



Utah Solar Incentive Program

2012 Annual Report

Table of Contents

Executive Summary	3
Goals of the Program	3
Key Dates, Data and Activities for 2012 Program	3
Summary of 2012 Program Results	4
Key Findings from 2012	4
Changes Incorporated in Program Year 2012.....	7
Cost Effectiveness Analysis for Program Year 2012	8
Summary of Program Results	9
Appendix 1 - 2012 Program Project Detail.....	10
Appendix 2 – Cost-effectiveness Results for the Proposed Utah Solar Incentive Program	25

List of Tables

Table 1. 2012 Program Installed Capacity and Expenditures.....	4
Table 2. 2012 Program Applications.....	4
Table 3. Solar Installation Cost	5
Table 4. 2012 Program Residential Participants.....	11
Table 5. 2012 Program Residential – Withdrawn and Waiting List Participants	13
Table 6. 2012 Program Non-Residential Participants.....	21
Table 7. 2012 Program Non-Residential – Withdrawn and Waiting List Participants	22

Executive Summary

In Docket No. 06-035-21, Rocky Mountain Power (“Company”) outlined plans to introduce a Solar Photovoltaic program intended to gain market based information on the value of distributed solar resources to assist the Company in meeting peak demand requirements. On April 4, 2007, Rocky Mountain Power filed Tariff Advice No. 07-14 with the Public Service Commission of Utah (“Commission”) requesting approval to implement a Solar Incentive Pilot program (“Program”), which was approved by the Commission on August 3, 2007.¹ On December 21, 2011, the Commission issued an order in Docket No. 11-035-104 extending the Program beyond its initial five year term for an additional year concluding at the end of 2012. In the initial order approving the Program, the Commission directed the Company to provide annual reports on the Program containing information about completed projects, Program expenditures and recommendations for future Program years. This is the final report provided pursuant to the Commission’s direction and presents information on the Program, for the 2012 Program year, and summarizing the totals for the completed program.

Goals of the Program

The intent of this Program was to gather market based information on the viability of a solar incentive program in Utah funded by the Company. At the time of implementation in 2007, it was expected that the Program would provide technical information on the integration of distributed solar resources into the Rocky Mountain Power system and provide information on the ability of solar power to meet growing peak demand. It was also expected the Program would provide a useful gauge of customers’ willingness to participate in a solar incentive program. In summary, the goals of the Program were to:

- Provide an assessment of the benefits of solar photovoltaic systems in Utah.
- Provide an assessment of the costs of solar photovoltaic systems in Utah.
- Gain experience on Program administration logistics
- Acquire information on customer acceptance of solar photovoltaic systems in Utah.
- Provide experience in working collaboratively with the solar community.

Key Dates, Data and Activities for 2012 Program

- Applications were accepted for two weeks beginning March 1, 2012 and concluding March 14, 2012.
- Program installation completion date (the day projects had to be complete) for 2012 was December 31, 2012.
- Capacity carried forward: 6.475 kW of residential capacity and 3.817 kW of non-residential capacity was carried over from 2011 to the 2012 Program.
- 2012 Program capacity: including the carryover from 2011, the combined capacity available totaled 120.47 kW for residential and 103.817 kW for non-residential projects.
- The 2012 Program also employed a waiting list. Applicants on this list were eligible to receive 2012 incentives if an approved applicant withdrew or cancelled their project.
- Sixteen residential customers and two non-residential customers notified the Program administrator during 2012 they were not able to complete their projects. Individuals on

¹ Refer to Docket No. 07-035-T14.

the waiting list were offered the available capacity with the understanding they would be required to meet the Program installation deadlines.

- On February 10, 2011, the Commission, in Docket No. 07-035-T14, issued an order setting the Program \$/watt incentive to \$1.55; the incentive had been previously been set at \$2.00/watt. The reduction in incentive was in response to declining costs of solar photovoltaic installations.

Summary of 2012 Program Results

Information in the tables below summarizes expenditures by cost category, installed capacity by customer type and application data for the 2011 Program. Additional information on individual 2011 projects is available in Appendix 1.

Table 1. 2012 Program Installed Capacity and Expenditures

	Installed kW2	Incentivized kW	Incentives	Administration	Expenditures
Residential	139.61	88.12	\$136,583.62		\$136,583.62
Non-residential	108.51	82.21	\$127,424.27		\$127,424.27
Third party management					
Utility administration & evaluation				\$52,880.15	\$52880.15
Metering				\$1,504.00	\$1,504.00
Total	248.12	170.33	\$264,007.89	\$54,384.15	\$318,392.04

Table 2. 2012 Program Applications

	Res	Non Res	Total
Received	268	37	305
Approved and completed	38	9	47
Dropped	16	2	18
Waiting list	214	26	240

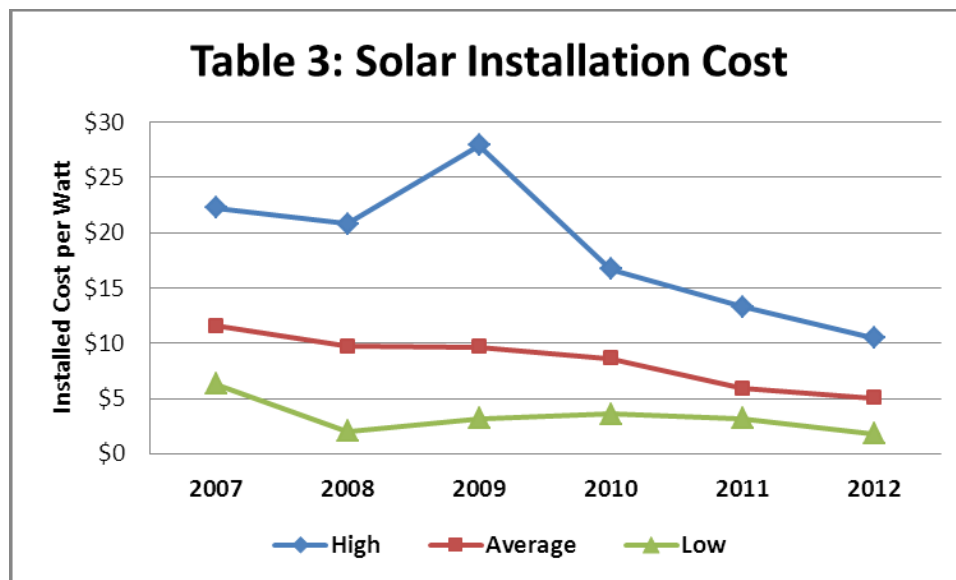
Key Findings from 2012

This section outlines key findings from the 2012 Program and is designed to compare 2012 Program activity and results in relation to stated Program goals.

