Delaware Pilot SREC Procurement
Structural Design and Supporting Materials

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I. Program Structural Design Objectives

The various stakeholders that comprise the Delaware Renewable Energy Task Force represent a broad cross-section of entities interested in and concerned with the implementation of renewable energy policy in Delaware as directed by law. The Solar Renewable Energy Credit (SREC) sub-committee has endeavored to balance the various competing and non-competing interests of the larger Task Force in providing recommendations for the design of Delaware's SREC market.

The basic structural design of the system considered several primary outcomes including:

- Delaware ratepayer impact
- Delaware job creation/economic impact
- Ensuring photovoltaic systems of various sizes are viable

Due to the differences in existing State by State SREC structures and procurement processes, various State Renewable Portfolio Standards (RPS), different competitive/regulated energy service provider market environments, and the still-developing nature of the solar industry in the United States, optimal data to construct a "perfectly balanced and designed" SREC market structure and procurement process is not available. Lacking perfect data and information, the Sub-committee has endeavored to reflect the best available current information, incorporate the expertise and interests of all stakeholders, and design a one-year pilot system in an attempt to minimize ratepayer impacts while maximizing local economic impact.

To this end, the sub-committee designed an SREC system consisting of Tiers representing various solar system sizes. The reasoning for a Tiered system is as follows:

(A) Tiered Design

A Tiered system was selected as the method of meeting the RPS requirement of "Ensuring that residential, commercial, and utility scale photovoltaic systems of various sizes are financially viable and cost effective investments in Delaware"[1]. The Task Force recognizes the potential for higher costs related to the installation of smaller systems, leading to potentially higher ratepayer expense. Balancing mechanisms have been put in place to minimize those impacts. As supported with documentation later in this document, smaller systems tend to produce a larger number of jobs and economic impact than large-scale solar systems. However, larger systems tend to be more cost efficient and potentially could lower rate impacts. Therefore, a thoughtfully structured Tiered system is recommended to encourage a balanced deployment of all system sizes while meeting the dual goals of minimizing rate payer impacts and maximizing job and economic investment.

[1] RPS Standard 365.(e)

(1) Impact of Larger Systems

Protecting smaller systems from being "crowded out" of the market is another consideration. Changes in the tax treatment of solar investments have caused an influx of tax equity capital into the market. Such investors tend to favor systems 500 kW and larger due to the higher fixed costs and complexity of the financial arrangements. Despite the increase to Delaware's RPS in 2010, the number of SRECs required (SREC demand) remains relatively small. Consequently, one large system can have a significant impact on the total percentage of supply of available SRECs and potentially dampen demand for smaller systems.

For example, the Dover SunPark is predicted to account to 70% of Delmarva's SOS load requirement when it is placed into service in 2010. SEU and Delmarva banking will bring the impact down to 48% for Compliance Year 2011 (CY2011), however the "banked" SRECs will need to be brought back into the procurement in the future, meaning the total impact of this single, large project is delayed, not entirely eliminated by banking.

Additional large installations (Tier 3 and 4) installed or planned in Delaware are:

- DTCC 1.2 MW
- UD 1.6 MW
- Perdue 1.5 MW
- Kent Waste Water Treatment Plant 1.2 MW
- City of Wilmington 525 kW
- Wolf Creek (in Kent County) 40 MW
- PJM has a 10 MW project listed for installation

Recent history has shown that these large projects are often developed by out of state financiers, using temporary labor, often also from out of state, and with one exception non-Delaware manufactured solar products. Consequently, satisfying Delaware's RPS requirements with large projects that may have a competitive price and cost advantage over smaller projects may reduce the positive impacts of local job creation and the local economic investment impacts, despite the fact that the ratepayer costs are borne entirely and exclusively by Delawareans.

(2) Tier Allocations

The allocation of SRECs within the Tiers was based on a number of factors. The Dover SunPark currently accounts for 48% of the procurement, leaving 11,472 SRECs of demand. An industry survey was conducted, research of public records to uncover additional planned projects was performed, and an analysis of Delaware's past history and developing trends was examined.

(2) (a) Tier 1

Systems less than or equal to 50 kW (STCDC)

- Tier 1 systems are usually owned directly by the power consumer, and typically evaluated on a positive cash flow rather than an IRR basis. Tier 1 owners endeavor to lower monthly expenses for electricity.
- The Delaware Green Energy Fund grants stop at 50kW for all but non-profit organizations, providing for a Tier 1 maximum design limit. This natural limitation was incorporated into the larger design of procurement pricing as all Tiers above Tier 1 cannot access state grants and full SREC contract prices
- Allocation for the CY2011 Procurement is 2,972 SRECs, 13.4% of procurement.
- In Delaware, the current average project size in this tier is 6.8 kW[2]
- This class of investor often takes more than one year to fully utilize tax credits, and the commercial owners may or may not be able to fully utilize depreciation
- Currently third party ownership financing structures (PPA and lease) are not readily available in this tier in Delaware, although this is subject to future market developments

The Tier 1 allocation was determined based on current demand as an extensive history of installations and developed patterns of demand are available through the Delaware Energy Office. The majority of systems currently installed in Delaware are in this tier. Approximately 310 residential systems could completely fill the allocation in this Tier. Somewhat less that that number will be installed via this procurement as the size range of Tier 1 includes systems as large as 50 kW, which would be equivalent to 7 houses.

The uncertainty of the current SREC spot market vs. the lack of long-term contracts has created pent up demand. We expect Tier 1 to be fully subscribed.

[2] *Spreadsheet provided by Scott Lynch of the DEO to Barry Sheingold on 2/25/2011, transmitted to the RPS Sub Committee via email on 2/28/2011*

(2) (b) Tier 2

Systems greater than 50 kW (DC) and less than or equal to 500 kW (DC)

- Tier 2 projects are characterized by mid-sized commercial and institutional projects such as factories, warehouses, schools and shopping centers.

- Adjacent State SREC procurement designs similar to the recommendations contained herein have utilized a 500kW upper bound
- Despite the large range of potential sizes, the Tier 2 upper limit should enable institutional projects, such as schools and other non-profits, to compete with large, utility-scale projects that may have a cost advantage.
- The ability for projects in Tier 2 to compete for limited SREC demand was a consideration in determining the Tier's pricing and fulfilling the RPS requirement cited previously.
- Allocation for the CY2011 Procurement is 4,000 SRECs, 18.2% of procurement.
- In Delaware, the current average project size in this tier is 74 kW[2]
- Tier 2 systems are often mounted on flat roofs as available adjacent land for ground mounts is usually already purposed or too valuable. Ground mounts in this size class tend to be installed on sub optimal land, such as steep slopes.
- Third party ownership models begin to appear in the upper end of this tier, especially in the institutional and non-profit sector due to the ability of third-parties to take advantage of potentially unrealized tax benefits. This can offset some of the cost advantages of scale, as the additional resources required to get these projects completed, and the additional entities required for financing, have a negative impact on costs.
- Variability in installed costs in Tier 2 can be large, due to the custom nature of equipment tailored to the various physical conditions of each individual site.

Tier 2 allocation was determined utilizing a survey of the planned projects falling into the Tier. The data was then adjusted and weighted for likelihood of completion. The result of the industry survey uncovered a number of projects for Tier 2 in the queue, most likely anticipating a resolution to the SREC procurement process and the eventual offer of long term SREC contracts. This market data provided reasoning for a larger allocation than history would otherwise suggest as pent up demand, similar to Tier 1, is present.

[2]*Spreadsheet provided by Scott Lynch of the DEO to Barry Sheingold on 2/25/2011, transmitted to the RPS Sub Committee via email on 2/28/2011*

(2) (c) Tier 3

Systems greater than 500 kW (DC) and less than or equal to 2 MW (DC)

- Tier 3 systems are characterized as large installations often financed by a third party ownership and investment model, such as a Power Purchase Agreement (PPA)
- The upper bound was chosen to coincide with the new Delaware net metering limit of 2 MWs

- Sophisticated financing to maximize available tax benefits is present.
- Allocation for the CY2011 Procurement is 4,500 SRECs, 20.4% of procurement
- Presently, the Delaware market contains two Tier 3 installed systems, The Kent WWTP and Wilmington Porter Reservoir. The current average project size in the region in this tier is 784 kW[2]
- Tier 3 systems are often ground mounted arrays, although some rooftop installations covering an entire campus or groups of buildings can contain systems of this size.
- Economies of scale are often realized with these projects, and costs are somewhat uniform throughout the Tier, given that some unique physical site characteristics can mitigate the benefit of scale.
- The potential for some of these projects to be "in front of the meter", meaning they would generate in excess of 110% of the site's usage, would require additional approval from the connected utility.

Tier 3 allocation utilized publicly available market data. Of Delaware's 711 currently installed systems, two are larger than Tier 2, yet several systems in Tier 3 have already been contracted with more in the planning stages. Given that only a few projects of this size can fulfill a substantial part of the RPS, and the rate payer impact is anticipated to be reduced by larger projects, Tier 3 was given a larger allocation then the historical record would imply.

[2]*Spreadsheet provided by Scott Lynch of the DEO to Barry Sheingold on 2/25/2011, transmitted to the RPS Sub Committee via email on 2/28/2011*

(2) (d) Tier 4

Systems greater than 2 MW (DC)

- Tier 4 projects are utility projects, in front of the meter, and not subject to net metering provisions.
- Delaware currently has one Tier 4 system under construction, the 10 MW Dover SunPark. The current average project size in the region in this tier is 4.2 MW[2]
- 10,600 SunPark SREC commitment was completed prior to the start of DE SREC work on the procurement process.
- Allocation for the CY2011 Procurement is 10,600 SRECs, 48% of procurement.
- Currently fully subscribed by the Dover SunPark.

(2)(e) Tier Comparisons

It is critical to note that all 3 "currently open" Tiers are anticipated to be over-subscribed. The available SREC demand is Delmarva's SOS load, which is 55% of Delmarva's total load, and only 1/3 of the load for the whole state. As nearly half of that SOS load is already allocated to the SunPark, resultant SREC demand available is approximately 1/6th of the total RPS requirements. It is anticipated that SREC demand currently available in this procurement is not sufficient to meet potential supply. After removing the 48% of the SRECs already allocated to the SunPark, the recommended allocation for the remaining 11,472 SREC among Tiers 1, 2 and 3 is:

Tier	% of Total RPS	% of RPS not including Tier 4
1	13.4%	25.9%
2	18.2%	34.9%
3	20.4%	39.2%
4	48%	not applicable

- The allocation slightly favors larger projects in the higher Tiers on a percentage basis considering market data, known systems contracted, and assumed advantages in scale that should reduce total ratepayer impacts.
- Tiers 1, 2 and 3 are all net metered systems.

[1] RPS Standard 360.(d)(2)(g)

(B) SREC Price Determination

Another important structural consideration in the design of the SREC procurement program is the decisions to use a mixture of administratively and competitively determined pricing.

(1) Ratepayer Protection via $50 SREC in Years 11-20

A key provision of the plan is an SREC value that is fixed at $50 per unit in years 11-20. This is a significant ratepayer protection mechanism. The intent is to control the cost of SRECs in outlying years, while encouraging system upkeep to maintain performance. The 10 year term was selected for several reasons as discussed in section II G.

(2) Bid Pricing in Tiers 3 and 4

For Tiers 3 and 4, the recommendation is to utilize a competitively determined price for the SREC contracts. Competitive pricing is widely utilized for large utility-scale energy production facilities, renewable or otherwise, and has been seen historically as the most beneficial method to minimize the cost to ratepayers. Competitive pricing for the largest

projects should limit ratepayer impacts while allowing sophisticated industry participants to successfully secure adequate financing, deploy investment and place into service large facilities. Despite a dearth of market data related to large solar project development, it is assumed that market participants, such as Independent Power Producers (IPPs) and other large entities, have a material level of working capital to commit to preparing and securing bids. This should allow free market pricing to seek the most efficient use of capital and result in the lowest available impact to the ratepayer.

(3) Administrated Pricing in Tiers 1 and 2

Administratively determined pricing was selected for Tiers 1 and 2 for a number of reasons:

Levelizing:

Smaller projects in a purely competitive environment would be at a significant disadvantage to larger, utility-scale projects. Access to lower cost financing, leverage in supply chain procurement, and other factors would likely allow larger projects to bid consistently below smaller projects. This crowding out effect would severely reduce the likelihood of a large portion of project sizes in Tiers 1 and 2 to be successfully completed.

Minimizing the probability of small project completions in a competitive marketplace negatively impacts the RPS requirement previously mentioned of "Ensuring that residential, commercial, and utility scale photovoltaic systems of various sizes are financially viable and cost effective investments in Delaware"[1]. Administratively determined pricing for smaller projects can be utilized to fulfill the RPS requirement above and to minimize an anticipated crowding out effect.

Avoidance of speculation:

Bidding individual small projects is both time consuming for the developer and expensive for the bid administrator. For this reason, procurements for small projects in a competitive bid environment are usually done via blocks of SRECs, which almost forces and certainly invites speculation.

Administrative Expense:

Monthly or bi-monthly bidding would be needed to keep smaller projects on the development schedule. This would most likely add to the administrative costs, potentially offsetting any savings from resulting from competitive bidding. Due to longer development times, semi-annual bidding is sufficient in Tiers 3 and 4.

