE STANDARD?

A. The PURPA metering standard seems to most directly address the first and third stated purposes of PURPA; the conservation of energy supplied by electric utilities and to provide equitable rates for electric consumers. The standard seems to primarily be interested in encouraging distributed generation. The effective use of net metering will not encourage using less electricity but less generation will be required of the utilities.

Q. CURRENT STANDARDS IN PLACE IN UTAH THAT ARE EQUIVALENT?

A. Utah Code Title 54-15, "Net Metering of Electricity", enacted in 2002, deals with, as one would expect, net metering of electricity. We believe that the Utah law is equivalent to the PURPA proposed standard in that it addresses the same services and issues that are in the PURPA standard. We have attached all of 54-15 as Attachment A.

The following chart compares the proposed standard with excerpts from the Utah net metering law.

Utah Code Title 54-15 and PURPA Standard Comparison

TITLE 54-15	PURPA STANDARD
Each electrical corporation shall: (a) except as provided in Subsection (2), make a net metering program available to the electrical corporation's customers	Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves.
(9) "Net metering program" means a program administered by a electrical corporation whereby a customer with a customer generation system may: (a) generate electricity primarily for the customer's own use; (b) supply customer generated electricity to the electrical corporation; and	For purposes of this paragraph, the term "net metering service" means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and
(c) if net metering results in excess customer generated electricity during a billing period, receive a credit against the cost of electricity (and) (8) "Net metering" means measuring for the applicable billing period the difference between: (a) the amount of electricity that an electrical corporation supplies to a customer participating in a net metering program; and (b) the amount of customer generated electricity.	delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer
(a) (i) the electrical corporation shall credit the customer for the excess customer generated electricity at a value that is at least avoided cost; (ii) the customer may use the credit under Subsection (3)(a)(i) to offset purchases of electricity from the electrical corporation during future billing periods during the same calendar year; and (iii) all credits that the customer does not use during the calendar year expire at the end of the calendar year;	during the applicable billing period.

Q. RECOMMENDATION REGARDING ADOPTION OF THE STANDARD.

A. We recommend that the Utah Public Service Commission find that Utah Code, Title 54-15 is equivalent and satisfies the "grandfathered" provision of the PURPA law regarding consideration of the standards. Therefore, Utah meets the obligation to consider the Net Metering Standard and no further consideration is needed.

We also recommend that the current Rocky Mountain Power Net Metering program be considered in an investigation of smart metering and interconnection to see if improvements might be made. Currently, participation is relatively low and questions remain about the effectiveness of the program.

Analysis

According to "Reference Manual and Procedures for Implementation of the "PURPA Standards" in the Energy Policy Act of 2005", on page 10,

"Prior state actions are grandfathered if (1) the state implemented the standard or comparable standard, (2) the state commission or utility has conducted a proceeding considering implementation of the standard or comparable standard, or (3) the state's legislature voted on implementation of the standard or comparable standard (section 1251(b)(3)(A) of EPAct and section 112(d) of PURPA). If these conditions are met with respect to standard, the obligation to consider the standard is waived and no new consideration process is required."

Our analysis indicates that the Utah law is equivalent in both language and intent. The law also sets out the details associated with net metering that go beyond the PURPA net metering standard, but that are consistent with the standard.

In reading the literature about implementing net metering, the questions that need to be answered about net metering were mostly asked and addressed during the passage of 54-15. Questions of rate equity (what price to pay for excess energy), total participation levels, eligibility, interconnection safety, costs, types of generation allowed (only renewable?), are addressed in the Utah law.

Some questions about implementation of net metering remain, such as pricing and barriers to participation in the program. These questions have led to the recommendation to address net metering as part of any smart metering and/or interconnection investigation. For example, net metering combined with smart meters could pay higher prices during times when generation costs are higher and there is greater strain on the distribution system; and less when prices are low. Doing so would make the programs more cost based, provide better price signals to those participating, and encourage those technologies (such as solar power) that could be extremely valuable in managing peak growth rates in Utah. Investigation would also reveal if other barriers to using the program exist.

Attachment A

54-15-101. Title.

This chapter is known as "Net Metering of Electricity."

54-15-102. Definitions.

As used in this chapter:

(1) "Customer-generated electricity" means electricity that:

(a) is generated by a customer participating in a net metering program from a customer generation system;

(b) exceeds the electricity the customer needs for the customer's own use; and

(c) is supplied to the electrical corporation administering the net metering program.

(2) "Customer generation system" means a fuel cell or renewable facility that:

(a) has a generating capacity of not more than 25 kilowatts;

(b) is located on the premises of the electrical corporation's customer;

(c) operates in parallel and is interconnected with the electrical corporation's transmission and distribution facilities;

(d) is intended primarily to offset part or all of the customer's requirements for electricity; and

(e) is controlled by an inverter.

(3) "Excess customer-generated electricity" means the amount of customer-generated electricity during a billing period that exceeds the amount of electricity that an electrical corporation supplies to the customer during that billing period.

(4) "Fuel cell" means a device in which the energy of a reaction between a fuel and an oxidant is converted directly and continuously into electrical energy.

(5) "Governing authority" means:

(a) for a distribution electrical cooperative, its board of directors; and

(b) for each other electrical corporation, the commission.

(6) "Inverter" means a device that:

(a) converts direct current power into alternating current power that is compatible with power generated by an electrical corporation; and

(b) has been designed, tested, and UL certified to UL1741 and IEEE929 standards.