1. Installed System Costs - associated Program goal: assessment of Program costs
 - a. Total reported participants cost were \$1,362,169. Customers received incentives for 170.328 kW(ac), but eighteen participants installed large systems resulting in 77.799 kW(ac) of additional capacity. A total of 248.127 kW was installed in Program year 2012 as listed in Appendix 1.
 - b. Average installed costs before any incentives were \$5.09/W(ac).

2 Eighteen customers (sixteen residential and two non-residential) installed systems larger than the maximum size eligible for program incentives. Note that the Company did not issue incentives for capacity installed beyond the program limits

- c. Highest system cost was \$10.51/W(ac). This system has a unique installation design and required significant upgrades to the existing electric equipment to facilitate the solar which led to additional cost.
- d. Lowest system cost was \$1.81/W(ac). The participant only paid for materials as he was expanding an existing solar system and used existing racking equipment.
- e. 2012 average system cost decreased 14 percent from 2011, which was \$5.90/W(ac).
- f. The highest system cost in 2012 was \$10.51/W(ac) compared to \$13.31 /W(ac) in 2011, or 21 percent less than the highest system cost in 2011.
- g. The lowest system cost in 2012 was \$1.81/W(ac) compared to \$3.23/W(ac) in 2011, or 44 percent less than the lowest system cost in 2011. Table 3 below provides a trend line across Program years for the high, low and average installation costs.



- h. In the 2012 Program year, the Company installed production meters for all participants in the Program. The production meters cost \$32 per installation or \$1,504 in total for 47 installations. For net meters, the per-meter cost for 2012 was the same as 2011. Net metering costs are not included in customer or utility costs shown in Table 1.
2. Trade Allies – associated Program goal: gain experience working with solar community
- a. Twenty contractors performed the 2012 Program installations, an increase of four compared to 2011.
 - b. Ten contractors performed one installation each.
 - c. Four contractors performed two installations.
 - d. Two contractors performed three installations
 - e. Two contractors performed four installations.
 - f. One contractor performed five installations.
 - g. One contractor performed eleven installations.

3. Customers - associated Program goal: customer acceptance of solar in Utah
 - a. Participants were from twenty three unique cities, an increase from 15 in 2011.
 - b. The top cities for participation: Salt Lake City (10), South Jordan (8), 3 each in Park City, Moab , and Castle Valley, and 2 each in Draper, Sandy, and Taylorsville.

4. Marketing - associated Program goals: Program administration logistics & experience in working with solar community
 - a. Similar to the prior Program years, proactive trade allies are using personal selling to market the Program to end use customers. The trade ally activity was sufficient to prevent the need for Company based marketing of the Program.
 - b. Applications are being completed and submitted by the trade allies. This is being done as service for customers and is similar to prior Program years.

5. Equipment Availability - associated Program goals: Program administration logistics & experience in working with solar community. Fifteen different manufacturers provided panels and six different manufacturers provided inverters for incentivized systems. Suggesting that there are competing suppliers providing equipment in the state of Utah.

6. Allocation of Program Incentives - associated Program goals: Program administration logistics
 - a. With nine months for approved projects to be constructed, changes in customer's available funding throughout the year precluded all of the available capacity and incentives from being fully utilized in the prescribed time frames.
 - b. The waiting list helped maximize yearly installation capacity and compensated for project cancellations, but lead times on waiting list projects and timing of canceled projects both pose challenges to fully allocating annual Program incentives.

7. Assessment of Benefits Goal

A key goal of the Program is to assess the benefits of solar photovoltaic installations to Rocky Mountain Power's system, especially during periods of peak demand. Accurate measurements of the output of installed solar photovoltaic systems are an integral part of that effort. Prior Program annual reports have outlined the challenges of having customers provide output data from their system inverters on a regular basis and submit that information to the Company via Attestation certificates. Also, in prior annual reports, the Company described an alternate approach to estimating solar photovoltaic system output on an hourly basis through the use of the National Renewable Energy Laboratory ("NREL") PV Watts calculator. Estimated output from each installation was calculated using the PV Watts calculator and a graphical representation of the contribution of the Program installations to the Utah peak was provided.

All 2012 Program participants were required to install generation meter sockets and the Company installed production meters at all sites associated with the Program. Monthly production data from all sites is available.

In summary, findings from the 2012 Program indicate average costs per installed watt were less than 2011 Program experience; overall cost per watt installation costs dropped fourteen percent from 2011 results. The number of contractors participating in the Program increased by four in 2012. Marketing continues to be done with contractors utilizing personal selling and including the Program application process as part of their sales process.

Changes Incorporated in Program Year 2012

On December 21, 2011, the Commission issued an order in Docket No. 11-035-104 extending the Program beyond its initial five year term for an additional year. The Program incentive remains at \$1.55/watt and the Program kW capacity was increased to 214 kW. On January 31, 2012, Rocky Mountain Power submitted a letter to the Commission listing some modifications that would be incorporated in the 2012 Program year. These Program changes were designed to minimize the administrative expense of the Program and improve the customer experience.

1. Carry over the “unused 2011 kW allocation” (6.475 kW for residential installations and 3.817 kW for non-residential applications) to the 2012 Program. To ensure consistent marketing messages surrounding annual kW allocations, the addition occurred as part of the 2012 tracking by the Program administrator and was not included as a specific roll-over amount.
2. **Metering Changes:** During discussions concerning extension of the Program into 2012, there was significant dialogue regarding the cost of installing 15 minute interval meters at all Program sites. In response to these discussions, in the 2012 Program year, participants were required to install a production meter base, but instead of installing a 15 minute interval meter, Rocky Mountain Power installed a standard radio frequency meter. This did not provide the same granularity of production data, but still provided overall production information for participants in the Program. This reduced the administrative costs of Program.
3. **Enrollment Process:** The capacity enrollment process changed from a pure first come, first served process to a lottery system. Historically, the Program has been fully subscribed and had a sufficient waiting list within minutes of opening the enrollment window. This has caused customer dissatisfaction in the Program and other programs with a similar enrollment model as technical glitches and busy phone lines thwarted customer’s attempts to participate in the Program. In response to customer concerns, the Company implemented a modified enrollment process for the 2012 Program. In the modified process, the enrollment window was opened for 14 days to allow all interested parties sufficient time to submit reservation applications. Queue positions for all applicants were determined through a randomization process. Each applicant was then notified if they were accepted into the Program or were provided their position on the waiting list.
4. **Inspection Process Changes:** In order to lower administrative cost, Rocky Mountain Power modified the site inspection process. Previously, the Program administrator did two site inspections, one at the time of the reservation and a second prior to payment of the incentive to ensure that the project was installed as represented in the application. Projects were inspected only after installation before the incentive payment was issued. The Company believes that the information gathered through the application and the

