BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Approval of Rocky Mountain Power's Tariff P.S.C.U. No. 47, Re: Schedule 107 – Solar Incentive Program	DOCKET NO. 07-035-T14 REQUEST FOR COMMENTS

Comments of Utah Clean Energy
Submitted May 3, 2010

A. Background

On March 15, 2010, Rocky Mountain Power (the "Company") submitted their 3rd annual report on their Schedule 107-Solar Incentive Program for the 2009 program year. On April 20, 2010, the Public Service Commission of Utah ("the Commission") issued a Request for Comments on the Report. Utah Clean Energy submits the following comments on the solar incentive program and the annual report for the Commission's consideration.

Utah Clean Energy ("UCE") is a 501(c) (3) non-profit public interest organization working to advance energy efficiency and renewable energy in Utah. We have been engaged in the Solar Incentive Pilot Program Docket since its inception, providing input and tracking its progress over the last three years. We appreciate all the work that has gone into developing and implementing this pilot program for Rocky Mountain Power. In our comments below, we outline some questions, concerns, and recommendations regarding the 2009 Annual Report and the Program.

B. Utah Clean Energy Comments

1. Request for Comprehensive Three Year Review and Analysis of Program

Rocky Mountain Power's Solar Incentive Pilot Program was approved August 2007, following an Order from the Commission approving the tariff with certain conditions.[1] In their Order, the Commission addressed a concern raised by SunEdison LLC regarding the small size of the program and the effectiveness of evaluating the program for any changes or possible expansion of at the conclusion of the five-year period: "[The Commission] concur[s] five years is a long time before assessing the Program's value for the purpose of considering any possible modifications to the Program. Therefore we order the Company to provide a report within three years assessing whether changes are warranted in any element of the Program, including the caps."[2] The Commission also confirmed that "The Company is required to obtain Commission approval to change the terms and conditions of any Schedule."[3]

[1] Docket 07-035-T14 – In the Matter of the Approval of Rocky Mountain Power's Tariff P.S.C.U. No. 47, Re: Schedule 107 - Solar Incentive Program. Public Service Commission Order Approving Tariff with Certain Conditions. August 3, 2007. URL: http://www.psc.utah.gov/utilities/electric/elecindx/2006-2009/07035T14indx.html
[2] Ibid. Page 8.
[3] Ibid. Page 8.

Given that the program is about to conclude its third full year of operation since its approval, Utah Clean Energy respectfully requests that the Commission open an investigative docket (or other appropriate proceeding, as determined by the Commission) to initiate a comprehensive review process, open to any interested parties, to examine the effectiveness of this program and evaluate it for possible changes and/or expansion. That said, we provide some additional comments and recommendations in Sections 2a – 2e that we hope the Company and Commission will take into consideration as part of the review process.

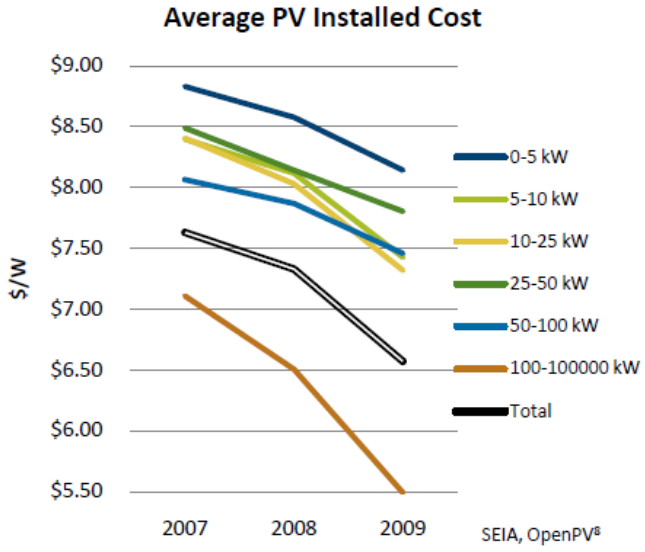
2. Comments on 2009 Annual Report

a. Solar Costs

Utah Clean Energy has some concerns with the some of the solar cost figures included in the 2009 Annual Report.