Risk:

Competitive auctions can significantly increase the risk of renewable energy investments, especially where demand exceeds available contract supply (a likely condition in DE for 2011). In the presence of a supply demand imbalance, a relatively low likelihood that any particular project will receive a contract would increase risk and ultimately increase costs. Projects in Tier 2 require several thousands of dollars in labor and design to sufficiently to develop a bid. Bidders must therefore put up significant sums in order to mount a bid at all, adding layers of transaction costs with little assurance that this risk will be rewarded with an actual contract to build. This risk must then be reflected in the cost of capital, as both debt and equity providers will identify increased contract and completion risks and thus demand higher returns. The higher return hurdle, coupled with the need to recover the sunk costs from unsuccessful bids, would increase implied capital costs on the next bid, and are likely to eliminate any cost efficiency gains that may be derived from greater price discovery via a competitive bid process.

Contract failure rates:

Under an auction-based competitive bid system, an incentive is created for bidders to bid to the lowest possible price in order to increase their chances of securing a contract. This can lead to higher contract failure rates as project dynamics change, uncontrollable external risks appear and the low bid becomes a project that is simply not financeable. Two additional consequences of a low bid/high failure rate are slower implementation growth, and eroding investor and public confidence.

Manufacturing and Supply Chain Signals:

An auction-based mechanism will also impede the ability for the solar supply chain to forecast stable demand for its products as it will have to rely primarily on episodic calls for supply. The result may be a boom bust pattern of demand, which inhibits the ability of manufacturers to create sustainable jobs.

Pricing risk:

Administratively determined pricing for Tier 2 provided the solar industry a level of confidence in the process to cap Tier 3 bids at $280. Conversely, competitive bids for Tier 2 would potentially remove the cap, leaving an ACP of $400 as the only cap, and may result in higher SREC prices. It is also possible that SREC prices via a competitive bid structure to result in higher pricing for any tier that may be known to be under subscribed.

[1] RPS Standard 360.(d)(2)(g)

(C) Program Design Summary

The RPS Sub Committee to the Renewable Energy Task Force recommends utilizing a Tiered system with a combination of administratively set pricing for Tiers 1 and 2 and competitively determined pricing for Tiers 3 and 4 in an effort to successfully balance the dueling concerns of minimizing ratepayer impacts and maximizing job/economic benefits.

The currently available best data and information was utilized to design the specifics of the program. In assigning the administratively determined prices for Tiers 1 and 2, the sub-committee was granted access to the University of Delaware's CEEP PV Planner. The data used to determine the inputs is contained on the following pages.

II. PV Planner Key Variables

Certain variable inputs to the PV Planner model have a greater effect on the derived SREC pricing then other inputs. In general, those variables that most effect initial capital cost, terms, or ongoing expenses and revenue have the largest impact. These key variables are:

(A) Capital Cost: The initial cost of a PV system

A simplistic view of capital cost is the materials involved and the installation labor, along with other direct project costs such as permitting. The true capital cost also takes into account the overhead involved. Items such as sales and marketing, development and training of the workforce, investments in trucks, lifts and tools, maintaining showrooms and offices, attorney, accountant and license fees, obtaining and maintaining certifications, ongoing service and a host of other items must be recovered in the selling price. These overhead factors per kW are higher when sales volume is lower.

We have seen the price of modules come down as supply has started to outstrip demand, forcing manufacturers to reduce what may have been high margins, with some modules now being sold with little to no margin. Manufacture's price reductions for that reason alone are not sustainable. Further developments in manufacturing and increased capacity are likely to continue exert downward pressure on module price. There may be some further room to reduce inverter costs, but a key driver there is volume, and those numbers remain low due to the number of options on the market. The extended warranties required on inverters to be competitive add significant cost due to frequency of repair needs.

The costs of the non module part of the installation are less likely to decline. All metals seem to be in a long term upward trend. Installation methods and mounting materials have already been engineered to minimize labor, so labor costs are unlikely to decline. The overhead discussed above is relatively fixed, and actually goes up per kW installed as more installers dilute the market.

We have used $6 per watt for Tier I and $5.00 per watt for Tier II. These numbers are supported by recent experience in Massachusetts, Delaware, Pennsylvania and New Jersey. The $5 used for Tier 2 is actually below any comparable capital costs.

State	Quarter	Tier	Utility	# of Projects	Avg $/watt
DE[1]	Q42010	1	DPL	83	$6.04
	All 2010		DEC	69	$6.04

	Q12011		DPL	2	$5.74
	2011		DEC	16	$5.86 (7 identical @ $5.04?)
DE[1]	Q42010	2	DPL	24	$5.65
DE[1]	Q42010	3	DPL	1	$5.27

State	Quarter	Tier	Utility	# of Projects	Avg $/watt
NJ[2]	Q1 2010	1		343	$6.50
	Q2 2010			97	$6.41
	Q3 2010			68	$6.44
NJ[3]	Core 2010	1		328	$7.73
NJ[3]	all 2010	2		35	$6.86
MA[4]	Q1 2010	1		139	$6.91
	Q2 2010			143	$6.34
	Q3 2010			153	$6.05
	Q4 2010			246	$6.21
	Q1 2011 to 2/28/11			52	$5.70
PA[5]	Q1 2011	1[6]			$5.97
	Q1 2011	2[7]			$5.51
US[8]	Q1 2010	Residential			$6.98
	Q2 2010				$6.72
	Q3 2010				$6.66
	Q4 2010				$6.42
US[8]	Q1 2010	Non-Residential			$6.36
	Q2 2010				$6.00
	Q3 2010				$5.68
	Q4 2010				$5.71

Notes for Capital Cost:

1) Spreadsheet provided by Scott Lynch of the DEO to Barry Sheingold on 2/25/2011, transmitted to the RPS Sub Committee via email on 2/28/2011
2) From Public Record of REIP Paid Projects as of January 31, 2011 from New Jersey Board of Public Utilities, Office of Clean Energy. Transmitted to the RPS Sub Committee via email on 2/28/2011

3) From Public Record of CORE Paid Projects: January 1, 2010 through January 31, 2011 from New Jersey Board of Public Utilities, Office of Clean Energy. Transmitted to the RPS Sub Committee via email on 2/28/2011
4) From Commonwealth Solar Summary Report thru 2/28/2011 Commonwealth Solar II – Rebates Awarded Column (see Appendix)
5) From PA DEIP PA Sunshine Solar Program Webpage at: http://www.portal.state.pa.us/portal/server.pt/community/grants_loans_tax_credits/10395/PA_SUNSHINE_SOLAR_PROGRAM/821790
6) "Residential" projects 10 kW and under.
7) "Small Business" projects 3kw to 100 kW
8) "US Solar Market Insight: 2010 Year In Review: Executive Summary" SEIA/GTM Research. http://www.gtmresearch.com/solarinsight

(B) Rebate Amount and Timing

A rebate paid shortly after project completion has the effect of reducing capital cost by the same amount; as installers are likely to "carry" that rebate for their customers, reducing the selling cost to the customer by a similar amount. Once the lag in receiving rebate payments exceeds vendor terms for payment, installers incur financing costs, reducing the effective value of the rebate. When the lag time becomes too long, installers can no longer carry rebates as their lines of credit become full. We saw this happen in Delaware as the Green Energy Fund became oversubscribed.

We have used the current Green Energy Fund rebate amounts in the model, adjusted with the finance charges due to the current lag time.

(C) Payback Period and Cash Flow

The economic viability of residential PV systems was assessed based on cash flow analysis. Payback period is a commonly used metric for residential systems, it shows the time that is needed for investments in PV to be recouped. PV Planner© defines the Payback year as time needed to reach positive cumulative net cash flow, same way as the DOE's National Energy Modeling System (NEMS) (see LaCommare et al, 2003: 9).
For residential customers, it is commonly reported that the Payback year should be less than 10 years for the energy projects to be economically viable (see Denhelm et al, 2009: 19).

References:

Denholm, P., Drury, E., and Margolis, R. 2009. *The Solar Deployment System (SolarDS) Model: Documentation and Sample Results.* Technical Report NREL/TP-6A2-45832. Golden, CO: National Renewable Energy Laboratory.

LaCommare, K. H., Edwards, J. L., Marney, C. 2003. *Distributed Generation Capabilities of the National Energy Modeling System (NEMS)*. LBNL-52432. Berkeley, CA: Ernest Orlando Lawrence Berkeley National Laboratory.

(D) Ability to fully utilize the Federal Tax Credit

The Federal tax credit for PV is currently 30%. Under the right circumstances, this essentially is a 30% reduction in the capital cost of the system. But several factors come into play.

On the residential side, many homeowners do not have the tax liability to utilize this benefit in the first year. For many homeowners, they will carryover the tax credit for additional years. This results in reducing the value of the tax credit by the "marginal" time value of money for a homeowner. If a homeowners is carrying credit card balances and the homeowner requires three years to utilize the tax credit the value could be reduced by more than 20% - more than 10% if financed with a conventional bank loan.

Similarly, many commercial customers don't have the ability to utilize the tax credit. Some commercial customers simply cannot take advantage of the tax credit. Recognizing the challenges created by the tax credits, Congress created and extended for until the end of CY 2011 a US Department of Treasury grant in lieu of tax credit. But, this grant process is bureaucratically intensive, adding cost, and recently the Treasury Department has begun to disallow certain pass through expenses.

As non taxable entities, non profits cannot use the tax credit. This is one reason that third party financing instruments, such as PPA's, are popular with both non profits and some commercial entities. The PPA or Lease models allow third party financiers to invest in the project in exchange for the tax benefits (both tax credits and accelerated depreciations).These third parties can monetize the tax credit to tax equity investors who provide capital in exchange for discounted tax equity. The discounts range 7.5-20 %[(1)].

The model assumes everyone can fully utilize the tax credit in the first year. This means some projects will underperform financially based on the model.

References:

[(1)]Mintz, Levin, Cohn, Ferris, Glovsky, and Popeo, P.C. 2010. *Renewable Energy Project Finance in the U.S.: An Overview and Midterm Outlook*

(E) Capital Depreciation

Capital depreciation is only available on commercially owned systems, not to residential or non profit owners. It is similar to the tax credit in both effect and ability to be utilized, and the discounts paid for third party monetization. Based on their tax requirements,

some entities may be able to depreciate 100% of the system costs for installations completed in 2011. Starting in CY 2012, the bonus depreciation reverts back to modified accelerated depreciation with a five year depreciation schedule and first year 50% bonus depreciation. For an entity to utilize this depreciation they must have the taxable profit to be offset, which unfortunately is often not the case. The third party ownership models (PPA and Lease) provide a ownership structure that allows investors to provide capital in exchange for tax benefits and project cash flows. These investors require significant premiums in their returns. Our current industry experience is that third party tax investors require as much as 14% return for a very safe investment.

This project by project variability in utilization makes it difficult to model the effect. We have chosen the 5 year MACRS depreciation schedule, as most commercial entities should be able to make full use of this schedule. That does mean that some entities may or may not have a better financial situation then modeled dependent upon its ability to use any bonus depreciation schedules.

(F) Number of years of SREC payment

A longer term SREC contract lowers the price. But this also increases the carrying cost of the loan, meaning the overall amount paid for the SRECs during the course of the contract will be higher. Caution is required in that the price of a 20 year flat price SREC can look substantially lower then a 20 year SREC with a declining price, until the time value of money is brought into play.

(G) $50 per SREC payment for years 11-20

A key provision of the plan is an SREC value that is fixed at $50 per unit in years 11-20. This is a significant ratepayer protection mechanism. The intent is to control the cost of SRECs in outlying years, while encouraging system upkeep to maintain performance. The 10 year term was selected for several reasons.

First, investors, either direct owners or 3rd party financiers, generally are not going to look past that horizon for system payback and reasonable levels of profit. If the project cannot cover its costs, and a decent return on investment within that 10 year window, it is not likely to be installed. A higher SREC price in the outlying years just becomes additional profit.

Second, the state of the SREC market 10 years from now is difficult to determine. Many states, including Delaware, have an RPS that accelerates in those outlining years, but currently either oversubscribed or reaching that condition. This condition may have the effect of slowing build out, resulting in a shortage of SRECs in the outlying years. Having price certainly in those years, and at a relatively low cost, has great appeal from a ratepayer standpoint. The system owners are exchanging substantial future potential upside for the certainly and security of the long term contract.

(E) 10 % Delaware Volumetric Adders for Local Labor and Material

A unique feature of Delaware's RPS legislation is the two 10% increases to generated SREC volume, one for using local Delaware labor for the installation, and the other for using at least 50% Delaware manufactured materials. If utilized, each of these has the effect of increasing the SREC value 10%.

The RPS legislation was moot on what constitutes "constructed and/or installed with a minimum of 75% in-state workforce[1]". It is anticipated that this will be a low bar, and apply to only construction labor in the field, not office based personnel. For large projects, even construction labor can be made in-state by temporarily domiciling the workers in Delaware for the duration of the project. For this reason we have assumed that almost every project will meet the standard for the local labor bonus, and have set SREC values using this assumption. It should be noted that this will have the effect of reducing the RPS by 10%.

The costs of solar materials are such that greater then 50% of that material cost is in the modules. Historically, smaller systems have been more likely to use Delaware manufactured modules, as larger systems are often installed by entities purchasing modules through supply contracts from lowest cost, bankable producers. The higher cost of locally produce modules offsets enough of the 10% benefit to make their use unattractive for larger projects. But other considerations for module selection often come into play on smaller projects. Items such as perceived quality, appearance, compatibility with inverter systems, warranty details and power tolerance can cause other modules to be used. We have not included a local manufacturing adder into the proposed SREC prices.

(F) Combined federal and State tax rates

- For residential application 28% federal marginal tax was assumed, corresponding with 6.95% marginal state tax yielding 28%*(1-6.95%)+6.95% = 33% tax rate

- For commercial application 34% federal marginal tax was assumed**, corresponding with 8.7% marginal state tax yielding 34%*(1-8.7%)+8.7% = 40% tax rate

- For state tax rates see Padgit (2011).