knowledge of participating contractors of the requirements of the Program make this initial inspection redundant, and as such, not cost effective. For issues that cannot be identified through the application process, such as unanticipated shading, reductions to the incentive can be made after the post-installation inspection if expected production data provided in the application is out of alignment with expected system production based on the post-installation inspection.

Cost Effectiveness Analysis for Program Year 2012

Rocky Mountain Power did not conduct a separate cost effectiveness analysis of program year 2012. During the process of evaluating the expansion of the Utah Solar Incentive Program in Docket 11-034-104, a thorough cost effectiveness study was conducted by a third party consultant. This evaluation took a comprehensive look at the cost effectiveness of the proposed Utah Solar Incentive Program and did a complete evaluation using actual production data from the 15 minute interval meters used during the 2011 program year. This analysis was completed in August of 2012. The Company believes that the administrative cost of conducting a similar analysis, with the less complete monthly production data collected in 2012, outweighs any benefit gained from an additional study. The company has instead attached the August 2012 Cost Effectiveness study relied on for the expansion of the Utah Solar Incentive Program.

Summary of Program Results

	2007	2008	2009	2010	2011	2012	Total
Completed Projects	28	33	33	32	29	47	202
Installed kW Residential	54,055	52,930	45,375	60,607	64,590	88.12	365,677
Residential Incentives	\$108,112	\$105,864	\$90,750	\$121,231	\$100,115	\$136,584	\$662,656
Installed kW Non-residential	3,305	72,450	65,642	50,025	54,581	82.21	328,213
Non-residential Incentives	\$6,590	\$144,903	\$131,284	\$100,359	\$84,600	\$127,424	\$595,160
Total kW	57.360	125.380	111.017	110.812	119.171	170.33	694.07
Total Incentive	\$114,702	\$250,767	\$222,034	\$221,590	\$184,715	\$264,008	\$1,257,816
Administration Cost	\$27,960	\$91,714	\$94,390	\$90,708	\$92,722	\$54,384	\$451,878
Expenditures	\$142,662	\$342,481	\$316,424	\$312,298	\$277,437	\$318,392	\$1,709,694

Appendix 1 - 2012 Program Project Detail

Table 4. 2012 Program Residential Participants

Project ID	City	Incentive	Total system - kW	System Kw eligible for incentive	Total System Cost (\$)	\$/watt - total cost	% of Sunshine	System Orientation	System Tilt Angle (Degree, °)	Module Manufacturer	Module Model	Module Quantity	Module CEC rated Watts Output	Inverter Manufacturer	Inverter Model	Inverter CEC Weighted Efficiency %
110324.04	West Valley	\$ 2,718.70	1.764	1.764	\$ 10,727.46	\$ 6,081.33	100	180	30	Trina Solar	TSM-230PA05	9	205.2	Enphase	M190-72-240-Sxx	0.955
120301.02	Park City	\$4,650.00	4.80	3.00	\$16,380.00	\$3,412.50	100%	150	30	Sharp	NUQ240F	20	216.5	Power-One	PVI-4.6-OUTD	96.5
120301.03	Sandy	\$3,880.12	3.00	2.50	\$12,320.57	\$4,106.86	100%	180	20	REC	REC245PE	12	217.3	Enphase	M-215	96
120301.06	Salt Lake City	\$1,919.85	1.47	1.24	\$5,100.00	\$3,469.39	100%	180	15	REC	REC245PE	6	217.3	Enphase	M-215	96
120301.07	Alpine	\$4,650.00	4.68	3.00	\$26,092.33	\$5,575.28	100%	180	40	LG	LG260S1C-G2	18	234.4	Xantrex	XW6048	92.5
120301.08	Salt Lake City	\$2,573.65	1.87	1.66	\$7,636.00	\$4,083.42	100%	270	30	Talesun Solar	TP660P-240	8	216.2	Enphase	M-215	96
120301.10	South Jordan	\$4,650.00	3.00	3.00	\$22,742.70	\$7,580.90	100%	200	39.8	Solar World	255 W Mono	17	230.5	Emphase	M-215	96
120301.11	Salt Lake City	\$3,954.21	2.94	2.55	\$6,552.46	\$2,228.73	100%	180	64	Conergy	PM 245P	12	220.3	SMA	SB2500 HFUS	96.5
120301.13	South Jordan	\$2,628.40	1.70	1.70	\$9,580.80	\$5,652.39	100%	268	32	Talesun Solar	TP660P-245	8	220.8	Enphase	M-215	96
120301.15	Herriman	\$4,650.00	4.70	3.00	\$12,229.95	\$2,602.12	100%	180	20	Sharp	NU-Q235F2	15	216.4	Enphase	M-215	96
120301.16	South Jordan	\$1,917.00	1.40	1.24	\$7,352.00	\$5,251.43	100%	180	15	Aleo Solar	S18U240ulr	6	214.8	Enphase	M-215	96
120301.17	Beaver	\$2,812.18	2.11	1.81	\$15,451.95	\$7,323.20	100%	175	35	Conergy	P 235PA	9	212.2	Outback Power Systems	GVFX 3648	95
120301.18	Salt Lake City	\$2,573.65	2.91	1.66	\$11,280.00	\$3,876.29	100%	180	30	Talesun Solar	TP660P-240	8	216.2	Enphase	M-215	96
120301.20	Moab	\$4,650.00	4.90	3.00	\$30,571.00	\$6,238.98	100%	180	38	American Solar Wholesale	ASW-270P	30	246.4	SMA	SB7000 US	96
120301.21	Cottonwood Heights	\$3,867.61	3.00	2.50	\$14,311.00	\$4,770.33	100%	180	22	Sharp	NDQ240-F4	12	216.6	EnPhase	M-215	96.3
120301.23	Salt Lake City	\$4,516.87	2.86	2.91	\$11,449.93	\$4,003.47	100%	180	10	Conergy	PM 240P	14	215.7	SMA	SB3000 HFUS	96.5
120301.26	South Jordan	\$1,917.00	1.40	1.24	\$7,352.00	\$5,251.43	100%	180	15	Aleo Solar	S18U240ulr	6	214.8	Enphase	M-215	96
120301.27	South Jordan	\$1,917.00	1.40	1.24	\$7,352.00	\$5,251.43	100%	180	15	Aleo Solar	S18U240ulr	6	214.8	Enphase	M-215	96