First, the average system cost of $9.69/Watt (ac) and several of the installation costs noted in the report (e.g. $27.90/watt, $19.47/watt, $18.66/watt, $15.48/watt, $13.30/watt) are notably higher than current average installation costs in Utah and other states. According to the Utah Solar Energy Association, the average installed cost for residential grid-tied solar PV systems for the latter part of 2009 and early 2010 was $7-9/watt.[4] Additionally, according to the Solar Energy Industries Association 2009 Year in Review, the average installed cost for solar PV fell roughly 10 percent from 2008 to 2009 in the U.S (see Figure 1).[5] SolarBuzz LLC show installed costs for solar PV at $8.39/Watt for residential, $6.24/Watt for commercial, and $4.55/Watt for systems over 500 kW.[6]

Figure 1. Average PV Installed Costs, SEIA 2009 Year in Review



[4] Communications with Levi Belnap, Executive Director, Utah Solar Energy Association. 3 May 2010.
[5] Solar Energy Industries Associaiton (SEIA). US Solar Industry Year in Review 2009. April 15, 2009. Pg, 6. URL: http://seia.org/galleries/default-file/2009%20Solar%20Industry%20Year%20in%20Review.pdf (figure taken from same source)
[6] Solarbuzz LLC, Solar Electricity Benchmark Price Indices, April 2010. http://www.solarbuzz.com/SolarIndices.htm.

As indicated by Figure 1 and several solar industry metrics, the cost of solar PV panels has declined significantly over the last year few years due to a number of factors, including major price declines for PV modules (prices have fallen to $1.85-$2.25 per watt from $3.50-$4.00 per watt in mid-2008, a drop of over 40 percent), new innovations in the installation process, increasing economies of scale and innovative equipment increasing energy yields.[7] As such, it should be noted that the lowest cost of $3.23/W (ac) is actually a reasonable cost for larger scale installations in 2010 (not necessarily an exception, as suggested in the report). Alternatively, the $27.90/W(ac) cost is remarkably high compared to any other costs across the country – even for a tracking system with battery backup.[8]

Secondly, on *Table 5. 2009 Program Residential Participants*, it appears that the Total System Size correlates almost exactly to the system size eligible for the incentive. In only one case did the eligible system size differ significantly from the total system kW, and in that case it is unclear why the system would not be eligible for the maximum 3 kW incentive (Project ID 9010532, pg. 17). Given the extremely high costs per watt and the total system costs for several systems, we are concerned that there may be a mistake in the reporting. Utah Clean Energy respectfully requests that the Company, if possible, verifies both the total system size and the size of the system that received the rebate (eligible system size) for each project ID where the $/watt costs were greater than $10/watt. If these high costs are indeed reflective of actual installed costs, we would suggest that a review of the program also explore possible means to discourage unreasonably high installation costs.

Lastly, there is a typo on *Table 6. 2009 Program Residential – Partial Participants*: the 'Estimated kW' column should be re-labeled to 'Estimated Watts' or the system sizes should be converted to kilowatts.

b. Administrative Costs and Burdens

Utah Clean Energy understands that due to the very small size of this program, administrative costs are extremely high compared to the total program costs; this likely negatively impacts on the overall cost-effectiveness of the pilot program. In *Table 1. 2009 Program Installed Capacity and Expenditures* (pg. 5) total administrative costs of the program equal approximately 30% of the total program costs. Other utility solar incentive programs across the country explicitly cap administrative costs at 5-10 percent of the total program costs; for example, the Colorado Solar Incentive Program caps administrative costs at 10 percent.[9]

In addition, the 2009 and 2008 annual reports indicate that the program is consistently unable to fulfill annual allocations in the prescribed time frames, posing challenges to program administration, as noted: "Annual program allocations pose an on-going administrative burden

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[7] Solar Energy Industries Associaiton (SEIA). US Solar Industry Year in Review 2009. April 15, 2009. Pg, 6. URL: http://seia.org/galleries/default-file/2009%20Solar%20Industry%20Year%20in%20Review.pdf

[8] The State Renewable Energy Tax Credit defines eligible system costs for an off-grid system with battery back-up as $13/watt;[8] Utah Administrative Code, Rule R638-2. Renewable Energy Systems Tax Credits. R638-2-7. Investment Tax Credit, Eligible Costs for Commercial and Residential Systems, Solar PV (Photovoltaic). URL: www.rules.utah.gov/publicat/code/r638/r638-002.htm#T7