* Assumes taxable income within $82,851–$192,000 if single filing or $138,051–$232,950 if filing jointly.
**Assumes taxable income is within $335,000 to $10,000,000 range

(G) Inverter replacement year

It is assumed that inverter will be replaced at least once during the project lifetime. For this purpose it was assumed that inverter will be replaced at the end of 13th year. This actually exceeds standard 10 year inverter warranties. Project Economic Analysis would normally require that the cost of replacing the inverter be figured in at the end of the warranty period. But since the model looks at a 25 year period, this would have resulted in two inverter replacements on in year 10 and the second in year 20.

- Note: moving the inverter replacement to year 13 results in a *lower* SREC price.

(H) O & M Costs, including insurance

- O & M cost is assumed at $20.7/kW (NREL, 2011)

- For commercial systems insurance was set at 0.25% of total installed cost of the project annually (Speer et al, page 22).

(I) Annual cost escalation rate

- At 2% based on Chain-type Price Index from EIA's Annual Energy Outlook (AEO) 2010

(J) Output degradation

- Typical degradation rates observed by existing PV project are within 0.3% to 0.8% rate (Thevenard e*t al,* 2010, page 21). 0.5% was used in this analysis.

(K) Array orientation and tilt angle

Array is assumed to be oriented south, maximizing PV output. For residential 25 degree tilt is used, assuming pitched roof. For commercial applications 10 degree tilt on a flat roof is assumed (the latter maximizes economic value of PV output and roof space application e.g., see paper written by Culligan and Botki from SunPower Corporation). These are considered optimum conditions. Many systems installed on flat commercial roof spaces can achieve the true south orientation angle, although it sometimes requires a reduction in the total system size if the orientation of the building isn't followed. Rarely are pitched roofs, common in Tier 1 installations, at this optimal orientation or pitch angle. The reduction in annual output could be as much as 15% for a system on a installed on a wet facing roof at a 15 degree pitch[1].

[1] From NREL's PV Watts version1:

http://rredc.nrel.gov/solar/calculators/PVWATTS/version1/US/Delaware/Wilmington.html

(L) Finance mechanism and percentage financed

Financing for residential is assumed to be a home equity loan at current rates.
Financing assumption for a commercial non-profit or state PPA will be 70% of post ITC capital needed for the project. Equity capital will represent the remaining 30%. A short-term equity bridge loan needed pre-ITC is not included in the financing assumptions.

(M) Loan Interest Rate and duration

Loan rates for home equity loans vary according to credit quality but are currently within a normal range of 6 and 8%. 6% rate was used for residential. PSE&G's Solar Loan program is currently at 6.5%[1]. It is important to note that there are points and loan fees associated with obtaining the financing that are not accounted for in the PV planner model. A $30K PV loan at 3 points, with application and appraisal fees cost approximately $1500 or more.

Commercial loan rate for a PV project ranges between 6.5% and 7.5% (Mintz Levin Whitepaper) with origination fees not included in the PV Planner financing assumptions. 7% was used as the average rate for a 10 year loan.

[1] http://www.pseg.com/home/save/solar/pdf/loan_brochure-residential.pdf

(N) Rates of Return

Typically after tax rate of return on common stock and retained earnings range from 0% to 65% with an average of 14%. For large investment projects where there is a normal level of business risk, after tax IRR of 12-15% appears to be widely used (Newnan et al, 2004: 482-483). For Tier 2 it was assumed that at least 14% of IRR was needed for third party (i.e., PPA) model to be economically viable.

References:

Culligan, M., and Botki, J. *Impact of Tilt Angle on System Economics for Area Constrained Rooftops*. SunPower Corporation

EIA 2010. *Annual Energy Outlook 2010: Macroeconomic Indicators*. Table 20. http://www.eia.gov/oiaf/archive/aeo10/aeoref_tab.html

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. 2010. *Renewable Energy Project Finance in the U.S.: An Overview and Midterm Outlook*. Mintz, Levin Whitepaper

Newnan, D. G., Eschenbach, T. G., and Lavelle, J. P. 2004. *Engineering Economic Analysis*. 9th Ed. New York: Oxford University Press

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Padgit, K. 2011. *2011 State Business Tax Climate Index*. Background Paper No. 60. http://www.taxfoundation.org/research/show/22658.html

Speer, B., Mendelsohn, M., and Cory, K. 2010a. *Insuring Solar Photovoltaics: Challenges and Possible Solutions*. National Renewable Energy Laboratory (NREL). Technical Report NREL/TP-6A2-46932

Thevenard, D., Driesse, A., Pelland, S., Turcotte, D., and Poissant, Y. 2010. *Uncertainty in Long-Term Photovoltaic Yield Predictions*. Report # 2010-122 (RP-TEC), CanmetENERGY, Varennes Research Center, Natural Resources Canada

III. APPENDIX

(A) Commentary on Return Hurdles from DSEC

Developing and ultimately constructing solar projects entails taking higher than average business risk. The Delaware solar industry has chosen to work within the constraints of potentially lower project returns in return for the stability of long term SREC contracts which are critical to the long-term survivability of the industry.

It is important to recognize that project returns and business returns are very different. While any given project may have an attractive *modeled* return, a number of projects will never be consummated and some number of projects will result in lower than expected returns or even losses.

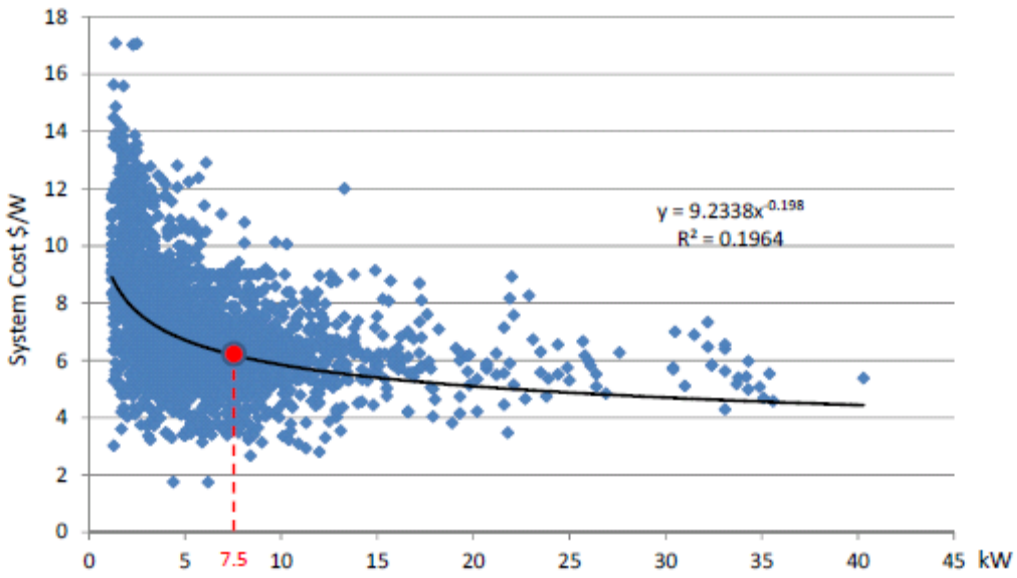
Solar project development in an RPS state requires the owner or the development company to undertake development risk, construction risks, operational risks, host risks, counterparty credit risks, legal risks and regulatory risk. The majority of projects that a developer/installer originates do not result in the actual project being constructed – originate is simply a discussion whether a solar project makes sense for a residence, business or other entity. The success rate on solar projects is low and the resultant overhead must be spread over those projects that do come to fruition. This low rate of converting solar potential projects into actual solar arrays placed into service is caused by a number of factors: The solar project does not create an attractive return for the host, the perceived risks to the host are too high, and in some circumstances, the lengthy, multi-month process of developing a project exceeds the window provided by financiers.

For those projects that proceed to signed agreements between the developer / installer and the host, there are construction and operational risks. Despite the quality of the engineering, procurement and installation teams, risk is ever present, things can go wrong, requiring additional resources and adding unanticipated cost. Once brought on line, agency issues created by the host's relationship to the owner/developer result in potentially significant operational risks. A host is usually incented to maintain the system because the energy produced results in savings. However, hosts do not have the capabilities or expertise to maintain the systems resulting in additional potential owner or developer operational risks.

Finally, the solar industry and the entire chain of supporting businesses it has create, are exposed to large regulatory and political risks. These markets exist because the legislature has determined that solar energy is in the public interest. If legislation is changed and the public withdraws its support for solar implementation, they conceivable could eliminate the entire solar industry in Delaware with the stroke of a pen.

Hence, the modeled project returns are simulated and result in minimal business returns when adjusted for the plethora of risks at this stage in the evolution of the solar market.

Figure A1. System Cost Data from California
System Size<50kW (Q4 2010)



Data Source: California Solar Statistics for Q4 2010. http://www.californiasolarstatistics.ca.gov

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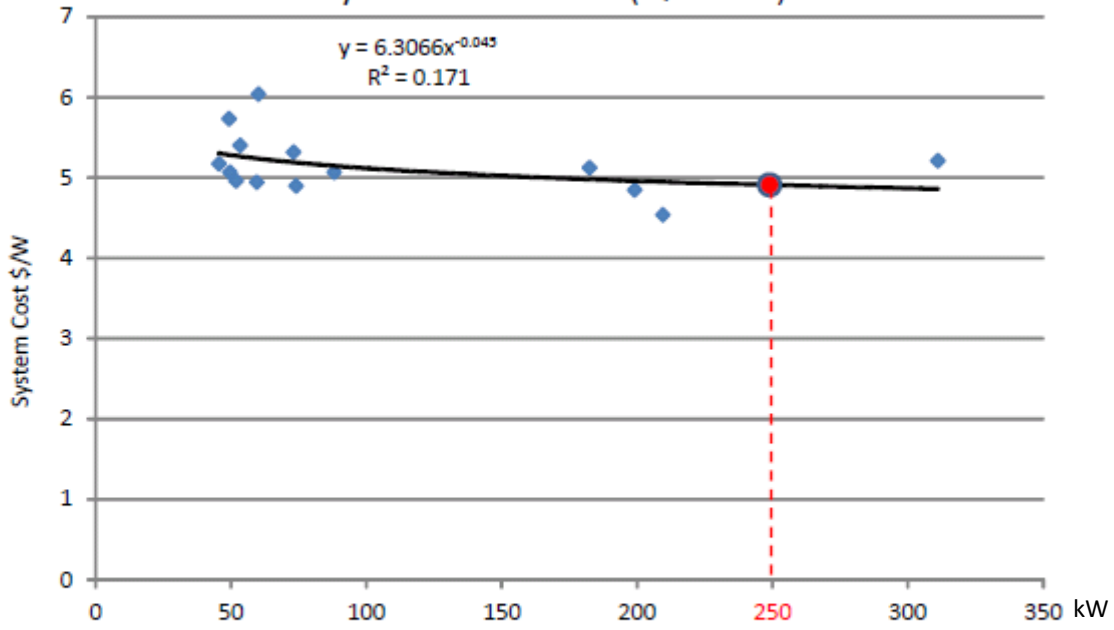
Figure A2. System Cost Data from California System Size>50kW (Q4 2010)



Data Source: California Solar Statistics for Q4 2010. http://www.californiasolarstatistics.ca.gov

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Figure A3. Cost Data from PA Sunshine Solar Program

Costs for all Applications Submitted in January 2011:

	High Cost ($/Watt)	Median Cost ($/Watt)	Low Cost ($/Watt)	Median System Size (kW)
Residential	$9.86	$5.97	$3.13	7.3
Small Business	$7.00	$5.51	$2.67	39.5

Data Source: PA Sunshine Solar Program. 2011.
http://www.portal.state.pa.us/portal/server.pt/community/grants_loans_tax_credits/10395/PA_Sunshine_Solar_Program/821790

Figure A4. Annual O&M and Insurance Costs

Average annual O&M Costs for PV projects is $19 (2006$) per kW installed, adjusted for inflation this number is around $21 per kW in today's $. [1]

Annual insurance cost is around 0.25% of Installed Project Cost. Insurance Cost might be as high as 0.5% in areas where extreme weather events are likely (e.g., hurricanes in Florida, earthquakes is California, high-winds in Colorado). [2]

Based on these assumptions combined annual O&M and Insurance Costs for 250 kW system = $8,375 per year

Sources:

[1] NREL, 2011. *Energy Technology Cost and Performance Data*
http://www.nrel.gov/analysis/tech_cost_oandm.html

[2] Speer, B., Mendelsohn, M., and Cory, K. 2010. *Insuring Solar Photovoltaics: Challenges and Possible Solutions*. National Renewable Energy Laboratory (NREL). Technical Report NREL/TP-6A2-46932