Project ID	City	Incentive	Total system - kW	System Kw eligible for incentive	Total System Cost (\$)	\$/watt - total cost	% of Sunshine	System Orientation	System Tilt Angle (Degree, °)	Module Manufacturer	Module Model	Module Quantity	Module CEC rated Watts Output	Inverter Manufacturer	Inverter Model	Inverter CEC Weighted Efficiency %
120301.31	West Haven	\$3,810.47	2.46	2.46	\$16,731.88	\$6,807.11	100%	180	30	REC	REC 240	12	213.4	Enphase	M-215	96
120301.32	Sandy	\$2,857.86	2.16	1.84	\$11,207.62	\$5,188.71	93%	197	37	REC	REC 240PE Black	9	213.4	Enphase	M-215	96
120301.33	Cedar Fort	\$4,650.00	11.76	3.00	\$59,965.52	\$5,099.11	100%	180	40	LG Electronic Solar	LG260S1 C-G2	44	234.4	Xantrex	XW 6048	92.5
120301.35	Salt Lake City	\$4,636.76	3.38	2.99	\$8,770.14	\$2,594.72	100%	180	28	Yingli	YL260C-30b	13	239.7	Emphase	M-215	96
120301.36	Centerville	\$4,650.00	3.64	3.00	\$16,915.00	\$4,646.98	100%	180	45	REC	REC245PE	16	217.3	Emphase	M-215	96
120301.38	Bluffdale	\$4,589.29	3.06	2.96	\$18,480.00	\$6,039.22	100%	182	26.5	Conergy	245	14	220.3	Enphase	M-215	96
120301.39	Moab	\$4,650.00	3.20	3.00	\$15,664.00	\$4,895.00	100%	180	28	American Solar Wholesale	ASW230P	15	206.9	Enphase	M-190	95
120301.41	American Fork	\$1,831.39	3.00	1.18	\$10,957.72	\$3,652.57	100%	180	55	Sharp	ND-240QCJ	6	216.4	Outback	GVFX 3524	91
120301.42	Draper	\$4,650.00	3.76	3.00	\$22,186.00	\$5,900.53	100%	210	15	Bosch Solar Energy	c-Si M60 NA 30117 245 Wp	15	221.7	Enphase	M-215	96
120301.43	South Jordan	\$1,917.00	1.40	1.24	\$7,352.00	\$5,251.43	100%	180	15	Aleo Solar	S18U240ulr	6	214.8	Enphase	M-215	96
120301.44	Logan	\$4,650.00	25.00	3.00	\$125,007.72	\$5,000.31	100%	180	28	REC	REC240PE	105	213.4	Enphase	M-215	96
120301.45	Castle Valley	\$4,650.00	3.89	3.00	\$23,350.00	\$6,002.57	100%	180	39	American Solar Wholesale	ASW270	15	246.4	Xantrex	XW4548	92.5
120301.47	Park City	\$3,018.63	2.25	1.95	\$15,076.72	\$6,700.76	100%	180	15	Sun Power	225-BLK	10	205	SMA	SB3000 US	95.5
120301.49	Castle Valley	\$2,559.36	2.00	1.65	\$8,440.94	\$4,220.47	100%	180	20	SolarWorld	SW240 Mono	8	215	Enphase	M-215	96
120301.63	South Jordan	\$1,917.00	1.40	1.24	\$7,352.00	\$5,251.43	100%	180	15	Aleo Solar	S18U240ulr	6	214.8	Enphase	M-215	96
120301.64	Salt Lake City	\$4,650.00	4.40	3.00	\$23,235.61	\$5,280.82	100%	180	45	Solar World	SW255 Mono	15	230.5	Enphase	M-215	96
120301.65	Ivins	\$4,642.00	3.12	2.99	\$16,098.95	\$5,159.92	100%	180	0	Sharp	240U1	13	219	Enphase	M-215	96
120301.66	Tooele	\$3,720.00	2.40	2.40	\$16,050.00	\$6,687.50	100%	175	25	Siliken	SLK60P6L	13	214.3	Enphase	M-215	96

Project ID	City	Incentive	Total system - kW	System Kw eligible for incentive	Total System Cost (\$)	\$/watt - total cost	% of Sunshine	System Orientation	System Tilt Angle (Degree, °)	Module Manufacturer	Module Model	Module Quantity	Module CEC rated Watts Output	Inverter Manufacturer	Inverter Model	Inverter CEC Weighted Efficiency %
120301.68	South Jordan	\$1,917.00	1.40	1.24	\$7,352.00	\$5,251.43	100%	180	15	Aleo Solar	S18U240ulr	6	214.8	Enphase	M-215	96
120301.71	Moab	\$4,239.32	3.20	2.74	\$20,866.00	\$6,520.63	100%	180	30	American Solar Wholesale	ASW270	12	246.4	Xantrex	XW6048	92.5
120301.72	Taylorsville	\$4,650.00	4.60	3.00	\$15,096.00	\$3,281.74	100%	180	22	REC	60 REC PE 245	13	222.7	Enphase	M-215	96
Totals		\$136,583.62	139.61	88.12	\$895,910.51	\$6,392.10	100%									

