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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**
In the Matter of an Investigation into Extending and Expanding the Solar Incentive Program and Possible Development of an Ongoing Program	**DOCKET NO. 11-035-104**

Utah Clean Energy Response to the Division of Public Utility's Solar Incentive Program Report, Including Program Review, and Recommendations

Utah Clean Energy (UCE) appreciates the opportunity to submit response comments to the Division of Public Utility's (Division) Report on the Solar Incentive Program Workgroup, including its Program Review and Recommendations.

BACKGROUND

In 2007, the Commission approved a tariff implementing a five-year Pilot Solar Incentive Program providing financial support for customers who purchase and install solar photovoltaic systems. In approving the original five-year tariff, the Commission recognized that a distributed solar program may be viewed differently than a traditional DSM program in terms of costs and benefits and so directed the Company, the Division, and the DSM Advisory Group to determine appropriate cost-effectiveness criteria and guidelines for a distributed solar program.[1]

[1] Docket No. 07-035-T14, In the Matter of the Solar Incentive Program, Order issued August 3, 2007, page 7.

Pursuant to this direction to investigate appropriate cost-effectiveness criteria and guidelines for a distributed solar program, the DSM Advisory Group included in its Docket No. 09-035-27 Report[2] a recommendation that, "Absent more appropriate economic tests, small-scale renewable resources may be evaluated on the same basis as energy efficiency and load management."[3] The Commission concurred with this recommendation. In this same Docket, the Commission approved the utility cost test as the threshold test for DSM program approval.[4]

On July7, 2011, the Commission issued an Order on the 2010 Annual Report of the Solar Incentive Program and a Notice of Agency Action. The Commission opened an investigative docket and directed the Division to "organize and lead a Workgroup to investigate extending and expanding the Program and, if appropriate, develop an ongoing program designed to be cost-effective."[5]

Pursuant to this Order, the Division commenced a Workgroup process. The Division hosted the first meeting on September 8th to discuss the scope and purpose of the Workgroup and to establish the process for filing the Workgroup Report. Specifically, the Division explained that if there was consensus among Workgroup participants, the Division would file the joint recommendation to the Commission, while if there was no consensus, the Division would prepare a memorandum to the Commission to outline the issues discussed.[6]

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[2] Docket No. 09-035-27, In the matter of the Proposed Revisions to the Utah Demand Side Resource Program Performance Standards, DSM Advisory Group Report, filed April 27, 2009. *See also* Docket No. 09-035-27 Report and Order issued October 7, 2009 (hereinafter *09-035-27 Order)*, pages 3, 10-11.
[3] *09-035-27 Order*, page 4.
[4] *09-035-27 Order*, pages 10-11.
[5] Docket No. 07-035-T14, In the Matter of the Solar Incentive Program, Order on the 2010 Annual Report of the Solar Incentive Program and Notice of Agency Action, issued July 7, 2011, pages 5-6.
[6] Docket No. 11-035-104, In the Matter of the Investigation into Extending and Expanding the Solar Incentive Program and Possible Development of an Ongoing Program, Division Solar Incentive Program Review and Recommendation, filed November 8, 2011 (hereinafter *11-035-104 Division Report*), Exhibits B and C: Agendas for September 8 and September 27 Solar Incentive Program Workgroup meetings.

The Workgroup met on September 8, September 16, and September 27, 2011. Participants, in addition to the Company, the Division, and the Office, included Utah Clean Energy, the Utah Association of Energy Users, local government representatives, commercial and residential builders, financial institutions, distributed solar developers and installers, individuals, and public interest organizations.

During the September 8th meeting, parties agreed to create a "Cost-Effectiveness Sub-group" to evaluate the cost-effectiveness of the current program and possible other program designs. The subgroup, consisting of the Company, the Division, the Office, the Utah Association of Energy Users (UAE), and Utah Clean Energy met on September 16th, 2011 to discuss what cost-effectiveness information would be of use for this Workgroup. Pursuant to this meeting, the Company conducted six different cost-effectiveness tests for different program incentive levels, administrative costs, and panel orientations. The Company decided to model a one MW program for these cost-effectiveness analyses because one is an easily scalable number; cost-benefit results will remain the same regardless of program size. The results of this cost-effectiveness modeling were presented to the entire Workgroup at a September 27, 2011 meeting.