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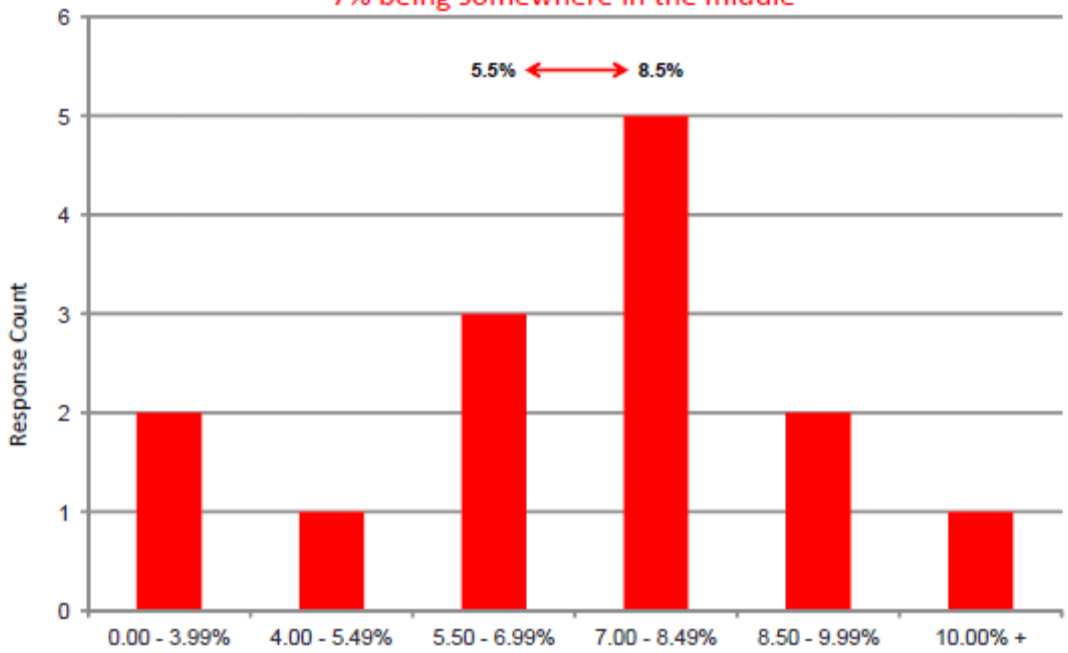
Figure A5. Loan Interest Rate is more likely to be within 5.5% to 8.5%, 7% being somewhere in the middle



Data Sources: NREL Renewable Energy Finance Tracking Initiative (REFTI). Based on Q4 2009, Q1 and Q2 2010 Reports. http://financere.nrel.gov/finance/REFTI

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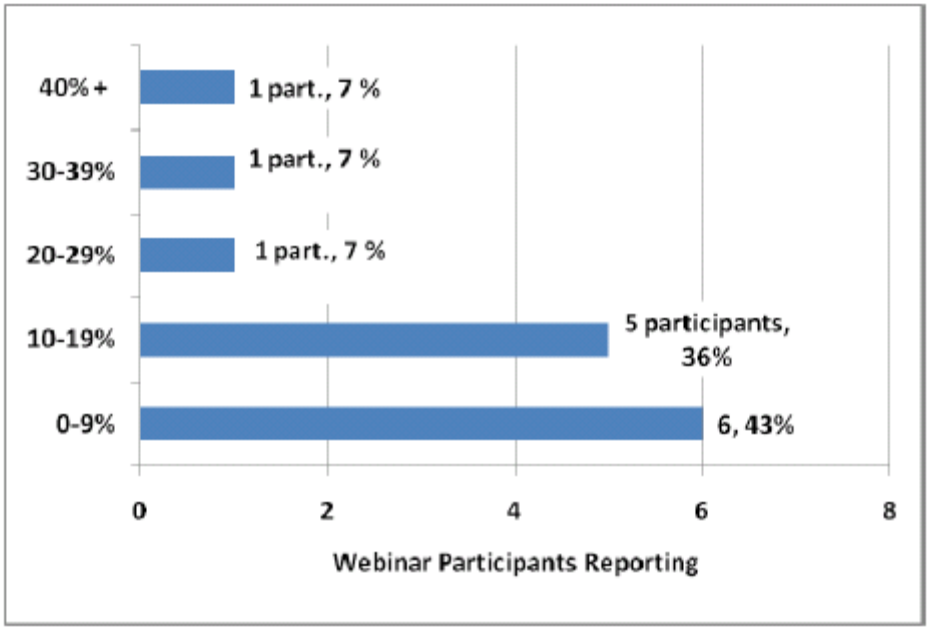
Figure A6. Transaction Costs of Treasury Grant Monetization.
At least 10% need to be allowed for TG monetization



Source: NREL 2010. REFTI Q1 2010 Summer Webinar Poll # 2

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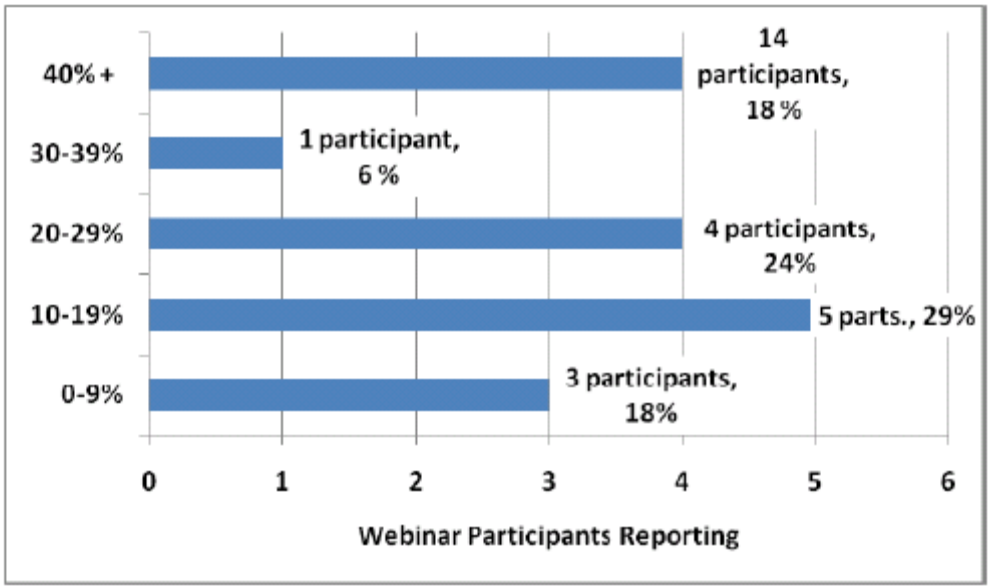
Figure A7. Transaction Costs of Monetizing Tax Credits & MACRS = 23.8% [weighted average]



Source: NREL 2010. REFTI Q1 2010 Summer Webinar Poll # 3

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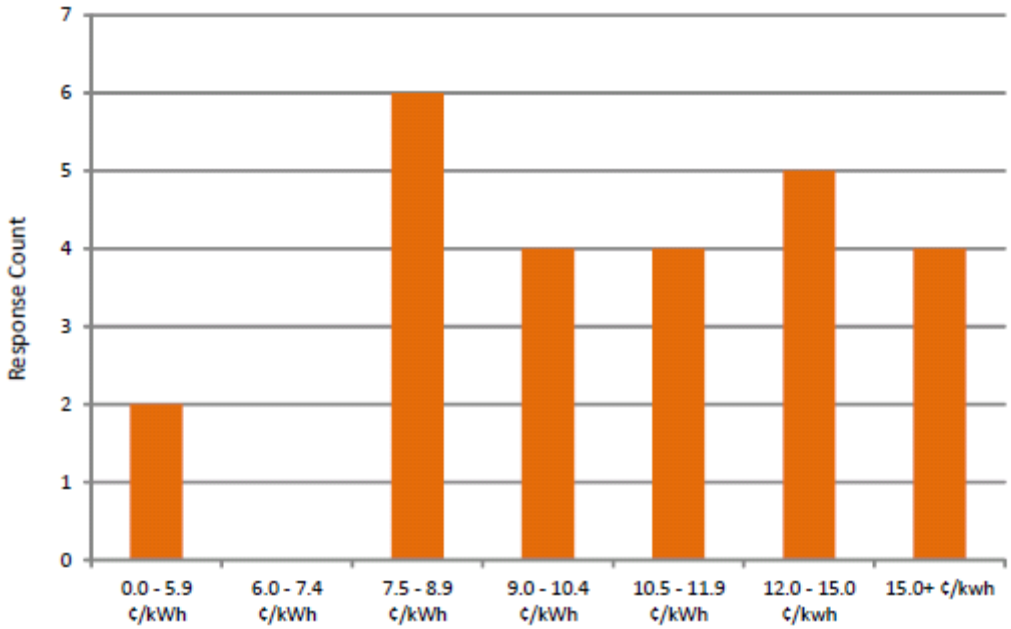
Figure A8. PPA Price for PV Projects under 1 MW in Year 1



Data Sources: NREL Renewable Energy Finance Tracking Initiative (REFTI). Based on Q4 2009, Q1 and Q2 2010 Reports. http://financere.nrel.gov/finance/REFTI

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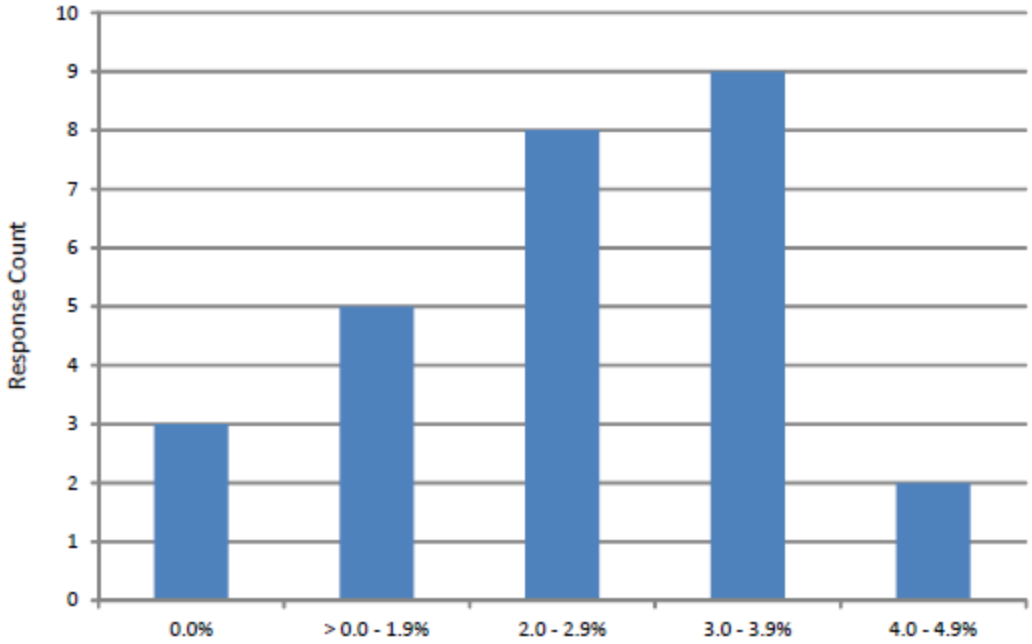
Figure A9. PPA Price Escalation (%) for PV Projects under 1 MW



Data Sources: NREL Renewable Energy Finance Tracking Initiative (REFTI). Based on Q4 2009, Q1 and Q2 2010 Reports. http://financere.nrel.gov/finance/REFTI

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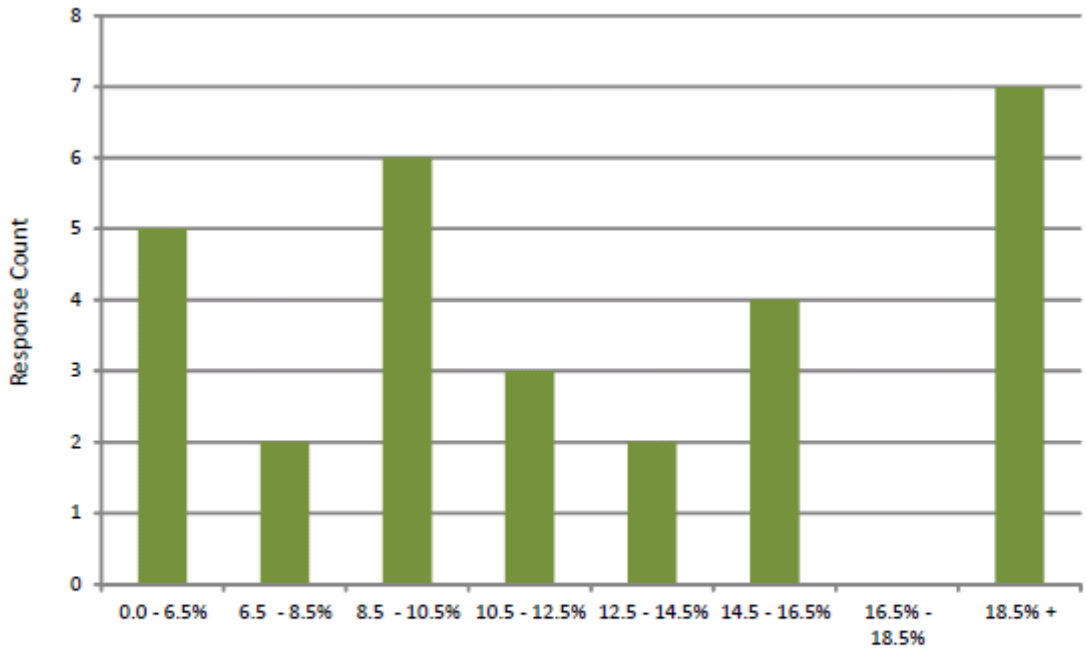
Figure A10. Expected Return on Tax-Investor Equity for PV Projects under 1 MW



Data Sources: NREL Renewable Energy Finance Tracking Initiative (REFTI). Based on Q4 2009, Q1 and Q2 2010 Reports. http://financere.nrel.gov/finance/REFTI