Table 5. 2012 Program Residential – Withdrawn and Waiting List Participants

Project ID	Application Status Notes	App Submittal Date	City	Estimated Incentive	Estimated kW
120301.01	Application Withdrawn/Ineligible	3/6/2012	Roy	\$4,650.00	3.06
120301.04	Application Withdrawn/Ineligible	3/10/2012	Park City	\$4,650.00	4.90
120301.05	Application Withdrawn/Ineligible	3/9/2012	Alpine	\$4,650.00	4.68
120301.09	Application Withdrawn/Ineligible	3/6/2012	Orem	\$4,650.00	4.08
120301.12	Application Withdrawn/Ineligible	3/13/2012	Draper	\$4,650.00	3.00
120301.14	Application Withdrawn/Ineligible	3/12/2012	Orem	\$4,464.00	2.88
120301.19	Application Withdrawn/Ineligible	3/8/2012	Draper	\$4,650.00	3.10

120301.22	Application Withdrawn/Ineligible	3/8/2012	Highland	\$4,650.00	3.12
120301.24	Application Withdrawn/Ineligible	3/14/2012	West Valley City	\$4,650.00	3.50
120301.25	Application Withdrawn/Ineligible	3/14/2012	Park City	\$4,650.00	6.20
120301.28	Application Withdrawn/Ineligible	3/14/2012	Layton	\$4,650.00	3.00
120301.29	Application Withdrawn/Ineligible	3/7/2012	Salt Lake City	\$4,650.00	3.36
120301.30	Application Withdrawn/Ineligible	3/13/2012	Salt Lake City	\$4,650.00	3.00
120301.34	Application Withdrawn/Ineligible	3/12/2012	Saratoga Springs	\$4,650.00	4.50
120301.37	Application Withdrawn/Ineligible	3/14/2012	West Jordan	\$4,650.00	3.50
120301.40	Application Withdrawn/Ineligible	3/14/2012	Snyderville	\$4,650.00	3.42
Total				\$74,214.00	59.30

Project ID	Application Status Notes	App Submittal Date	City	Estimated Incentive	Estimated kW
RES WL 01	Wait list	3/10/2012	Wasatch County	\$2,976.00	1.92
RES WL 02	Wait list	3/1/2012	Taylorsville	\$3,100.00	2.00
RES WL 03	Wait list	3/14/2012	Farmington	\$2,945.00	1.90
RES WL 04	Wait list	3/3/2012	Salt Lake City	\$4,650.00	3.80
RES WL 05	Wait list	3/5/2012	Summit County	\$3,927.70	2.53
RES WL 06	Wait list	3/12/2012	Saratoga Springs	\$4,650.00	3.00
RES WL 07	Wait list	3/8/2012	Riverton	\$4,650.00	4.00
RES WL 08	Wait list	3/2/2012	Ivins	\$4,650.00	3.00
RES WL 09	Wait list	3/14/2012	Moab	\$4,650.00	9.30
RES WL 10	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 11	Wait list	3/14/2012	Holladay	\$4,340.00	2.80

RES WL 12	Wait list	3/14/2012	South Jordan	\$4,650.00	3.20
RES WL 13	Wait list	3/10/2012	Herriman	\$4,650.00	4.00
RES WL 14	Wait list	3/12/2012	Stansbury Park	\$4,650.00	4.00
RES WL 15	Wait list	3/5/2012	Grantsville	\$3,720.00	2.40
RES WL 16	Wait list	3/12/2012	West Jordan	\$4,650.00	4.00
RES WL 17	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 18	Wait list	3/9/2012	Lindon	\$4,650.00	3.76
RES WL 19	Wait list	3/11/2012	Salt Lake City	\$4,371.00	2.82
RES WL 20	Wait list	3/10/2012	Salt Lake City	\$3,642.50	2.35
RES WL 21	Wait list	3/14/2012	Farmington	\$4,650.00	3.50
RES WL 22	Wait list	3/14/2012	Moab	\$2,170.00	1.40
RES WL 23	Wait list	3/14/2012	Saratoga Springs	\$4,650.00	3.00
RES WL 24	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 25	Wait list	3/14/2012	Oakley	\$4,650.00	4.43
RES WL 26	Wait list	3/12/2012	Layton	\$4,650.00	3.00
RES WL 27	Wait list	3/8/2012	Draper	\$4,650.00	3.00
RES WL 28	Wait list	3/5/2012	Salt Lake City	\$4,371.00	2.82
RES WL 29	Wait list	3/6/2012	Riverdale	\$3,162.00	2.04
RES WL 30	Wait list	3/5/2012	South Jordan	\$4,650.00	3.05
RES WL 31	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 32	Wait list	3/14/2012	Sandy	\$4,650.00	4.35
RES WL 33	Wait list	3/1/2012	Salt Lake City	\$4,650.00	3.80
RES WL 34	Wait list	3/13/2012	Salt Lake City	\$2,232.00	1.44
RES WL 35	Wait list	3/14/2012	Goshen	\$4,650.00	3.00
RES WL 36	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 37	Wait list	3/6/2012	Washington Terrace	\$4,650.00	3.06
RES WL 38	Wait list	3/6/2012	American Fork	\$4,650.00	3.06
RES WL 39	Wait list	3/12/2012	Alpine	\$4,650.00	4.00
RES WL 40	Wait list	3/5/2012	Springdale	\$3,642.50	2.35
RES WL 41	Wait list	3/14/2012	Sandy	\$4,650.00	4.08

RES WL 42	Wait list	3/6/2012	Moab	\$4,650.00	3.10
RES WL 43	Wait list	3/9/2012	Sandy	\$4,650.00	3.00
RES WL 44	Wait list	3/12/2012	Pleasant Grove	\$4,650.00	4.00
RES WL 45	Wait list	3/6/2012	Cove	\$3,100.00	2.00
RES WL 46	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 47	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 48	Wait list	3/14/2012	Erda	\$4,650.00	3.00
RES WL 49	Wait list	3/2/2012	Layton	\$4,650.00	3.00
RES WL 50	Wait list	3/10/2012	Sandy	\$4,650.00	3.76
RES WL 51	Wait list	3/14/2012	South Jordan	\$4,650.00	3.06
RES WL 52	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 53	Wait list	3/7/2012	Sandy	\$4,650.00	3.00
RES WL 54	Wait list	3/13/2012	Salt Lake City	\$3,270.50	2.11
RES WL 55	Wait list	3/5/2012	Smithfield	\$3,503.00	2.26
RES WL 56	Wait list	3/9/2012	South Jordan	\$4,650.00	4.80
RES WL 57	Wait list	3/12/2012	Snyderville	\$4,464.00	2.88
RES WL 58	Wait list	3/7/2012	Moab	\$2,511.00	1.62
RES WL 59	Wait list	3/9/2012	Moab	\$4,650.00	3.10
RES WL 60	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 61	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 62	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 63	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 64	Wait list	3/14/2012	Hooper	\$4,650.00	3.50
RES WL 65	Wait list	3/11/2012	Moab	\$4,650.00	6.18
RES WL 66	Wait list	3/6/2012	Smithfield	\$4,650.00	5.61
RES WL 67	Wait list	3/12/2012	Summit County	\$4,464.00	2.88
RES WL 68	Wait list	3/14/2012	West Haven	\$4,650.00	6.01
RES WL 69	Wait list	3/1/2012	Ivins	\$4,464.00	2.88
RES WL 70	Wait list	3/1/2012	Salt Lake City	\$4,340.00	2.80
RES WL 71	Wait list	3/2/2012	Woodland	\$4,650.00	3.36