Utah Clean Energy has included these results as *Exhibit B* to these comments. A summary of the results follows:

Scenario	Orientation	MW	kWh	NPV Benefits per kWh	Incentive per Watt	Admin Cost %	Utility Benefits	Utility Costs	UCT Net Benefits	UCT BC Ratio
4	South	1	1,583,997	$1.4268	$1.55	10%	$2,260,068	$1,705,000	$555,068	**1.33**
5	South	1	1,583,997	$1.4268	$1.55	15%	$2,260,068	$1,782,500	$477,568	**1.27**
6	South	1	1,583,997	$1.4268	$1.25	10%	$2,260,068	$1,375,000	$885,068	**1.64**
7	South	1	1,583,997	$1.4268	$1.25	15%	$2,260,068	$1,437,500	$822,568	**1.57**
8	South	1	1,583,997	$1.4268	$1.00	10%	$2,260,068	$1,100,000	$1,160,068	**2.05**
9	South	1	1,583,997	$1.4268	$1.00	15%	$2,260,068	$1,150,000	$1,110,068	**1.97**
Source	*Data Request*	*Data Request*	*PV Watts, Line Losses from PacifiCorp*	*PV Watts, IRP Decrements*		$68,534,730	$102,184,843	$33,650,113	1.491	*H / J*

During the Workgroup meetings, participants began preliminary discussions on a range of issues pertaining to those outlined in the Commission's Order. Alternative proposals for expansion were discussed; however, given the limited time, the Workgroup discussions did not go into detail on any one expanded program design, and consensus on this matter was not achieved.

On November 8, the Division filed its Report of the Solar Incentive Program Workgroup, including a recommendation to extend the current program, with minimal changes, for the next year while a new Workgroup designs a new program. The Division concluded that, "based upon the cost-effectiveness of the current Program, it appears to be in the public interest to continue a solar incentive program."[7]

The Commission granted time for interested Workgroup participants to review this Report and provide comments in response. Utah Clean Energy's comments will respond to specific sections of the Division's Report, the Division's recommendation for a one-year extension of the solar incentive program with minimal changes, and the Division's proposal for a new Workgroup Process.

UCE RESPONSE TO THE DIVISION REPORT

As noted by the Division in its Report, the document does not represent a consensus view of the Workgroup participants.[8] This section will respond to sections of the Division Report that were not discussed in or vetted through the Workgroup process.

Subsidies. The Division's Report contains a lengthy discussion of federal incentives available for persons and business that want to install solar photovoltaic and other renewable systems. In this section, the Division discusses a recent EIA study on federal energy subsidies.

[7] *11-035-104 Division Report*, page 11.
[8] *11-035-104 Division Report*, page 1.

Given that the Solar Incentive Program has been shown to be cost-effective for ratepayers from the utility cost test perspective, it is irrelevant whether or not there are non-utility incentives for solar installations. In fact, the availability of federal tax incentives could improve the uptake of solar installations when combined with a cost-effective utility incentive. The Division's discussion of federal energy subsidies, based on a single report, is therefore not germane to the current discussion of expanding the solar incentive program.

The Division's stated rationale for including this information was "to highlight that significant incentive funds are available to persons and businesses that are interested in solar installations."[9] Purportedly, the Division is concerned that the current incentive program has not "caused more PV systems to be installed than otherwise would have been."[10] However, the Division provides no evidence to establish that the federal subsidies discussed in the EIA Study are similar to or duplicative of the type of incentive provided by the current utility program or are in any way relevant to the discussion of its cost-effectiveness.

Although it is true that subsidies exist for all energy producing resources, the Division's citation of one report is insufficient to give a meaningful or accurate picture of the landscape or history of energy subsidies in the United States. The Division itself acknowledged that its analysis of federal energy subsidies is limited to specific types of federal incentives and does not give a complete picture, either of the current subsidy landscape, or the history of subsidies that have shaped the energy industry over the course of the nation's history. [11]

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[9] *11-035-104 Division Report*, page 8.