[9] Matthew Baker, Commissioner, Colorado Public Utilities Commission. Presentation: *Colorado's Renewable Portfolio Standard, Making it a Success.* EUCI RPS Planning & Implementation Conference. San Francisco, CA. 15 August 2008. Slide 7.

related to communications, chronological processing requirements, etc." and "lead times on waiting list projects and timing of canceled projects both post challenges to fully allocating annual program incentives."[10] It is likely that a more expanded program, redesigned to be administratively straightforward and efficient, would benefit from economies of scale and would lower the administrative costs and burdens. Going forward, Utah Clean Energy recommends exploring ways to address (and remedy) some of these comparatively higher administrative costs and inefficiencies.

c. Economies of Scale

Utah Clean Energy supports the Company's stated program goals to provide an assessment of the costs and benefits of solar PV in Utah; however, we are concerned that, due to the lack of economies of scale of this small program and subsequent high administrative costs, it may be difficult to adequately assess the program's effectiveness and potential for expansion. The 2009 report reflects inordinately high solar installation costs, high administrative costs, and operational inefficiencies that may likely be symptomatic of such a small scale program. These programmatic limitations are not necessarily reflective of the viability and cost decline potential of a solar program of larger scale. Other more robust utility and state incentive programs have proven to attract more interest in the solar program from low cost solar providers, which helps drive down costs.[11] Additionally, a small solar program does not encourage larger solar companies to invest in Utah, which means distribution channels are located out of state, leading to further inefficiencies and higher product costs. A small program will always incur higher costs for solar installations and may become a self-fulfilling prophecy for those whose major concern with solar is the high cost. As such, while we support the goals of the pilot program, we are not convinced that all data and information collected from this pilot will be an adequate litmus test to determine the full costs and benefits of a more robust program with a different more efficient design, higher caps, and revised administrative components. As such, we respectfully request that the Commission consider ways in which to adequately evaluate the full costs and benefits of solar PV as part of any investigation of the program. It is also worth noting that several studies on the costs and benefits of distributed solar PV have been conducted for numerous states and utilities, and we encourage all parties to review and consider these resources going forward. A list of these studies is provided in Appendix A of these comments.

d. Program Cost Analyses

Utah Clean Energy would appreciate some additional details regarding the assumptions and calculations used to calculate the following figures provided in *Table 3. Levelized Cost of Energy* (page 12) and *Table 4. Results for Standard Economic Tests* (page 13):

- Table 3
    - Levelized Total Cost
    - Levelized Utility Cost
    - 2008 IRP 49% Load Facto Decrement Levelized Cost
- Table 4
    - Costs and Benefits for all tests

[10] Rocky Mountain Power. Utah Solar Incentive Program 2009 Annual Report. Page 8.

[11] Communication with Chris Cook, Managing Director of SunWorks and Board of Directors of Interstate Renewable Energy Council. 26 April 2010.

- Levelized Costs for all tests
- Lifecycle Revenue Impacts

In the 2008 Annual Report, the Levelized Utility Cost were $118.48/MWh[12] (which, at the time, were comparable to the levelized costs of natural gas plants identified in the Company's 2008 IRP); however, these costs jumped significantly up $142.89/MWh in the 2009 Report.

We acknowledge that two factors likely contributing to the increase to the utility levelized costs are the relatively high administrative costs and the added expense for the $1,800 generation meters (the total cost for meters in 2008 was $3,000 – this reflects net metering costs - while the cost for meters in 2009 was $15,948 – this includes net metering and generation meter costs). Arguably, the metering costs are a one-time expenditure intended for the purpose of data acquisition and should not be used to calculate the total cost of the program for the purposes of determining any sort of program cost-effectiveness. We would request that three additional cost-effectiveness analyses be performed:

- Levelized Utility Cost without the generation meters
- Levelized Utility Cost with a 5 percent administrative cost cap
- Levelized Utility Cost with a 10 percent administrative cost cap

Additionally, the Company notes that net meter costs are factored into their utility administrative costs for this program; however, net metering is an entirely separate rate schedule and tariff, and it isn't entirely clear why these costs would be reflected in this analysis given they are considered by the Company and Commission separately from this Program.

Utah Clean Energy respectfully requests more transparency and details for any and all calculations pertaining to cost and cost-effectiveness of the program, provided by the utility, for this and future reports, along with an open forum to explore these cost assumptions, with ample opportunity for public input and involvement.