RES WL 72	Wait list	3/14/2012	Vernal	\$4,650.00	4.94
RES WL 73	Wait list	3/14/2012	Kaysville	\$4,650.00	3.00
RES WL 74	Wait list	3/14/2012	Draper	\$4,650.00	4.35
RES WL 75	Wait list	3/14/2012	Salt Lake City	\$4,650.00	5.06
RES WL 76	Wait list	3/1/2012	Salt Lake City	\$4,340.00	2.80
RES WL 77	Wait list	3/14/2012	Ogden	\$1,178.00	0.76
RES WL 78	Wait list	3/14/2012	Farmington	\$4,650.00	3.65
RES WL 79	Wait list	3/12/2012	Draper	\$4,650.00	4.00
RES WL 80	Wait list	3/5/2012	La Verkin	\$4,650.00	7.92
RES WL 81	Wait list	3/9/2012	Summit County	\$4,650.00	25.00
RES WL 82	Wait list	3/9/2012	Apline	\$4,650.00	3.60
RES WL 83	Wait list	3/12/2012	Smithfield	\$4,650.00	4.00
RES WL 84	Wait list	3/12/2012	Holladay	\$4,650.00	3.06
RES WL 85	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 86	Wait list	3/1/2012	Moab	\$4,650.00	3.50
RES WL 87	Wait list	3/13/2012	Garden City	\$4,650.00	3.00
RES WL 88	Wait list	3/13/2012	Richfield	\$4,650.00	3.00
RES WL 89	Wait list	3/13/2012	Salt Lake City	\$4,650.00	3.53
RES WL 90	Wait list	3/12/2012	Pleasant View	\$4,650.00	3.00
RES WL 91	Wait list	3/9/2012	Apline	\$4,650.00	4.68
RES WL 92	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 93	Wait list	3/14/2012	Taylorsville	\$4,650.00	3.54
RES WL 94	Wait list	3/14/2012	Park City	\$4,650.00	3.36
RES WL 95	Wait list	3/1/2012	Moab	\$4,650.00	4.80
RES WL 96	Wait list	3/13/2012	Layton	\$4,650.00	3.06
RES WL 97	Wait list	3/13/2012	Saratoga Springs	\$4,650.00	3.00
RES WL 98	Wait list	3/1/2012	Moab	\$2,015.00	1.30
RES WL 99	Wait list	3/14/2012	Farmington	\$4,650.00	3.64
RES WL 100	Wait list	3/14/2012	Uintah	\$4,650.00	3.50
RES WL 101	Wait list	3/1/2012	Ivins	\$4,650.00	3.60

RES WL 102	Wait list	3/9/2012	Cottonwood Heights	\$4,650.00	3.68
RES WL 103	Wait list	3/8/2012	Apline	\$4,650.00	7.50
RES WL 104	Wait list	3/13/2012	Sandy	\$4,650.00	3.53
RES WL 105	Wait list	3/14/2012	Park City	\$4,650.00	3.00
RES WL 106	Wait list	3/12/2012	Plain City	\$4,650.00	4.00
RES WL 107	Wait list	3/14/2012	Warren	\$4,650.00	5.00
RES WL 108	Wait list	3/14/2012	Lindon	\$4,278.00	2.76
RES WL 109	Wait list	3/6/2012	Clinton	\$4,650.00	3.06
RES WL 110	Wait list	3/13/2012	Vernal	\$4,650.00	3.00
RES WL 111	Wait list	3/13/2012	Highland	\$4,650.00	3.00
RES WL 112	Wait list	3/13/2012	Hooper	\$4,650.00	3.00
RES WL 113	Wait list	3/14/2012	Stansbury Park	\$4,650.00	5.28
RES WL 114	Wait list	3/14/2012	Mapleton	\$4,650.00	3.00
RES WL 115	Wait list	3/8/2012	Sandy	\$4,650.00	3.10
RES WL 116	Wait list	3/14/2012	Moab	\$4,650.00	3.09
RES WL 117	Wait list	3/13/2012	Cottonwood Heights	\$4,650.00	3.00
RES WL 118	Wait list	3/6/2012	Moab	\$4,650.00	3.10
RES WL 119	Wait list	3/1/2012	Hooper	\$3,487.50	2.25
RES WL 120	Wait list	3/3/2012	Sandy	\$4,650.00	3.90
RES WL 121	Wait list	3/14/2012	Draper	\$4,650.00	3.00
RES WL 122	Wait list	3/14/2012	Smithfield	\$4,650.00	3.00
RES WL 123	Wait list	3/2/2012	Murray	\$4,448.50	2.87
RES WL 124	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 125	Wait list	3/13/2012	Bluffdale	\$4,650.00	3.00
RES WL 126	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 127	Wait list	3/12/2012	Farr West	\$4,650.00	4.00
RES WL 128	Wait list	3/13/2012	Salt Lake City	\$4,650.00	3.00
RES WL 129	Wait list	3/14/2012	Salt Lake City	\$4,650.00	7.20
RES WL 130	Wait list	3/1/2012	Layton	\$4,650.00	3.01
RES WL 131	Wait list	3/6/2012	Pleasant View	\$4,650.00	5.10