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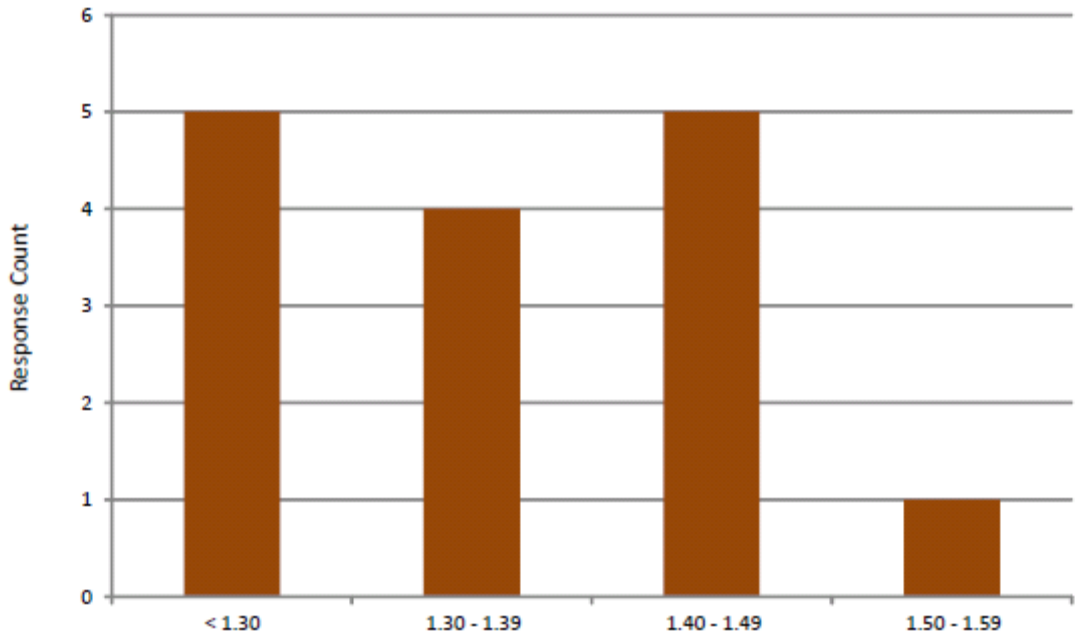
Figure A11. Debt Service Coverage Ratio Required for PV Projects under 1 MW



Data Sources: NREL Renewable Energy Finance Tracking Initiative (REFTI). Based on Q4 2009, Q1 and Q2 2010 Reports. http://financere.nrel.gov/finance/REFTI

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Delaware Pilot SREC Procurement
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Massachusetts Commonwealth Solar Summary Report

Commonwealth Solar Summary Report thru 2/28/2011
Program Overview

Commonwealth Solar I

	Systems	kW	Rebate$	$ Oversubscribed	Rebate $/watt	Total System Cost$	Installed Cost $/watt	Avg Rebate $/Project	Avg Cost $/Project	Avg Rebate % of Cost
Application Received	1,436	29,507.53	$81,222,543.71		$ 2.75	$191,836,768.72	$ 6.50	$ 56,562	$ 133,591	42%
In Process	0	0.00	$0.00	$ (6,195,221.68)	N/A	N/A	N/A	N/A	N/A	N/A
Forfeited, Withdrawn, or Denied	194	8,983.70	$19,417,765.39		$ 2.16	$53,109,373.26	$ 5.91	$ 100,092	$ 273,760	37%
Rebate Awarded	**1242**	**20,523.83**	**$61,804,778.32**		**$ 3.01**	**$138,727,395.46**	**$ 6.76**	$ 49,762	$ 111,697	45%
Awarded but Incomplete	50	2,254.15	$6,535,714.96		$ 2.90	$13,742,656.96	$ 6.10	$ 130,714	$ 274,853	48%
Project Completed	1192	18,269.68	$55,269,063.36		$ 3.03	$124,984,738.50	$ 6.84	$ 46,367	$ 104,853	44%

Commonwealth Solar II

	Systems	kW	Rebate$	$ Oversubscribed	Rebate $/watt	Total System Cost$	Installed Cost $/watt	Avg Rebate $/Project	Avg Cost $/Project	Avg Rebate % of Cost
Application Received	1,007	5,384.78	$6,249,154.85		$ 1.16	$33,721,596.64	$ 6.26	$ 6,206	$ 33,487	19%
In Process	118	702.91	$652,893.20	$ (228,768.65)	$ 0.93	$4,329,307.00	$ 6.16	$ 5,533	$ 36,689	15%
Forfeited, Withdrawn, or Denied	156	825.72	$977,923.50		$ 1.18	$5,109,265.47	$ 6.19	$ 6,269	$ 32,752	19%
Rebate Awarded	**733**	**3,856.16**	**$4,618,338.15**		**$ 1.20**	**$24,283,024.17**	**$ 6.30**	$ 6,301	$ 33,128	19%
Awarded but Incomplete	384	2,080.14	$2,336,305.75		$ 1.12	$12,605,076.15	$ 6.06	$ 6,084	$ 32,826	19%
Project Completed	349	1,776.01	$2,282,032.40		$ 1.28	$11,677,948.02	$ 6.58	$ 6,539	$ 33,461	20%

Commonwealth Solar Stimulus

	Systems	kW	Rebate$	$ Oversubscribed	Rebate $/watt	Total System Cost$	Installed Cost $/watt	Avg Rebate $/Project	Avg Cost $/Project	Avg Rebate % of Cost
Application Received	249	18,119.53	$19,021,492.00		$ 1.05	$104,888,006.16	$ 5.79	$ 76,392	$ 421,237	18%
In Process	0	0.00	$0.00	$ (416,378.50)	N/A	N/A	N/A	N/A	N/A	N/A
Forfeited, Withdrawn, or Denied	153	10,726.80	$11,437,870.50		$ 1.07	$62,424,067.41	$ 5.82	$ 74,757	$ 408,000	18%
Rebate Awarded	**96**	**7,392.73**	**$7,583,621.50**		**$ 1.03**	**$42,463,938.75**	**$ 5.74**	$ 78,996	$ 442,333	18%
Awarded but Incomplete	65	5,577.50	$5,671,721.50		$ 1.02	$30,973,214.56	$ 5.55	$ 87,257	$ 476,511	18%
Project Completed	31	1,815.24	$1,911,900.00		$ 1.05	$11,490,724.19	$ 6.33	$ 61,674	$ 370,669	17%

Delaware Pilot SREC Procurement
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Massachusetts Commonwealth Solar Summary Report

Commonwealth Solar Summary Report thru 2/28/2011
Commonwealth Solar II

Commonwealth Solar II - Block 1

	Systems	kW	Rebate$	$ Oversubscribed	Rebate $/watt	Total System Cost$	Installed Cost $/watt	Avg Rebate $/Project	Avg Cost $/Project	Avg Rebate % of Cost
Application Received	179	893.94	$1,200,683.20		$ 1.34	$6,145,084.94	$ 6.87	$ 6,708	$ 34,330	20%
In Process	0	0.00	$0.00	$ (78,137.10)	N/A	N/A	N/A	N/A	N/A	N/A
Forfeited, Withdrawn, or Denied	40	195.69	$278,820.30		$ 1.42	$1,316,960.91	$ 6.73	$ 6,971	$ 32,924	21%
Rebate Awarded	139	698.24	$921,862.90		$ 1.32	$4,828,124.03	$ 6.91	$ 6,632	$ 34,735	19%
Awarded but Incomplete	10	43.20	$65,088.00		$ 1.51	$296,494.88	$ 6.86	$ 6,509	$ 29,649	22%
Project Completed	129	655.04	$856,774.90		$ 1.31	$4,531,629.15	$ 6.92	$ 6,642	$ 35,129	19%

Commonwealth Solar II - Block 2

	Systems	kW	Rebate$	$ Oversubscribed	Rebate $/watt	Total System Cost$	Installed Cost $/watt	Avg Rebate $/Project	Avg Cost $/Project	Avg Rebate % of Cost
Application Received	179	970.98	$1,138,329.30		$ 1.17	$6,196,190.51	$ 6.38	$ 6,359	$ 34,616	18%
In Process	0	0.00	$0.00	$ (93,397.70)	N/A	N/A	N/A	N/A	N/A	N/A
Forfeited, Withdrawn, or Denied	36	204.27	$231,727.00		$ 1.13	$1,334,239.24	$ 6.53	$ 6,437	$ 37,062	17%
Rebate Awarded	143	766.71	$906,602.30		$ 1.18	$4,861,951.27	$ 6.34	$ 6,340	$ 34,000	19%
Awarded but Incomplete	24	151.73	$132,962.00		$ 0.88	$931,433.51	$ 6.14	$ 5,541	$ 38,810	14%
Project Completed	119	614.98	$773,620.30		$ 1.26	$3,930,517.76	$ 6.39	$ 6,501	$ 33,030	20%

Commonwealth Solar II - Block 3

	Systems	kW	Rebate$	$ Oversubscribed**	Rebate $/watt	Total System Cost$	Installed Cost $/watt	Avg Rebate $/Project	Avg Cost $/Project	Avg Rebate % of Cost
Application Received	198	1,001.73	$1,271,774.70		$ 1.27	$5,959,954.43	$ 5.95	$ 6,423	$ 30,101	21%
In Process	8	34.68	$45,865.20	$ (49,286.90)	$ 1.32	$188,427.16	$ 5.43	$ 5,733	$ 23,553	24%
Forfeited, Withdrawn, or Denied	37	195.85	$221,061.60		$ 1.13	$1,103,746.11	$ 5.64	$ 5,975	$ 29,831	20%
Rebate Awarded	153	771.20	$1,004,847.90		$ 1.30	$4,667,781.16	$ 6.05	$ 6,568	$ 30,508	22%
Awarded but Incomplete	77	394.97	$512,878.70		$ 1.30	$2,289,127.85	$ 5.80	$ 6,661	$ 29,729	22%
Project Completed	76	376.24	$491,969.20		$ 1.31	$2,378,653.31	$ 6.32	$ 6,473	$ 31,298	21%

** An additional $100,000 was rolled into Block 3 based on available funds from Blocks 1 & 2.

Commonwealth Solar II - Block 4

	Systems	kW	Rebate$	$ Oversubscribed**	Rebate $/watt	Total System Cost$	Installed Cost $/watt	Avg Rebate $/Project	Avg Cost $/Project	Avg Rebate % of Cost
Application Received	294	1,612.54	$1,868,889.40		$ 1.16	$9,954,256.17	$ 6.18	$ 6,357	$ 33,892	19%
In Process	9	49.99	$88,975.00	$18,372.80	$ 1.78	$317,376.32	$ 6.35	$ 9,886	$ 35,264	28%
Forfeited, Withdrawn, or Denied	39	205.45	$231,516.60		$ 1.13	$1,221,393.76	$ 5.95	$ 5,936	$ 31,318	19%
Rebate Awarded	246	1,357.10	$1,548,397.80		$ 1.14	$8,425,486.09	$ 6.21	$ 6,294	$ 34,250	18%
Awarded but Incomplete	221	1,227.36	$1,388,729.80		$ 1.13	$7,588,338.29	$ 6.18	$ 6,284	$ 34,336	18%
Project Completed	25	129.75	$159,668.00		$ 1.23	$837,147.80	$ 6.45	$ 6,387	$ 33,486	19%

** An additional $619,000 was rolled into Block 4 based on available funds for future blocks, and forfeitures and rescissions from previous blocks.
Funds taken from future blocks will not affect the future ability of MassCEC to provide $1 million per quarter in the CSII program.

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Massachusetts Commonwealth Solar Summary Report

Commonwealth Solar II - Block 5*** Does NOT Include Non-Expedited Projects										
	Systems	kW	Rebate$	$ Oversubscribed**	Rebate $/watt	Total System Cost$	Installed Cost $/watt	Avg Rebate $/Project	Avg Cost $/Project	Avg Rebate % of Cost
Application Received	157	905.59	$769,478.25		$ 0.85	$5,456,110.59	$ 6.02	$ 4,901	$ 34,752	14%
In Process	101	618.23	$518,053.00	$ (245,319.75)	$ 0.84	$3,623,503.52	$ 6.18	$ 5,129	$ 37,856	14%
Forfeited, Withdrawn, or Denied	4	24.47	$14,798.00		$ 0.60	$132,925.45	$ 5.43	$ 3,700	$ 33,231	11%
Rebate Awarded	52	262.89	$236,627.25		$ 0.90	$1,499,681.62	$ 5.70	$ 4,551	$ 28,840	16%
Awarded but Incomplete	52	262.89	$236,627.25		$ 0.90	$1,499,681.62	$ 5.70	$ 4,551	$ 28,840	16%
Project Completed	0	0.00	$0.00		N/A	N/A	N/A	N/A	N/A	N/A

Delaware Pilot SREC Procurement
Appendix

Massachusetts Commonwealth Solar Summary Report

Commonwealth Solar Summary Report thru 2/28/2011

Commonwealth Solar Stimulus

Commonwealth Solar Stimulus - Block 1

	Systems	kW	Rebate$	$ Oversubscribed	Rebate $/watt	Total System Cost$	Installed Cost $/watt	Avg Rebate $/Project	Avg Cost $/Project	Avg Rebate % of Cost
Application Received	92	7,106.48	$7,261,055.50		$ 1.02	$39,758,999.06	$ 5.59	$ 78,925	$ 432,163	18%
In Process	0	0.00	$0.00	$ (788,484.50)	N/A	N/A	N/A	N/A	N/A	N/A
Forfeited, Withdrawn, or Denied	48	3,969.49	$4,049,540.00		$ 1.02	$22,860,272.61	$ 5.76	$ 84,365	$ 476,256	18%
Rebate Awarded	44	3,136.99	$3,211,515.50		$ 1.02	$16,898,726.45	$ 5.39	$ 72,989	$ 384,062	19%
Awarded but Incomplete	26	2,425.00	$2,383,070.50		$ 0.98	$12,910,562.47	$ 5.32	$ 91,657	$ 496,560	18%
Project Completed	18	711.99	$828,445.00		$ 1.16	$3,988,163.98	$ 5.60	$ 46,025	$ 221,565	21%

Commonwealth Solar Stimulus - Block 2

	Systems	kW	Rebate$	$ Oversubscribed	Rebate $/watt	Total System Cost$	Installed Cost $/watt	Avg Rebate $/Project	Avg Cost $/Project	Avg Rebate % of Cost
Application Received	157	11,013.05	$11,760,436.50		$ 1.07	$65,129,007.10	$ 5.91	$ 74,907	$ 414,834	18%
In Process	0	0.00	$0.00	$ 372,106.00	N/A	N/A	N/A	N/A	N/A	N/A
Forfeited, Withdrawn, or Denied	105	6,757.31	$7,388,330.50		$ 1.09	$39,563,794.80	$ 5.85	$ 70,365	$ 376,798	19%
Rebate Awarded	52	4,255.74	$4,372,106.00		$ 1.03	$25,565,212.30	$ 6.01	$ 84,079	$ 491,639	17%
Awarded but Incomplete	39	3,152.50	$3,288,651.00		$ 1.04	$18,062,652.09	$ 5.73	$ 84,324	$ 463,145	18%
Project Completed	13	1,103.25	$1,083,455.00		$ 0.98	$7,502,560.21	$ 6.80	$ 83,343	$ 577,120	14%

** Block 2 is not oversubscribed. Funding available from Block 1 (due to forfeitures) allowed awards to be made off of the waitlist, which show up in Block 2.