And, we again reiterate that this pilot program may not have the economies of scale needed to adequately assess the costs and benefits of solar PV in Utah. We caution the Commission and other stakeholders from using the findings from these annual reports to determine the effectiveness of this program, without consideration of additional factors, including other utility programs, economies of scale, more reasonable administrative costs, a more comprehensive and transparent data analysis, and the numerous solar PV and distributed generation studies that have been conducted for other states and utilities.[13]

e. Methodology to Acquire Program Data

Utah Clean Energy recognizes the need to gather data as part of the program goals and the difficulties the Company and the Program Administrator have had in attaining attestation certificates. As such, we are supportive of the Company's efforts to explore alternative means to obtain reliable system data with more granularities. However, the cost of $1,800 per generation meter (with a $98 telecommunication charge) seems relatively high and has a significant impact

[12] Rocky Mountain Power Utah Solar Incentive Program, 2008 Annual Report. Pg. 9.
[13] See Appendix A.

on the total administrative costs for the program. Utah Clean Energy would like to know if any other options were considered as possible means to acquire the needed data (i.e. for example, many customers have voluntarily chosen to install monitoring software on their system (e.g. Fat Spaniel), accessible via the internet. Could the Company work with those customers to gather data from those available sources?)

Additionally, we are not supportive of requiring all subsequent customers in 2010 to install and pay for generation meter sockets (pg. 10 of the report), as this is an additional and unnecessary cost that, if required, should be borne by the Company because they have elected to evaluate the program in this manner. We recommend that the design of any monitoring and data analysis program for 2010 and going forward be open to stakeholder review and input. We also recommend that any monitoring and data analysis apply to a broad cross-section of customers, including (as applicable): residential (homes < 1500 sq. ft. and homes > 1,500 sq. ft), commercial and industrial customers with varying operating hours, customers with central A/C, customers with evaporative cooling or no cooling, and (where information is available) higher efficiency and lower efficiency homes/businesses. The level of efficiency and demand profile of the customer will have a significant impact on the data and the level to which the solar coincides with that customer's peak demand. These varying factors should be considered in any data analysis. Given the higher costs of the generation meters, we recommend that a comprehensive review of the program should evaluate and make recommendations regarding the need and applicability and cost-effectiveness and usefulness of any data collection data analysis going forward.

With respect to *Figure 1. Utah Peak Day Generation and Load Profile (July 23, 2009)*, it is unclear whether the power demand line represents a residential, commercial, or industrial demand or total system wide demand. Additionally, the y-axis is difficult to interpret. Utah Clean Energy requests that this graph be revised for clarification.

3. Conclusion

Thank you for the opportunity to provide comments on the 2009 Annual Report and the Solar Incentive Program. We welcome any response to these comments and look forward to working with all interested parties on the next steps for this pilot program. Please contact me with any questions regarding these comments.

Sincerely,

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Appendix A
Solar Photovoltaic and Distributed Generation Value Analyses

- **Photovoltaics Value Analysis**. J.L. Contreras, L. Frantzis, S. Blazewicz, D. Pinault, and H. Sawyer, Navigant Consulting Inc. February 2008. Burlington, Massachusetts. URL: http://www.nrel.gov/docs/fy08osti/42303.pdf

- **The Potential Benefits of Distributed Generation and Rate-Related Issues that May Impede Their Expansion.** Department of Energy. February 2007. URL: www.ferc.gov/legal/fed-sta/exp-study.pdf

- **Beck, R.W., Distributed Renewable Energy Operating Impacts and Valuation Study.** prepared for Arizona Public Service, January 2009, URL: http://solarfuturearizona.com/

- **Perez, R. Papers on PV Load Matching and Economic Evaluation, URL:** http://www.asrc.cestm.albany.edu/perez/directory/LoadMatch.html.

- **The Value of Distributed Photovoltaics to Austin Energy and the City of Austin**. Study to Determine Value of Solar Electric Generation to Austin Energy. T. Hoff, R. Perez, G. Braun, M. Kuhn, B. Norris, ***Clean Power Research, L.L.C.*** March 2006. URL: http://www.austinenergy.com/about%20us/newsroom/reports/PV-ValueReport.pdf

- **Photovoltaic Capacity Valuations.** T. Hoff, R. Perez, JP. Ross, M. Taylor. Solar Electric Power Association. May 2008. URL: http://www.solarelectricpower.org/docs/PV%20CAPACITY%20REPORT.pdf