[10] *11-035-104 Division Report*, page 8.

[11] *See 11-035-104 Division Report*, page 7. The EIA Report provides a brief overview of some energy subsidies that are *not* included in its report, including the following: $13 billion (in FY 2010) in tax reductions for domestic oil and natural gas companies from the American Jobs Creation Act of 2004; accelerated depreciation schedules; subsidized credits for energy infrastructure projects; tax-exempt municipal bonds for publicly-owned electrical utilities; significant foreign tax credits for income paid to foreign countries; special pass-through tax treatment for publicly-traded partnerships affecting the energy sector; energy related trust funds financed by taxes and fees,

Furthermore, this solar incentive program docket is an inappropriate forum for an investigation into the vast and complicated world of federal energy subsidies. The issues of federal energy subsidies, and the data included in the Solar Incentive Report, were not discussed or vetted by the solar incentive Workgroup. The cost-effectiveness of the program was discussed, analyzed, and reviewed by the Workgroup, and Utah Clean Energy agrees with the Division's final statement in its subsidies section that, "the current Commission program appears to be cost effective under the utility cost test, which should generally make the program beneficial to the Company's ratepayers."[12]

Integrated Resource Planning. In its discussion of Integrated Resource Planning (IRP), the Division raises questions, which were not raised in any of the Workgroup meetings, about the sensitivity analysis the Company conducted to model its solar incentive rebate program. First, the Division says, "additional PV penetration in a particular area may require the Company to expend additional funds on the Company's distribution system to handle the PV load variations."[13]

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such as the Black Lung Disability Trust Fund, the Leaking Underground Storage Tank Fund, the Oil Spill Liability Trust Fund, the Pipeline Safety Fund, the Aquatic Resources Trust Fund, the Abandoned Mine Reclamation Fund, the Nuclear Waste Fund, and the Uranium Enrichment Decontamination and Decommissioning Fund; and the subsidy resulting from the limits to liability in case of nuclear accident provided by the Price-Anderson Act.

Several reports have come out in criticism of the EIA's federal energy subsidy analysis methodology. The Division mentioned two such reports as having been provided by Utah Clean Energy. One report provides critiques of and recommendations for EIA subsidy analysis. This report was a response to the 2007 EIA subsidy report, of which the study referenced by the Division was an update. Doug Koplow, *EIA Energy Subsidy Estimates: A Review of Assumptions and Omissions* (March 2010 EarthTrack, Inc., Cambridge, MA), available at http://earthtrack.net/files/uploaded_files/EIA%20subsidy%20review%20final_17Mar10.pdf.

The other report provides analysis of relative incentive levels, throughout the nation's history, for new and emerging energy technologies and shows that historical subsidies to oil, gas, and coal dwarf current subsidies for renewable energy technologies. Nancy Pfund and Ben Healy, *What Would Jefferson Do? The Historical Role of Federal Subsidies in Shaping America's Energy Future* (September 2011 DBL Investors), available at http://www.dblinvestors.com/documents/What-Would-Jefferson-Do-Final-Version.pdf.

[12] *11-035-104 Division Report*, page 8.

[13] *11-035-104 Division Report*, page 8.

This concern is already sufficiently addressed by Utah's Interconnection Rules **(***R746-312. Electrical Interconnection, updated in Docket No 09-R312-01 and enacted April 30, 2010*). These rules include several "review screens" that are intended to address and forestall any technical limitations that may arise with higher penetrations of customer-sited generation (please see Exhibit A, *R746-312-7. Level 1 and Level 2 Interconnection Review Screens* for a detailed description of these provisions).