Delaware Pilot SREC Procurement Appendix

Delaware Energy Office DPL Grant Data

Represents all applications filed with the Delaware Energy Office for Delmarva Powe
Not all projects listed below are complete.

Type	Application Received	System Size	System cost	Cost per watt
Nonresidential	2/23/2009	60	$495,000.00	8.25
Nonresidential	3/11/2009	6.3	$55,182.00	8.759047619
Nonresidential	3/31/2009	12.96	$105,000.00	8.101851852
Nonresidential	4/7/2009	37	$321,900.00	8.7
Nonresidential	4/15/2009	5.04	$42,999.00	8.531547619
Nonresidential	4/24/2009	9.36	$73,950.00	7.900641026
Nonresidential	4/27/2009	9	$73,800.00	8.2
Nonresidential	5/12/2009	42.7	$347,520.00	8.138641686
Nonresidential	5/1/2009	10.08	$79,632.00	7.9
Nonresidential	5/1/2009	19.74	$173,812.00	8.805065856
Nonresidential	5/1/2009	32.76	$228,992.00	6.98998779
Nonresidential	5/1/2009	19.95	$153,615.00	7.7
Nonresidential	5/1/2009	17.43	$166,216.66	9.536239816
Nonresidential	5/1/2009	2.4	$21,000.00	8.75
Nonresidential	5/4/2009	67.62	$490,245.00	7.25
Nonresidential	5/4/2009	39.48	$286,230.00	7.25
Nonresidential	5/18/2009	62.1	$500,000.00	8.051529791
Nonresidential	5/22/2009	2	$16,224.00	8.112
Nonresidential	5/20/2009	29.9	$225,720.00	7.54916388
Nonresidential	6/15/2009	6.6	$49,995.00	7.575
Nonresidential	7/17/2009	58.56	$456,823.92	7.800954918
Nonresidential	7/17/2009	23.79	$198,624.68	8.349082808
Nonresidential	7/17/2009	58.56	$456,714.21	7.799081455
Nonresidential	7/21/2009	71.37	$473,000.00	6.627434496
Nonresidential	7/22/2009	75	$472,834.00	6.304453333
Nonresidential	8/17/2009	19.95	$153,615.00	7.7
Nonresidential	8/18/2009	4.14	$28,833.00	6.964492754
Nonresidential	8/27/2009	142.87	$928,655.00	6.5
Nonresidential	8/27/2009	29.67	$202,646.00	6.82999663
Nonresidential	9/22/2009	89.25	$625,643.00	7.010005602
Nonresidential	10/16/2009	65.88	$425,584.80	6.46
Nonresidential	10/23/2009	51.48	$306,700.00	5.957653458
Nonresidential	11/6/2009	16.33	$135,643.00	8.306368647
Nonresidential	11/12/2009	61.915	$478,600.00	7.729952354
Nonresidential	11/16/2009	2.52	$20,900.00	8.293650794
Nonresidential	11/16/2009	2.52	$20,900.00	8.293650794
Nonresidential	11/24/2009	15.08	$94,250.00	6.25
Nonresidential	12/11/2009	23	$150,897.00	6.56073913
Nonresidential	12/17/2009	14.56	$104,758.50	7.194951923
Nonresidential	12/29/2009	7.36	$53,595.00	7.281929348
Nonresidential	1/15/2010	20.7	$121,680.00	5.87826087
Nonresidential	1/15/2010	20.7	$121,680.00	5.87826087
Nonresidential	1/15/2010	20.7	$121,680.00	5.87826087
Nonresidential	2/24/2010	14	$74,500.00	5.321428571
Nonresidential	4/9/2010	20.7	$121,680.00	5.87826087
Nonresidential	1/22/2010	526.24	$3,762,616.00	7.15

Delaware Pilot SREC Procurement Appendix

Delaware Energy Office DPL Grant Data

Nonresidential	1/29/2010	11.88	$89,760.00	7.555555556
Nonresidential	2/18/2010	17.55	$93,541.50	5.33
Nonresidential	3/19/2010	10.08	$83,200.00	8.253968254
Nonresidential	4/20/2010	49.68	$490,000.00	9.863123994
Nonresidential	4/13/2010	168.82	$1,000,000.00	5.923468783
Nonresidential	5/14/2010	50.4	$399,200.00	7.920634921
Nonresidential	5/14/2010	51.66	$299,628.00	5.8
Nonresidential	5/20/2010	40.5	$243,000.00	6
Nonresidential	6/25/2010	89.01	$534,060.00	6
Nonresidential	6/25/2010	5.75	$40,500.00	7.043478261
Nonresidential	6/29/2010	11.985	$95,920.00	8.003337505
Nonresidential	7/14/2010	22.75	$273,000.00	12
Nonresidential	8/3/2010	1.38	$16,560.00	12
Nonresidential	9/16/2010	25.48	$197,176.80	7.738492936
Nonresidential	9/29/2010	57.12	$292,478.40	5.120420168
Nonresidential	9/30/2010	44.415	$229,869.75	5.175498143
Nonresidential	9/30/2010	77.785	$370,485.00	4.762936299
Nonresidential	9/30/2010	13.69	$78,443.70	5.73
Nonresidential	9/30/2010	23.1	$188,686.00	8.168225108
Nonresidential	10/1/2010	10.8	$49,200.00	4.555555556
Nonresidential	10/8/2010	50.4	$335,000.00	6.646825397
Nonresidential	10/8/2010	12.22	$97,760.00	8
Nonresidential	10/12/2010	37.8	$211,680.00	5.6
Nonresidential	10/12/2010	78.75	$409,500.00	5.2
Nonresidential	10/13/2010	41.86	$270,135.00	6.453296703
Nonresidential	10/20/2010	7.2	$45,000.00	6.25
Nonresidential	11/4/2010	23.76	$111,191.86	4.679792088
Nonresidential	11/4/2010	34.32	$171,922.77	5.00940472
Nonresidential	10/29/2010	78.75	$780,000.00	9.904761905
Nonresidential	11/18/2010	100.98	$540,288.00	5.350445633
Nonresidential	12/2/2010	197.47	$729,674.01	3.695113232
Nonresidential	12/8/2010	34.27	$231,322.00	6.74998541
Nonresidential	12/9/2010	282.9	$1,555,950.00	5.5
Nonresidential	12/9/2010	12.42	$80,730.00	6.5
Nonresidential	12/9/2010	207.74	$1,059,474.00	5.1
Nonresidential	12/9/2010	170.8	$898,408.00	5.26
Nonresidential	12/9/2010	54.99	$312,893.10	5.69
Nonresidential	12/9/2010	65.32	$408,250.00	6.25
Nonresidential	12/9/2010	155.25	$970,313.00	6.250003221
Nonresidential	12/9/2010	152.72	$954,500.00	6.25
Nonresidential	12/9/2010	12.88	$148,120.00	11.5
Nonresidential	12/10/2010	28.2	$142,410.00	5.05
Nonresidential	12/10/2010	97.06	$630,890.00	6.5
Nonresidential	12/10/2010	95.68	$621,920.00	6.5
Nonresidential	12/10/2010	95.68	$621,920.00	6.5
Nonresidential	12/10/2010	42	$252,000.00	6
Nonresidential	12/13/2010	1433.97	$7,559,000.00	5.271379457
Nonresidential	12/13/2010	272.13	$1,440,000.00	5.291588579
Nonresidential	12/16/2010	7.4	$43,291.73	5.850233784
Nonresidential	12/20/2010	13.86	$86,625.00	6.25
Nonresidential	12/20/2010	4.2	$28,812.00	6.86

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Delaware Energy Office DPL Grant Data

Nonresidential	12/20/2010	133	$831,250.00	6.25
Nonresidential	12/20/2010	122.5	$796,250.00	6.5
Nonresidential	12/21/2010	6.345	$50,760.00	8
Nonresidential	12/21/2010	68.855	$378,013.95	5.49
Nonresidential	12/22/2010	81.42	$557,727.00	6.85
Nonresidential	12/22/2010	86.02	$584,936.00	6.8
Nonresidential	12/22/2010	36.8	$239,200.00	6.5
Nonresidential	12/22/2010	36.8	$243,306.00	6.611576087
Nonresidential	12/22/2010	127.19	$883,140.00	6.943470399
Nonresidential	12/23/2010	6.72	$47,333.00	7.04360119
Nonresidential	12/23/2010	3.36	$23,667.00	7.04375
Nonresidential	12/23/2010	450.45	$2,034,318.00	4.516190476
Nonresidential	12/23/2010	2.52	$20,660.00	8.198412698

Residential	Date	PV	Total cost	Cost/watt
Residential	1/26/2009	3.8	$27,500.00	$7.24
Residential	1/26/2009	7.8	$61,734.00	$7.91
Residential	2/11/2009	6.3	$50,400.00	$8.00
Residential	2/11/2009	9.675	$76,046.00	$7.86
Residential	2/13/2009	6.8	$53,720.00	$7.90
Residential	2/13/2009	4	$33,650.00	$8.41
Residential	2/13/2009	6.075	$47,992.50	$7.90
Residential	2/17/2009	4.2	$37,596.00	$8.95
Residential	2/17/2009	2.65	$25,540.00	$9.64
Residential	2/17/2009	5.04	$40,320.00	$8.00
Residential	2/17/2009	3.15	$35,008.00	$11.11
Residential	2/17/2009	7	$62,698.00	$8.96
Residential	2/24/2009	4.2	$38,168.00	$9.09
Residential	2/19/2009	2.8	$31,440.00	$11.23
Residential	2/20/2009	3.5	$28,947.00	$8.27
Residential	2/24/2009	7.59	$63,073.00	$8.31
Residential	2/24/2009	7.98	$64,441.00	$8.08
Residential	3/4/2009	7.98	$63,840.00	$8.00
Residential	2/25/2009	2.8	$25,154.00	$8.98
Residential	2/25/2009	3.5	$36,502.00	$10.43
Residential	2/25/2009	1.8	$15,300.00	$8.50
Residential	2/25/2009	6.4	$48,212.00	$7.53
Residential	2/26/2009	5.85	$45,975.00	$7.86
Residential	2/25/2009	3.6	$32,392.00	$9.00
Residential	2/25/2009	7.2	$56,885.00	$7.90
Residential	3/3/2009	7.35	$63,005.00	$8.57
Residential	2/26/2009	7.02	$57,600.00	$8.21
Residential	3/5/2009	9.24	$73,920.00	$8.00
Residential	3/2/2009	7.36	$58,144.00	$7.90
Residential	3/5/2009	5.6	$51,430.00	$9.18
Residential	3/9/2009	6.3	$56,358.00	$8.95
Residential	3/10/2009	7	$57,186.00	$8.17
Residential	3/11/2009	4.2	$38,027.00	$9.05
Residential	3/12/2009	1.4	$10,710.00	$7.65
Residential	3/12/2009	1.35	$10,462.50	$7.75

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Delaware Energy Office DPL Grant Data