RES WL 132	Wait list	3/13/2012	Huntsville	\$4,650.00	3.00
RES WL 133	Wait list	3/14/2012	Pleasant Grove	\$4,650.00	3.00
RES WL 134	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 135	Wait list	3/12/2012	South Jordan	\$4,650.00	4.00
RES WL 136	Wait list	3/14/2012	Mapleton	\$4,650.00	3.00
RES WL 137	Wait list	3/13/2012	West Jordan	\$4,650.00	3.00
RES WL 138	Wait list	3/12/2012	Erda	\$4,650.00	3.00
RES WL 139	Wait list	3/1/2012	Salt Lake City	\$3,921.50	2.53
RES WL 140	Wait list	3/14/2012	Herriman	\$4,650.00	3.20
RES WL 141	Wait list	3/13/2012	Kamas	\$3,720.00	2.40
RES WL 142	Wait list	3/1/2012	West Haven	\$4,650.00	5.17
RES WL 143	Wait list	3/12/2012	Alpine	\$4,650.00	4.68
RES WL 144	Wait list	3/13/2012	Layton	\$4,650.00	3.00
RES WL 145	Wait list	3/13/2012	Herriman	\$4,650.00	3.00
RES WL 146	Wait list	3/1/2012	Sandy	\$4,650.00	4.80
RES WL 147	Wait list	3/6/2012	Cedar City	\$4,650.00	3.12
RES WL 148	Wait list	3/1/2012	Vernal	\$4,650.00	4.77
RES WL 149	Wait list	3/12/2012	Layton	\$4,650.00	6.58
RES WL 150	Wait list	3/9/2012	Moab	\$4,650.00	3.10
RES WL 151	Wait list	3/14/2012	Salt Lake City	\$4,650.00	3.50
RES WL 152	Wait list	3/10/2012	Huntsville	\$4,650.00	12.00
RES WL 153	Wait list	3/8/2012	Park City	\$4,650.00	7.50
RES WL 154	Wait list	3/14/2012	Riverton	\$4,650.00	3.65
RES WL 155	Wait list	3/8/2012	Ogden	\$4,395.80	2.836
RES WL 156	Wait list	3/14/2012	Moab	\$4,650.00	3.10
RES WL 157	Wait list	3/6/2012	American Fork	\$4,650.00	4.08
RES WL 158	Wait list	3/13/2012	Farmington	\$4,650.00	3.64
RES WL 159	Wait list	3/1/2012	Salt Lake City	\$4,650.00	4.75
RES WL 160	Wait list	3/10/2012	West Valley City	\$4,650.00	3.76
RES WL 161	Wait list	3/1/2012	Fruit Heights	\$4,650.00	4.00

RES WL 162	Wait list	3/1/2012	Amalga	\$4,650.00	3.84
RES WL 163	Wait list	3/14/2012	Ivins	\$4,650.00	5.05
RES WL 164	Wait list	3/14/2012	Herriman	\$4,650.00	3.29
RES WL 165	Wait list	3/14/2012	Moab	\$4,650.00	3.20
RES WL 166	Wait list	3/14/2012	Salt Lake City	\$4,278.00	2.76
RES WL 167	Wait list	3/12/2012	Park City	\$4,464.00	2.88
RES WL 168	Wait list	3/14/2012	Layton	\$4,650.00	3.65
RES WL 169	Wait list	3/14/2012	Salt Lake City	\$4,510.50	2.91
RES WL 170	Wait list	3/5/2012	Kamas	\$4,340.00	2.80
RES WL 171	Wait list	3/14/2012	Park City	\$4,650.00	5.20
RES WL 172	Wait list	3/13/2012	Salt Lake City	\$4,650.00	3.00
RES WL 173	Wait list	3/2/2012	Layton	\$2,650.50	1.71
RES WL 174	Wait list	3/14/2012	Ogden	\$4,650.00	3.00
RES WL 175	Wait list	3/1/2012	Salt Lake City	\$4,650.00	3.00
RES WL 176	Wait list	3/12/2012	Salt Lake City	\$4,650.00	4.46
RES WL 177	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 178	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 179	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 180	Wait list	3/1/2012	Cedar City	\$3,270.50	2.11
RES WL 181	Wait list	3/12/2012	West Valley City	\$4,650.00	3.00
RES WL 182	Wait list	3/10/2012	Salt Lake City	\$4,650.00	3.76
RES WL 183	Wait list	3/1/2012	Salt Lake City	\$4,650.00	4.30
RES WL 184	Wait list	3/14/2012	Salt Lake City	\$4,650.00	5.64
RES WL 185	Wait list	3/14/2012	Salt Lake City	\$4,278.00	2.76
RES WL 186	Wait list	3/8/2012	Highland	\$4,650.00	3.12
RES WL 187	Wait list	3/2/2012	Castle Valley	\$4,650.00	7.52
RES WL 188	Wait list	3/12/2012	Alpine	\$4,650.00	7.92
RES WL 189	Wait list	3/9/2012	West Bountiful	\$4,650.00	3.84
RES WL 190	Wait list	3/13/2012	Sandy	\$4,650.00	4.93
RES WL 191	Wait list	3/5/2012	Apline	\$4,650.00	3.00

RES WL 192	Wait list	3/12/2012	Mountain Green	\$4,650.00	3.00
RES WL 193	Wait list	3/14/2012	Park City	\$4,650.00	3.20
RES WL 194	Wait list	3/14/2012	Moab	\$4,650.00	3.10
RES WL 195	Wait list	3/14/2012	Price	\$2,185.50	1.41
RES WL 196	Wait list	3/1/2012	Alpine	\$2,232.00	1.44
RES WL 197	Wait list	3/14/2012	Moab	\$4,650.00	3.10
RES WL 198	Wait list	3/12/2012	South Jordan	\$4,650.00	3.64
RES WL 199	Wait list	3/6/2012	South Jordan	\$2,170.00	1.40
RES WL 200	Wait list	3/13/2012	West Jordan	\$4,650.00	3.00
RES WL 201	Wait list	3/13/2012	Salt Lake City	\$4,185.00	2.70
RES WL 202	Wait list	3/14/2012	Salt Lake City	\$4,650.00	5.00
RES WL 203	Wait list	3/14/2012	Alpine	\$4,195.85	2.71
RES WL 204	Wait list	3/14/2012	Moab	\$4,650.00	3.10
RES WL 205	Wait list	3/1/2012	Highland	\$4,650.00	3.14
RES WL 206	Wait list	3/13/2012	Sandy	\$4,650.00	3.00
RES WL 207	Wait list	3/7/2012	Farmington	\$4,650.00	3.84
RES WL 208	Wait list	3/14/2012	Cedar Hills	\$3,348.00	2.16
RES WL 209	Wait list	3/14/2012	Price	\$4,650.00	3.00
RES WL 210	Wait list	3/14/2012	Riverton	\$4,650.00	3.00
RES WL 211	Wait list	3/12/2012	Farmington	\$4,650.00	5.00
RES WL 212	Wait list	3/2/2012	Smithfield	\$2,852.00	1.84
RES WL 213	Wait list	3/12/2012	Ivins	\$4,650.00	3.00
RES WL 214	Wait list	3/13/2012	Moab	\$4,650.00	4.85
Totals				\$896,360.35	737.58