The rules also provide a protocol if a generation facility seeking to interconnect has failed to meet one or more of the applicable criteria established in the review screens: the customer has the option to move to a higher review level and more rigorous screening process to determine whether or not the proposed generating facility can be interconnected safely and reliably.[14] If a customer agrees to continue with identified modifications to the distribution system or conduct further studies, the public utility is directed to provide the customer with the following:

> …a non-binding good faith estimate of the cost and time-frame to make such modifications. If the interconnection customer agrees to such modifications, the interconnection customer shall agree in writing within 15 business days of the offer and submit payment for the estimated costs. The interconnection customer must pay any cost that exceeds the estimated costs within 30 calendar days of receipt of the invoice. If the costs to complete the modifications are less than the estimated costs, the public utility shall return such excess within 30 calendar days of the issuance of the invoice without interest.[15]

Similar provisions require the customer to cover costs of any supplemental studies.[16] As such, if additional PV penetration in a particular area requires any upgrades to the Company's distribution system, there are comprehensive rules in place to determine the appropriate allocation of costs.

[14] Utah Administrative Code. Rule R746-312 -9(2)d(iii) - Electrical Interconnection; Level 2 Interconnection Review. URL: http://www.rules.utah.gov/publicat/code/r746/r746-312.htm#T3.
[15] *Id.* at R746-312 -9(2)e(ii)A.
[16] *Id.* at R746-312-9(3)(a).

The Division also wonders whether additional funds need to be made available to the Company to ensure recovery for systems that back-up distributed PV generation.[17] In modeling the solar incentive program, the Company used hourly solar PV supply curves for Salt Lake City. IRP modeling used these supply curves as one resource component of a complete resource portfolio. In 2011 IRP planning, all hours of energy demand were met with an additional 13% planning reserve margin; therefore, there is no need to make additional back-up available for one specific resource in an entire resource portfolio.

Finally, the Division cites a study conducted by the Company, which suggests that solar contributes little or nothing to the utility's need for peaking resources.[18] This study was not presented during any of the Solar Workgroup meetings and Workgroup participants did not receive the referenced presentation, nor the study assumptions and findings. In response to the study's claimed findings, Utah Clean Energy has noted on numerous previous occasions in our comments for Docket 07-035-T14 that solar provides valuable energy during times when energy is in high demand, even if south-facing rooftop solar PV systems may be more limited in their ability to generate power during the super peak evening hours in the summer.

More notable, however, is the fact that Company analysis, conducted by Cadmus Group for the solar Workgroup efforts, demonstrated that south-facing systems actually provide a greater value to the Company's system than west or southwest facing systems.[19] The analysis shows that the Net Present Value Benefits (NPV) per kWh increase when orientation shifts from south to west, since peak demand reduction increases; however, the reduction in energy production between south and west facing panels outweighs the increase in NPV Benefits per

[17] *11-035-104 Division Report*, page 8.
[18] *11-035-104 Division Report*, page 8.
[19] Docket No. 11-035-104, *UCE Response to Division Report, Exhibit B: Rocky Mountain Power & Cadmus Group Cost-Effectiveness Workbook*, Summary Tab; *see also 11-035-104 Division Report*, Exhibit D.

kWh, and the Utility Cost Test benefit-cost ratio is highest when panels are oriented south. [20] In addition to this new information, we defer to our June 9, 2011 comments for additional information surrounding distributed solar as a valuable energy resource.

Program results to date. The Division raises a concern that too many applicants drop out of the solar incentive program. The Division seems to be concerned that the number of applications has increased steadily while the number of completed installations has remained constant over the course of the pilot (around 30 per year). The Division seems to suggest that this indicates that the program is becoming less effective in its later years. However, because the program is capped at 107 kW, it is impossible for the program to provide incentives to many more than 30 systems each year. The rise in the number of applications, then, indicates little more than a growing interest in the program. The program's size limit creates an application bottleneck such that an interested customer likely has less than five minutes after midnight on the date enrollment opens to get an application in the queue. This creates an incentive for any interested customer to submit an application regardless of preparedness to install a solar PV system.