Residential	3/12/2009	1.35	$10,462.50	$7.75
Residential	3/12/2009	1.35	$10,462.50	$7.75
Residential	3/12/2009	1.35	$10,462.50	$7.75
Residential	3/12/2009	1.35	$10,462.50	$7.75
Residential	3/12/2009	1.35	$10,462.50	$7.75
Residential	3/12/2009	1.8	$13,770.00	$7.65
Residential	3/12/2009	1.8	$13,770.00	$7.65
Residential	3/12/2009	1.8	$13,770.00	$7.65
Residential	3/12/2009	1.8	$13,770.00	$7.65
Residential	3/12/2009	1.8	$13,770.00	$7.65
Residential	3/12/2009	1.575	$12,127.50	$7.70
Residential	3/12/2009	1.575	$12,127.50	$7.70
Residential	3/12/2009	5.04	$40,068.00	$7.95
Residential	3/23/2009	4.9	$41,594.00	$8.49
Residential	3/20/2009	3.15	$24,885.00	$7.90
Residential	3/25/2009	5.6	$45,360.00	$8.10
Residential	3/31/2009	8.712	$69,300.00	$7.95
Residential	3/31/2009	7.35	$60,528.00	$8.24
Residential	3/31/2009	7.524	$60,000.00	$7.97
Residential	3/31/2009	5.26	$42,208.00	$8.02
Residential	4/7/2009	4.752	$38,000.00	$8.00
Residential	4/7/2009	7.2	$55,440.00	$7.70
Residential	4/7/2009	3.68	$28,336.00	$7.70
Residential	4/7/2009	7.56	$59,346.00	$7.85
Residential	4/7/2009	5.94	$46,000.00	$7.74
Residential	4/7/2009	6.3	$51,408.00	$8.16
Residential	4/7/2009	4.2	$37,414.00	$8.91
Residential	4/7/2009	5.25	$46,750.00	$8.90
Residential	4/7/2009	7.98	$63,441.00	$7.95
Residential	4/8/2009	7.2	$54,000.00	$7.50
Residential	4/8/2009	4.55	$39,084.00	$8.59
Residential	4/8/2009	3.168	$29,000.00	$9.15
Residential	4/13/2009	4.752	$41,392.00	$8.71
Residential	4/14/2009	7.524	$63,000.00	$8.37
Residential	4/14/2009	5.25	$46,700.00	$8.90
Residential	4/14/2009	8.712	$64,000.00	$7.35
Residential	4/15/2009	5.88	$49,999.00	$8.50
Residential	4/16/2009	3.78	$29,128.00	$7.71
Residential	4/20/2009	3.78	$30,051.00	$7.95
Residential	4/20/2009	2	$15,900.00	$7.95
Residential	4/22/2009	4.73	$41,254.00	$8.72
Residential	4/22/2009	4.9	$44,460.00	$9.07
Residential	4/22/2009	3.5	$29,736.00	$8.50
Residential	4/22/2009	5.25	$44,311.00	$8.44
Residential	4/29/2009	7.79	$63,120.00	$8.10
Residential	4/29/2009	7.35	$61,858.00	$8.42
Residential	4/27/2009	6.125	$52,127.00	$8.51
Residential	4/23/2009	7.38	$56,885.00	$7.71
Residential	5/11/2009	1.296	$15,512.00	$11.97
Residential	5/12/2009	5.4	$40,500.00	$7.50
Residential	5/15/2009	8	$81,600.00	$10.20
Residential	5/1/2009	5.775	$45,600.00	$7.90
Residential	5/12/2009	8.4	$63,000.00	$7.50
Residential	5/1/2009	4.725	$37,328.00	$7.90

Delaware Pilot SREC Procurement Appendix

Delaware Energy Office DPL Grant Data

Residential	5/1/2009	3.6	$29,500.00	$8.19
Residential	5/1/2009	3.85	$30,608.00	$7.95
Residential	5/1/2009	1.575	$12,499.00	$7.94
Residential	5/6/2009	3.98	$46,760.00	$11.75
Residential	5/4/2009	7.36	$62,560.00	$8.50
Residential	5/4/2009	6.3	$47,880.00	$7.60
Residential	5/4/2009	7	$60,886.00	$8.70
Residential	5/4/2009	7.56	$53,924.00	$7.13
Residential	5/4/2009	5.04	$37,340.00	$7.41
Residential	5/6/2009	7.8	$62,000.00	$7.95
Residential	5/6/2009	7.8	$62,400.00	$8.00
Residential	5/6/2009	4.796	$35,000.00	$7.30
Residential	5/1/2009	6.235	$49,637.00	$7.96
Residential	5/1/2009	4.2	$36,450.00	$8.68
Residential	5/1/2009	2.625	$23,250.00	$8.86
Residential	5/1/2009	7.38	$59,542.00	$8.07
Residential	5/1/2009	6.3	$45,600.00	$7.24
Residential	5/1/2009	5.04	$39,556.00	$7.85
Residential	5/4/2009	2.07	$18,732.00	$9.05
Residential	5/1/2009	4.94	$39,380.00	$7.97
Residential	5/18/2009	5.68	$53,960.00	$9.50
Residential	5/29/2009	7.8	$63,180.00	$8.10
Residential	5/28/2009	3.8	$27,650.00	$7.28
Residential	5/27/2009	3.15	$27,356.00	$8.68
Residential	5/25/2009	5.6	$46,140.00	$8.24
Residential	6/26/2009	5.184	$36,000.00	$6.94
Residential	6/3/2009	4.2	$31,080.00	$7.40
Residential	6/4/2009	3.78	$29,295.00	$7.75
Residential	6/22/2009	6.3	$51,716.00	$8.21
Residential	6/18/2009	0.57	$4,703.00	$8.25
Residential	6/12/2009	6.3	$45,152.00	$7.17
Residential	6/10/2009	4.32	$28,000.00	$6.48
Residential	6/26/2009	4.375	$38,989.00	$8.91
Residential	6/26/2009	3.85	$33,808.00	$8.78
Residential	7/2/2009	3.6	$27,000.00	$7.50
Residential	7/7/2009	2.94	$22,785.00	$7.75
Residential	7/9/2009	3.69	$29,128.00	$7.89
Residential	7/9/2009	5.25	$52,447.50	$9.99
Residential	7/9/2009	6.3	$47,250.00	$7.50
Residential	7/10/2009	5.88	$42,548.00	$7.24
Residential	7/13/2009	3.42	$23,550.00	$6.89
Residential	7/13/2009	3.78	$30,240.00	$8.00
Residential	7/21/2009	4.55	$37,850.00	$8.32
Residential	7/21/2009	3.68	$28,336.00	$7.70
Residential	7/27/2009	3.325	$29,330.00	$8.82
Residential	7/21/2009	3.15	$27,830.00	$8.83
Residential	7/30/2009	6.3	$43,400.00	$6.89
Residential	8/6/2009	3.5	$27,825.00	$7.95
Residential	8/12/2009	4.375	$37,959.00	$8.68
Residential	8/11/2009	3.15	$27,829.00	$8.83
Residential	8/11/2009	2.8	$26,428.00	$9.44
Residential	8/11/2009	4.2	$36,155.00	$8.61
Residential	8/20/2009	1.52	$10,030.56	$6.60
Residential	8/26/2009	7.59	$61,885.00	$8.15
Residential	8/26/2009	3.075	$26,085.14	$8.48
Residential	9/3/2009	6.3	$48,093.90	$7.63

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Residential	9/3/2009	4.55	$38,015.00	$8.35
Residential	9/9/2009	8.6	$59,340.00	$6.90
Residential	9/11/2009	3.168	$24,000.00	$7.58
Residential	9/14/2009	15.552	$88,635.00	$5.70
Residential	9/21/2009	5.88	$41,672.04	$7.09
Residential	9/23/2009	5.29	$41,379.00	$7.82
Residential	9/23/2009	5.25	$43,478.00	$8.28
Residential	10/2/2009	7.56	$51,308.62	$6.79
Residential	10/6/2009	7.98	$53,945.00	$6.76
Residential	10/7/2009	3.964	$32,385.88	$8.17
Residential	10/8/2009	5.04	$34,571.24	$6.86
Residential	10/15/2009	8.61	$59,409.00	$6.90
Residential	10/16/2009	3.168	$21,000.00	$6.63
Residential	10/20/2009	7.128	$51,500.00	$7.23
Residential	10/21/2009	4.14	$27,080.00	$6.54
Residential	10/23/2009	4.14	$30,636.00	$7.40
Residential	10/28/2009	7.36	$57,295.00	$7.78
Residential	10/29/2009	4.416	$35,328.00	$8.00
Residential	11/2/2009	4.262	$34,000.00	$7.98
Residential	11/2/2009	5.88	$46,452.00	$7.90
Residential	11/3/2009	6.44	$55,750.00	$8.66
Residential	11/6/2009	8.74	$32,775.00	$3.75
Residential	11/12/2009	6.9	$63,800.00	$9.25
Residential	11/18/2009	9.03	$57,792.00	$6.40
Residential	11/2/2009	3.875	$29,000.00	$7.48
Residential	11/12/2009	6.09	$36,781.83	$6.04
Residential	11/13/2009	5.29	$35,326.55	$6.68
Residential	11/23/2009	3.68	$29,744.00	$8.08
Residential	11/23/2009	5.52	$31,530.00	$5.71
Residential	11/23/2009	4.41	$34,600.00	$7.85
Residential	11/24/2009	3.96	$32,000.00	$8.08
Residential	12/11/2009	8.84	$54,454.00	$6.16
Residential	12/4/2009	6.72	$38,031.82	$5.66
Residential	12/10/2009	3.87	$29,040.00	$7.50
Residential	12/17/2009	9.45	$56,000.00	$5.93
Residential	12/21/2009	1.6	$10,800.00	$6.75
Residential	1/5/2010	5.4	$34,830.00	$6.45
Residential	1/4/2010	6.2	$62,000.00	$10.00
Residential	12/31/2009	7.59	$56,429.00	$7.43
Residential	12/29/2009	6.44	$47,751.00	$7.41
Residential	12/29/2009	5.52	$40,975.00	$7.42
Residential	2/23/2010	10.08	$103,750.00	$10.29
Residential	11/20/2009	4.37	$46,523.00	$10.65
Residential	2/9/2010	2.82	$55,000.00	$19.50
Residential	2/16/2010	5.04	$35,784.00	$7.10
Residential	2/22/2010	5.52	$43,459.00	$7.87
Residential	2/24/2010	14.72	$94,208.00	$6.40
Residential	2/26/2010	5.2	$30,992.00	$5.96
Residential	3/24/2010	3.96	$33,000.00	$8.33
Residential	3/24/2010	5.52	$38,500.00	$6.97
Residential	3/24/2010	6.9	$38,600.00	$5.59
Residential	3/25/2010	10.44	$74,458.00	$7.13
Residential	3/30/2010	8.054	$62,418.50	$7.75
Residential	3/31/2010	10.92	$74,802.00	$6.85
Residential	4/8/2010	7.04	$43,199.84	$6.14
Residential	4/7/2010	4.6	$42,413.00	$9.22

Delaware Pilot SREC Procurement Appendix

Delaware Energy Office DPL Grant Data

Residential	4/28/2010	5.52	$35,880.00	$6.50
Residential	5/5/2010	2.52	$16,442.00	$6.52
Residential	5/6/2010	11.88	$63,322.47	$5.33
Residential	5/7/2010	1.38	$12,927.69	$9.37
Residential	5/10/2010	4.2	$27,300.00	$6.50
Residential	5/13/2010	4.5	$30,375.00	$6.75
Residential	5/19/2010	9.88	$70,240.00	$7.11
Residential	5/19/2010	6.44	$47,753.00	$7.42
Residential	5/26/2010	5.5	$30,000.00	$5.45
Residential	5/28/2010	3.15	$23,800.00	$7.56
Residential	5/28/2010	1.26	$6,930.00	$5.50
Residential	6/1/2010	7.42	$51,757.84	$6.98
Residential	6/16/2010	3.68	$28,704.00	$7.80
Residential	6/17/2010	5.32	$36,931.00	$6.94
Residential	6/17/2010	1.98	$14,999.00	$7.58
Residential	6/25/2010	6.74	$42,500.00	$6.31
Residential	6/25/2010	4.37	$20,500.00	$4.69
Residential	7/6/2010	5.06	$29,601.00	$5.85
Residential	7/7/2010	8.4	$44,646.35	$5.32
Residential	7/7/2010	4.5	$26,849.89	$5.97
Residential	7/7/2010	5.76	$33,000.00	$5.73
Residential	7/8/2010	6.9	$41,000.00	$5.94
Residential	7/8/2010	5.52	$35,880.00	$6.50
Residential	7/8/2010	4.14	$28,968.00	$7.00
Residential	7/8/2010	2.85	$21,412.00	$7.51
Residential	7/8/2010	5.4	$35,640.00	$6.60
Residential	7/16/2010	5.32	$36,960.00	$6.95
Residential	7/30/2010	5.76	$41,600.00	$7.22
Residential	7/30/2010	3.96	$25,000.00	$6.31
Residential	8/4/2010	12.16	$81,794.00	$6.73
Residential	8/2/2010	4.86	$26,800.00	$5.51
Residential	8/11/2010	3.96	$26,600.00	$6.72
Residential	8/3/2010	4.37	$24,297.20	$5.56
Residential	8/17/2010	2.7	$18,900.00	$7.00
Residential	8/12/2010	4.935	$38,175.00	$7.74
Residential	8/18/2010	4.32	$26,500.00	$6.13
Residential	8/19/2010	6.75	$33,087.30	$4.90
Residential	8/20/2010	5.94	$36,000.00	$6.06
Residential	8/20/2010	3.7	$23,250.00	$6.28
Residential	8/23/2010	10.175	$57,800.00	$5.68
Residential	8/23/2010	16.2	$79,151.96	$4.89
Residential	8/24/2010	3.485	$22,408.55	$6.43
Residential	8/24/2010	3.78	$26,082.00	$6.90
Residential	8/26/2010	2.52	$19,794.12	$7.85
Residential	8/26/2010	7.74	$45,279.00	$5.85
Residential	8/31/2010	3.075	$19,553.37	$6.36
Residential	8/31/2010	8.64	$47,150.00	$5.46
Residential	9/2/2010	4.41	$25,709.00	$5.83
Residential	9/3/2010	7.74	$46,440.00	$6.00

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Delaware Energy Office DPL Grant Data