Table 6. 2012 Program Non-Residential Participants

Project ID	City	Incentive	Total system size (kW)	System kW eligible for incentive	Total System Cost (\$)	\$/watt - total \$	% of Sunshine	System Orientation	System Tilt Angle (Degree,°)	Module Manufacturer	Module Model	Module Quantity	Module CEC Rated Watts Output	Inverter Manufacturer	Inverter Model	Inverter CEC Weighted Efficiency %
120301.51	Castle Valley	\$22,342.32	15.10	14.41	\$62,773.00	\$4,157.15	100%	180	25	American Solar	ASW270P	60	246.4	Solar Edge	SE5000	97.5
120301.52	Park City	\$3,199.20	2.40	2.06	\$10,158.74	\$4,232.81	100%	180	30	SolarWorld	SW240 Mono Black	10	215	Emphase	M-215	96
120301.53	Taylorsville	\$5,152.05	3.32	3.32	\$18,620.80	\$5,601.93	100%	179	25	GCL	GCL-P6-60-245	16	216.4	Enphase	M-215	96
120301.54	West Valley City	\$23,250.00	20.52	15.00	\$148,154.00	\$7,219.98	100%	180	15	Suntech Power	STP190S	108	171.8	SMA America	SB600-US	95.5
120301.55	Salt Lake City	\$23,250.00	25.00	15.00	\$262,800.00	\$10,512.00	100%	235	30	REC	REC245PE	200	217.3	Enphase	M-215	96
120301.57	Salt Lake City	\$23,074.85	14.88	14.89	\$75,840.00	\$5,096.77	100%	180	28	Sharp	NU-Q240F2	72	216.5	SMA America	SMA 6000US	95.5
120301.58	Draper	\$10,670.30	15.80	6.88	\$28,612.00	\$1,810.89	100%	170	27	Solar World	SW245 Mono	33	217.3	Enphase	M-215	96
120301.59	Murray	\$13,177.73	9.09	8.50	\$54,100.00	\$5,951.60	100%	179	20	Suniva	OPT250-60-3-1BO	40	221.4	Enphase	M-215	96
120301.60	Salt Lake City	\$3,307.82	2.40	2.13	\$11,200.00	\$4,666.67	100%	180	30	SolarWorld	SW250 Mono	10	222.3	Emphase	M-215	96
Total		\$127,424.27	108.51	82.21	\$672,258.54											

Table 7. 2012 Program Non-Residential – Withdrawn and Waiting List Participants

COMMERCIAL: Project ID	Application Status Notes	App Submittal Date	City	Estimated KW of system	Estimated incentive
120301.50	Application Withdrawn/Ineligible	3/14/2012	Moab	15.20	\$23,250.00
120301.56	Application Withdrawn/Ineligible	3/13/2012	Salt Lake City	48.00	\$23,250.00
Total				63.20	\$46,500.00

COMMERCIAL: Project ID	Application Status Notes	App Submittal Date	City	Estimated KW of system	Estimated incentive
NRES WL 01	Waitlist	3/13/2012	Salt Lake City	48.00	\$23,250.00
NRES WL 02	Waitlist	3/8/2012	Salt Lake City	200.00	\$23,250.00
NRES WL 03	Waitlist	3/5/2012	South Salt Lake	4.50	\$6,975.00
NRES WL 04	Waitlist	3/14/2012	American Fork	9.30	\$14,415.00
NRES WL 05	Waitlist	3/5/2012	Cedar City	5.22	\$8,091.00
NRES WL 06	Waitlist	3/14/2012	Salt Lake City	13.00	\$20,150.00
NRES WL 07	Waitlist	3/1/2012	Salt Lake City	22.80	\$23,250.00
NRES WL 08	Waitlist	3/13/2012	Moab	15.20	\$23,250.00
NRES WL 09	Waitlist	3/1/2012	West Valley City	20.00	\$23,250.00
NRES WL 10	Waitlist	3/13/2012	Salt Lake City	36.08	\$23,250.00
NRES WL 11	Waitlist	3/13/2012	Salt Lake City	48.00	\$23,250.00
NRES WL 12	Waitlist	3/14/2012	Alta	15.00	\$23,250.00
NRES WL 13	Waitlist	3/7/2012	Moab	15.20	\$23,250.00
NRES WL 14	Waitlist	3/13/2012	West Valley City	18.44	\$23,250.00
NRES WL 15	Waitlist	3/14/2012	Salt Lake City	3.10	\$4,805.00
NRES WL 16	Waitlist	3/14/2012	Fayette	100.00	\$23,250.00
NRES WL 17	Waitlist	3/13/2012	Salt Lake City	48.00	\$23,250.00
NRES WL 18	Waitlist	3/7/2012	Salt Lake City	86.40	\$23,250.00
NRES WL 19	Waitlist	3/14/2012	West Valley City	15.50	\$23,250.00

NRES WL 20	Waitlist	3/2/2012	Holladay	21.20	\$23,250.00
NRES WL 21	Waitlist	3/1/2012	Holladay	4.00	\$6,200.00
NRES WL 22	Waitlist	3/2/2012	South Jordan	14.84	\$23,002.00
NRES WL 23	Waitlist	3/13/2012	Salt Lake City	48.00	\$23,250.00
NRES WL 24	Waitlist	3/2/2012	Sandy	14.84	\$23,002.00
NRES WL 25	Waitlist	3/12/2012	Salt Lake City	26.00	\$23,250.00
NRES WL 26	Waitlist	3/9/2012	West Valley City	15.80	\$23,250.00
Total				868.42	\$525,140.00

Appendix 2 – Cost-effectiveness Results for the Proposed Utah Solar Incentive Program