UCE RESPONSE TO THE DIVISION RECOMMENDATION FOR A ONE-YEAR CONTINUATION OF THE SOLAR INCENTIVE PROGRAM WITH MINIMAL CHANGES

In its Report, the Division makes the following recommendation:

> "[E]xtend the Utah Solar Incentive Program for one year, double the size of the annual kilowatts available to 214 kW in the program, and increase the annual budget to $385,000. The annual budget for the one-year extension is based upon the $1.55 per watt incentive rate and an assumed administrative cost of approximately 15 percent."[21]

Because the solar Workgroup was unable to accomplish its intended tasks of investigating extending and expanding the Program and developing an ongoing program

[20] Docket No. 11-035-104, *UCE Response to Division Report, Exhibit B: Rocky Mountain Power & Cadmus Group Cost-Effectiveness Workbook*, Summary Tab; *see also 11-035-104 Division Report*, Exhibit D.
[21] *11-035-104 Division Report*, page 10.

designed to be cost-effective, and given the current solar incentive program is set to expire at the end of this year without a formal extension, Utah Clean Energy supports the Division's proposal to extend the program while parties discuss the characteristics of a new solar incentive program.

If the Commission grants the Division's proposal for a 214 kW program, Utah Clean Energy requests that the administrative costs of the temporary one-year extended program of 214 kW not be explicitly capped at 15% of the utility cost. Based on the Division's Report and Workgroup discussions, it is unclear whether it is possible for the Company to administer a 214 kW program for 15% of the utility cost. Furthermore, making significant changes to a still-small and temporarily extended program may not be the best use of Company time and ratepayer resources. According to the Division's June 13, 3011 Memorandum on the fourth Annual Report, the Company administered the 107 kW program for 38 percent of the utility cost.[22] Workgroup participants did not discuss whether an additional 107 kW is sufficient to achieve economies of scale that result in lower administrative costs. The Commission should grant some flexibility in the budget for the Company to administer the 214 kW program.

The Cadmus cost-effectiveness modeling provides ample evidence to support a much larger Solar Incentive Program; therefore we view the 214 kW program to be a temporary bridge between the current program and a much larger, redesigned program. An additional 107 kW annual allocation is unlikely to change economies of scale or provide different or more information than was gathered over the last four years of the current program. Therefore, Utah Clean Energy requests that the Commission retain the flexibility to implement a new program before the end of 2012 and before the expiration of the Division's 214 kW program, upon its approval of a new solar incentive program proposed by Workgroup participants.

[22] Docket No. 07-035-T14, Division Memorandum, filed June 13, 2011, page 3.

Division recommendation to end the new solar incentive program by 2016. Despite being irrelevant to its current proposal to extend the solar incentive program through 2012, the Division recommends that any new solar incentive program end by 2016. The Division states,

> In any case, the Division recommends that the continuation of the Utah Solar Incentive Program should not be extended beyond the life of the Federal tax credit, which currently ends on December 31, 2016. Assuming there is a new program through 2016, in late 2015 or early 2016, extending or revising this new program could be considered."[23]

Presumably, the Division is referring to the 30% personal tax credit for investment in residential energy technologies, including solar PV.[24]

The Division does not provide any rationale for this recommendation, so it is unclear why the Commission should arbitrarily end any Utah solar incentive program by the expiration of the Federal tax credit for residential solar PV installations, particularly since the Workgroup did not have an opportunity to evaluate this idea. Utah Clean Energy recommends that the Commission not rule on this recommendation and instead allow the Workgroup to evaluate the Division's rationale before making a recommendation for the Commission.

UCE RESPONSE TO DIVISION PROPOSAL FOR A NEW WORKGROUP PROCESS

In conjunction with a temporarily extended solar incentive program, the Division recommends that the Commission initiate a new Workgroup to discuss a new solar incentive program. The Division recommends that it, along with the Office of Consumer Services (Office), Utah Clean Energy, and the Utah Association of Energy Users (UAE) develop a straw-man proposal for an expanded program during December and part of January.[25] The Division requests that this straw-man proposal be presented at a publicly noticed technical conference in

[23] *11-035-104 Division Report*, pages 1, 10.
[24] Eligible technologies include Solar Water Heat, Photovoltaics, Wind, Fuel Cells, Geothermal Heat Pumps, Other Solar Electric Technologies, and Fuel Cells using Renewable Fuels. For more information, see http://dsireusa.org/incentives/incentive.cfm?Incentive_Code=US37F&re=1&ee=1.
[25] *11-035-104 Division Report*, page 10.