(7) "Net electricity" means the difference between:

(a) the amount of electricity that an electrical corporation supplies to a customer participating in a net metering program; and

(b) the amount of customer-generated electricity.

(8) "Net metering" means measuring for the applicable billing period the difference between:

(a) the amount of electricity that an electrical corporation supplies to a customer participating in a net metering program; and

(b) the amount of customer-generated electricity.

(9) "Net metering program" means a program administered by a electrical corporation whereby a customer with a customer generation system may:

(a) generate electricity primarily for the customer's own use;

(b) supply customer-generated electricity to the electrical corporation; and

(c) if net metering results in excess customer-generated electricity during a billing period, receive a credit against the cost of electricity supplied by the electrical corporation to the customer within the same calendar year.

(10) "Renewable facility" means a facility that uses energy derived from the sun, wind, or water to generate electricity

54-15-103. Net metering program -- Metering equipment -- Interconnection agreement.

(1) Each electrical corporation shall:

(a) except as provided in Subsection (2), make a net metering program available to the electrical corporation's customers; and

(b) allow customer generation systems to be interconnected to the electrical corporation's facilities using, except as provided in Subsection (3), a standard kilowatt-hour meter capable of net metering.

(2) An electrical corporation may discontinue making a net metering program available to customers not already participating in the program as long as:

(a) the cumulative generating capacity of customer generation systems in the program equals at least .1% of the electrical corporation's peak demand during 2001; and

(b) at least half of the electricity representing the .1% figure in Subsection (2)(a) is generated by renewable facilities.

(3) (a) Notwithstanding Subsection (1)(b), an electrical corporation may require a customer participating in the electrical corporation's net metering program to use metering equipment other than a standard kilowatt-hour meter if the commission, after appropriate notice and opportunity for comment:

(i) determines that the use of other metering equipment is necessary and appropriate to monitor the flow of electricity from and to the electrical corporation; and

(ii) approves the requirement for other metering equipment, after considering the benefits and costs associated with the other metering equipment.

(b) If the commission approves the requirement for other metering equipment under Subsection (3)(a), the governing authority shall determine how the cost of purchasing and installing the other metering equipment is to be allocated between the electrical corporation and the customer.

(4) An electrical corporation may require a customer to enter into an interconnection agreement before connecting the customer generation system to the electrical corporation's facilities.

54-15-104. Charges or credits for net electricity.

(1) Each electrical corporation with a customer participating in a net metering program shall measure net electricity during each billing period, in accordance with normal metering practices.

(2) If net metering does not result in excess customer-generated electricity during the billing period, the electrical corporation shall bill the customer for the net electricity, in accordance with normal billing practices.

(3) If net metering results in excess customer-generated electricity during the billing period:

(a) (i) the electrical corporation shall credit the customer for the excess customer-generated electricity at a value that is at least avoided cost;

(ii) the customer may use the credit under Subsection (3)(a)(i) to offset purchases of electricity from the electrical corporation during future billing periods during the same calendar year; and

(iii) all credits that the customer does not use during the calendar year expire at the end of the calendar year; and

(b) the electrical corporation may bill the customer for customer charges that otherwise would have accrued during that billing period in the absence of excess customer-generated electricity.

54-15-105. No additional fee or charge without commission approval -- Exception.

(1) An electrical corporation administering a net metering program may not charge a customer participating in the program an additional standby, capacity, interconnection, or other fee or charge unless the governing authority, after appropriate notice and opportunity for comment:

(a) determines that:

(i) the electrical corporation will incur direct costs from the interconnection or from administering the net metering program that exceed benefits, as determined by the governing authority, resulting from the program; and

(ii) public policy is best served by imposing the fee or charge on the customer participating in the net metering program rather than by allocating the fee or charge among the electrical corporation's entire customer base; and

(b) after making its determination under Subsection (1)(a), authorizes the additional fee or charge.

(2) If a cost of a net metering program is allocated among the electrical corporation's entire customer base, Subsection (1) may not be construed to prohibit an electrical corporation from charging a customer participating in the net metering program for that cost to the same extent that the electrical corporation charges a customer not participating in the program for that cost.

54-15-106. Customer to provide equipment necessary to meet applicable code requirements -- Commission may adopt additional requirements -- Testing and inspection of interconnection.

(1) Each customer participating in a net metering program shall provide at the customer's expense all equipment necessary to meet applicable local and national standards regarding electrical and fire safety, power quality, and interconnection requirements established by the National Electrical Code, the National Electrical Safety Code, the Institute of Electrical and Electronics Engineers, and Underwriters Laboratories.

(2) After appropriate notice and opportunity for comment, the commission may by rule adopt additional safety, power quality, and interconnection requirements for customer generation systems that the commission considers to be necessary to protect public safety and system reliability.

(3) (a) If a customer participating in a net metering program complies with requirements referred to under Subsection (1) and additional requirements established under Subsection (2), an electrical corporation may not require that customer to:

(i) perform or pay for additional tests; or

(ii) purchase additional liability insurance.

(b) An electrical corporation may not be held directly or indirectly liable for permitting or continuing to permit an interconnection of a customer generation system to the electrical corporation's system or for an act or omission of a customer participating in a net metering program for loss, injury, or death to a third party.

(4) An electrical corporation may test and inspect an interconnection at times that the electrical corporation considers necessary to ensure the safety of electrical workers and to preserve the integrity of the electric power grid.