January, where all interested parties could comment. Then, the new Workgroup would "recommend a new program and develop a new program design" to propose to the Commission by the end of March 2012.[26] The Division is unclear about whether the new Workgroup would be open to the public or restricted to the Company, Division, Office, UCE, and UAE.

Utah Clean Energy's recommendations for the new Workgroup process are the following:

- Any interested party may create a straw-man proposal to bring to a publicly noticed scheduling conference in January 2012.
- The Commission should notice a technical and scheduling conference for mid-January to discuss parties' straw-man proposals and schedule future Workgroup meetings and technical sessions.
- Workgroup meetings should be publicly noticed and occur every two weeks.
- Workgroup discussion topics should cover the size of a new program, the design of a new program, and a funding mechanism for the new program.

Utah Clean Energy concurs with the Division that "it appears to be in the public interest to continue a solar incentive program." Further, UCE agrees that the "purpose of the new Workgroup is to recommend a new solar incentive program and to develop a new program design," rather than to evaluate whether a solar incentive program is in the public interest and should be allowed to continue.

[26] *11-035-104 Division Report*, page 10.

Exhibit A

Rule R746-312-7. Electrical Interconnection Level 1 and Level 2 Interconnection Review Screens (The complete rule is available on-line: http://www.rules.utah.gov/publicat/code/r746/r746-312.htm#T9.)

(1) The public utility shall perform its review of Level 1 and Level 2 interconnection requests using the screens set forth below as applicable.

(a) A generating facility's point of common coupling must be on a portion of the public utility's distribution system which is under the interconnection jurisdiction of the commission and not be on a transmission line.

(b) For interconnection of a proposed generating facility to a radial distribution circuit, the aggregate generation on the distribution circuit, including the proposed generating facility, must not exceed 15 percent of the distribution circuit's total highest annual peak load, as measured at the substation. For the purposes of this subsection, annual peak load will be based on measurements taken over the 60 months previous to the submittal of the application, measured for the circuit at the nearest applicable substation.

(c) The proposed generating facility, in aggregation with other generation on the distribution circuit to which the proposed generating facility will interconnect, must not contribute more than 10 percent to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of common coupling.

(d) If the proposed generating facility is to be connected to a single-phase shared secondary, the aggregate generation capacity connected to the shared secondary, including the proposed generating facility, must not exceed 20 kilowatts.

(e) If a proposed single-phase generating facility is to be connected to a transformer center tap neutral of a 240 volt service, the addition of the proposed generating facility must not create a current imbalance between the two sides of the 240 volt service of more than 20 percent of nameplate rating of the service transformer.

(f) No construction of facilities by the public utility on its own system shall be required to accommodate the generating facility.

(g) The aggregate generation capacity on the distribution circuit to which the proposed generating facility will interconnect, including the capacity of the proposed generating facility, must not cause any distribution protective equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers), or customer equipment on the electric distribution system, to exceed 90 percent of the short circuit interrupting capability of the equipment. In addition, a proposed generating facility must not be connected to a circuit which already exceeds

90 percent of the circuit's short circuit interrupting capability, prior to interconnection of the facility.

(h) Interconnection Type Screen:

(i) For a proposed generating facility connecting to a three-phase, three wire primary public utility distribution line, a three-phase or single-phase generator must be connected phase-to-phase.

(ii) For a proposed generating facility connecting to three-phase, four wire primary public utility distribution line, a three-phase or single-phase generator must be connected line-to-neutral and must be effectively grounded.

(i) If there are known or posted transient stability limitations to generating units located in the general electrical vicinity of the proposed point of common coupling, including, but not limited to within three or four transmission voltage level busses, the aggregate generation capacity, including the proposed generating facility, connected to the distribution low voltage side of the substation transformer feeding the distribution circuit containing the point of common coupling may not exceed 10 megawatts.

(j) If a proposed generating facility's point of common coupling is on a spot network, the proposed generating facility must utilize an inverter-based equipment package and, together with the aggregated other inverter-based generation, must not exceed the smaller of five percent of a spot network's maximum load or 50 kilowatts.