Residential	9/3/2010	6.75	$47,250.00	$7.00
Residential	9/7/2010	3.7	$22,903.00	$6.19
Residential	9/7/2010	6.3	$33,194.81	$5.27
Residential	9/9/2010	5.88	$30,741.52	$5.23
Residential	9/14/2010	5.55	$21,900.00	$3.95
Residential	9/14/2010	4.86	$26,800.00	$5.51
Residential	9/15/2010	9.03	$47,478.88	$5.26
Residential	9/15/2010	3.15	$22,354.65	$7.10
Residential	9/15/2010	5.875	$39,622.50	$6.74
Residential	9/15/2010	2.25	$15,750.00	$7.00
Residential	9/16/2010	3.78	$18,862.00	$4.99
Residential	9/22/2010	5.06	$37,130.00	$7.34
Residential	9/23/2010	12.025	$75,156.25	$6.25
Residential	9/22/2010	4.51	$18,700.00	$4.15
Residential	9/24/2010	9.45	$51,792.17	$5.48
Residential	9/24/2010	5.46	$32,656.84	$5.98
Residential	9/27/2010	12.9	$79,335.00	$6.15
Residential	9/30/2010	4.2	$26,902.88	$6.41
Residential	10/1/2010	1.38	$8,004.00	$5.80
Residential	10/1/2010	8.61	$45,598.89	$5.30
Residential	10/4/2010	5.92	$36,964.00	$6.24
Residential	10/5/2010	9.84	$57,500.00	$5.84
Residential	10/4/2010	3.33	$23,628.00	$7.10
Residential	10/4/2010	13.32	$70,463.00	$5.29
Residential	10/8/2010	4.14	$23,556.60	$5.69
Residential	10/12/2010	9.99	$53,477.00	$5.35
Residential	10/15/2010	7.05	$41,242.50	$5.85
Residential	10/15/2010	7.2	$40,200.00	$5.58
Residential	10/18/2010	5.55	$29,970.00	$5.40
Residential	10/20/2010	11.88	$58,500.00	$4.92
Residential	10/20/2010	5.94	$35,000.00	$5.89
Residential	10/27/2010	5.06	$24,844.60	$4.91
Residential	10/28/2010	4.32	$22,713.00	$5.26
Residential	11/1/2010	5.17	$34,897.50	$6.75
Residential	11/2/2010	5.98	$29,987.00	$5.01
Residential	11/4/2010	4.752	$31,750.00	$6.68
Residential	11/8/2010	3.68	$18,988.80	$5.16
Residential	11/8/2010	8.4	$44,904.92	$5.35
Residential	11/9/2010	16.875	$87,750.00	$5.20
Residential	10/26/2010	10.8	$52,000.00	$4.81
Residential	11/17/2010	9.165	$52,698.75	$5.75
Residential	11/19/2010	3.8	$26,768.00	$7.04
Residential	11/29/2010	4.752	$24,882.00	$5.24
Residential	11/30/2010	8.4	$44,902.46	$5.35
Residential	11/30/2010	0.92	$5,060.00	$5.50
Residential	11/30/2010	19.35	$54,991.79	$2.84
Residential	12/3/2010	10.125	$64,294.00	$6.35

Delaware Pilot SREC Procurement Appendix

Delaware Energy Office DPL Grant Data

Residential	12/3/2010	2.22	$20,000.00	$9.01
Residential	12/7/2010	6.93	$37,463.46	$5.41
Residential	12/7/2010	3.29	$22,927.04	$6.97
Residential	12/7/2010	8.46	$48,645.00	$5.75
Residential	12/8/2010	12.54	$67,705.00	$5.40
Residential	12/8/2010	7.82	$40,820.00	$5.22
Residential	12/8/2010	3.808	$24,752.00	$6.50
Residential	12/8/2010	6.11	$35,133.00	$5.75
Residential	12/9/2010	4.75	$32,070.00	$6.75
Residential	12/9/2010	8.55	$62,174.00	$7.27
Residential	12/9/2010	6.84	$49,372.00	$7.22
Residential	12/9/2010	8.74	$58,887.00	$6.74
Residential	12/9/2010	1.9	$14,642.00	$7.71
Residential	12/9/2010	1.8	$9,900.00	$5.50
Residential	12/10/2010	24.44	$128,865.89	$5.27
Residential	12/15/2010	4.995	$32,250.00	$6.46
Residential	12/15/2010	5.346	$33,500.00	$6.27
Residential	12/15/2010	4.752	$29,500.00	$6.21
Residential	12/15/2010	3.96	$30,000.00	$7.58
Residential	12/16/2010	5.88	$37,500.00	$6.38
Residential	12/20/2010	4.7	$31,255.00	$6.65
Residential	12/21/2010	12.22	$76,375.00	$6.25
Residential	12/21/2010	4.83	$32,332.40	$6.69
Residential	12/8/2010	4.94	$32,440.00	$6.57
Residential	12/20/2010	6.105	$31,028.66	$5.08
Residential	12/22/2010	11.28	$101,520.00	$9.00
Residential	12/23/2010	6.21	$45,540.00	$7.33
Residential	12/23/2010	2.1	$17,000.00	$8.10
Residential	12/24/2010	13.44	$67,000.00	$4.99
Residential	12/24/2010	11.04	$55,000.00	$4.98
Residential	12/24/2010	9.84	$51,000.00	$5.18
Residential	12/24/2010	11.52	$59,000.00	$5.12
Residential	1/4/2011	5.92	$34,800.00	$5.88
Residential	1/11/2011	7	$39,270.00	$5.61
		569.935	**$3,281,813.76**	**$5.76**
Q4 2010 Comm		**5317.35**	**$29,845,881.07**	**$5.61**
Q4 Tier 1		**1128.895**	**$6,819,491.37**	**$6.04**
Q4 Tier 2		**3360.96**	**$18,997,578.46**	**$5.65**
Q1 11 Tier 1				$5.74

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Delaware Energy Office DEC Grant Data

Represents all applications filed with the Delaware Energy Office for Delaware Electric Cooperative Customers
Not all projects listed below are complete.

Type	Application Received	System Size	System cost	Cost / Watt
Commercial	2009	6.88	$52,632.00	7.65
Commercial	2009	5.46	$42,588.00	7.8
Commercial	2009	2.94	$22,932.00	7.8
Residential	2009	3.50	$32,179.00	9.194
Residential	2009	2.80	$27,588.00	9.852857
Residential	2009	4.00	$31,800.00	7.95
Residential	2009	4.00	$33,796.00	8.449
Residential	2009	3.36	$19,100.00	5.684524
Residential	2009	3.78	$30,051.00	7.95
Residential	2009	5.18	$40,380.00	7.789352
Residential	2009	5.04	$39,280.00	7.793651
Residential	2009	5.88	$45,570.00	7.75
Residential	2009	3.78	$35,000.00	9.259259
Residential	2009	3.78	$28,395.00	7.511905
Residential	2009	6.02	$46,354.00	7.7
Residential	2009	7.00	$58,824.00	8.403429
Residential	2009	5.88	$45,570.00	7.75
Residential	2009	3.50	$27,839.00	7.954
Residential	2009	1.75	$15,016.00	8.580571
Residential	2009	5.78	$46,068.00	7.977143
Residential	2009	7.13	$49,896.00	7
Residential	2009	3.00	$25,740.00	8.58
Residential	2009	6.88	$52,288.00	7.6
Residential	2009	4.56	$29,960.00	6.570175
Residential	2009	6.30	$48,825.00	7.75
Residential	2009	1.89	$19,120.00	10.1164
Residential	2009	8.00	$59,734.00	7.47142
Residential	2009	3.15	$24,885.00	7.9
Residential	2009	5.16	$41,832.00	8.106977
Residential	2009	6.48	$57,079.53	8.808569
Residential	2009	6.38	$49,833.00	7.816941
Residential	2009	6.38	$49,833.00	7.816941
Residential	2009	6.02	$45,451.00	7.55
Residential	2009	5.04	$37,548.00	7.45
Residential	2009	5.63	$42,000.00	7.457386
Residential	2009	4.50	$32,400.00	7.2
Residential	2009	5.28	$37,224.00	7.05
Residential	2009	4.93	$37,884.00	7.6875
Residential	2009	5.88	$41,672.00	7.087075
Residential	2009	8.00	$49,840.00	6.23
Residential	2009	8.70	$53,524.24	6.155749
Residential	2009	8.46	$50,787.46	6.003246
Residential	2009	5.08	$37,048.00	7.300099
Residential	2009	3.78	$33,381.00	8.830952
Residential	2009	2.76	$21,733.00	7.874275
Residential	2009	3.15	$21,105.00	6.7
Residential	2009	9.03	$58,500.00	6.478405
Residential	2009	8.17	$56,259.00	6.886047
Residential	2009	4.23	$26,648.92	6.299981

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Residential	2009	5.16	$38,184.00	7.4
Residential	2009	6.30	$37,161.03	5.898576
Residential	2009	5.46	$35,000.00	6.410256
Residential	2009	6.21	$42,000.00	6.763285
Residential	2009	2.04	$13,074.37	6.409005
Residential	2009	4.73	$31,421.25	6.65
Residential	2009	4.52	$33,863.00	7.500111
Residential	2009	7.98	$53,865.00	6.75
Residential	2010	1.26	$6,600.00	5.238095
Residential	2010	1.65	$10,750.00	6.534954
Residential	2010	2.00	$7,455.00	3.7275
Residential	2010	2.52	$16,984.80	6.74
Commercial	2010	2.53	$18,055.00	7.136364
Residential	2010	2.59	$8,961.40	3.46
Residential	2010	2.87	$16,215.50	5.65
Residential	2010	2.87	$16,215.50	5.65
Commercial	2010	3.22	$16,422.00	5.1
Residential	2010	3.24	$22,842.00	7.05
Residential	2010	3.24	$25,400.00	7.839506
Residential	2010	3.45	$29,325.00	8.5
Residential	2010	3.53	$19,343.75	5.487589
Residential	2010	3.68	$29,268.00	7.953261
Residential	2010	3.70	$23,800.00	6.432432
Residential	2010	4.07	$25,315.40	6.22
Residential	2010	4.07	$22,385.00	5.5
Residential	2010	4.12	$37,500.00	9.093113
Residential	2010	4.14	$27,945.00	6.75
Residential	2010	4.22	$35,904.00	8.5
Residential	2010	4.23	$30,244.00	7.149882
Residential	2010	4.30	$26,531.00	6.17
Residential	2010	4.30	$28,740.00	6.683721
Residential	2010	4.32	$30,240.00	7
Residential	2010	4.32	$22,000.00	5.092593
Residential	2010	4.50	$29,250.00	6.5
Residential	2010	4.50	$30,375.00	6.75
Residential	2010	4.50	$30,375.00	6.75
Residential	2010	4.60	$27,600.00	6
Residential	2010	4.60	$35,018.00	7.612609
Residential	2010	4.70	$26,978.00	5.74
Residential	2010	4.73	$30,713.00	6.500106
Residential	2010	5.04	$26,980.00	5.353175
Residential	2010	5.06	$38,282.00	7.565613
Residential	2010	5.16	$36,849.00	7.141279
Residential	2010	5.46	$29,800.00	5.457875
Residential	2010	5.52	$38,500.00	6.974638
Residential	2010	5.55	$31,912.50	5.75
Residential	2010	5.64	$28,860.00	5.117021
Residential	2010	5.75	$38,812.50	6.75
Residential	2010	5.98	$35,820.00	5.989967

Delaware Pilot SREC Procurement Appendix

Delaware Energy Office DEC Grant Data

Residential	2010	5.98	$35,880.00	6
Residential	2010	6.12	$43,874.00	7.168954
Residential	2010	6.12	$44,009.00	7.191013
Residential	2010	6.45	$41,344.00	6.409922
Residential	2010	6.58	$44,999.96	6.8389
Residential	2010	6.67	$45,022.50	6.75
Residential	2010	7.14	$35,059.10	4.910238
Residential	2010	7.20	$36,864.00	5.12
Residential	2010	7.20	$45,000.00	6.25
Residential	2010	7.20	$46,500.00	6.458333
Residential	2010	7.40	$45,900.00	6.202703
Residential	2010	7.50	$44,000.00	5.866667
Residential	2010	7.59	$45,000.00	5.928854
Residential	2010	7.76	$52,346.25	6.75
Residential	2010	7.79	$39,261.60	5.04
Residential	2010	8.16	$44,810.00	5.491422
Commercial	2010	8.19	$43,570.80	5.32
Residential	2010	8.19	$42,843.14	5.231153
Commercial	2010	9.10	$67,340.00	7.4
Commercial	2010	9.17	$51,889.00	5.661648
Residential	2010	9.17	$52,698.00	5.749918
Commercial	2010	9.20	$46,920.00	5.1
Residential	2010	9.66	$51,547.34	5.336164
Residential	2010	10.08	$55,632.33	5.51908
Commercial	2010	10.34	$58,541.00	5.661605
Residential	2010	10.34	$42,739.51	4.133415
Residential	2010	10.81	$53,676.00	4.965402
Residential	2010	11.28	$60,348.00	5.35
Residential	2010	11.34	$61,193.95	5.396292
Residential	2010	12.18	$67,355.00	5.529967
Residential	2010	12.30	$60,871.25	4.948882
Commercial	2010	12.60	$67,032.00	5.32
Residential	2010	12.96	$71,202.00	5.493981
Residential	2010	13.11	$63,583.50	4.85
Residential	2010	13.16	$78,170.00	5.93997
Commercial	2010	14.25	$91,342.50	6.41
Commercial	2010	14.25	$91,342.50	6.41
Commercial	2010	14.40	$90,000.00	6.25
Commercial	2010	14.52	$77,004.08	5.303311
Commercial	2010	15.12	$99,338.40	6.57
Commercial	2010	17.64	$93,844.80	5.32
Commercial	2010	18.80	$90,442.68	4.810781
Residential	2010	21.86	$118,880.59	5.439515
Residential	2010	22.08	$66,240.00	3
Commercial	2010	24.30	$152,820.00	6.288889
Commercial	2010	24.30	$152,820.00	6.288889
Commercial	2010	28.70	$141,858.49	4.942805

Delaware Pilot SREC Procurement
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Delaware Energy Office DEC Grant Data

Non-Profit	2010	35.70	$223,500.00	6.260504
Residential	2011	3.70	$23,199.00	6.27
Residential	2011	2.82	$19,035.00	6.75
Residential	2011	7.40	$41,292.00	5.58
Residential	2011	11.10	$54,623.10	4.921
Residential	2011	7.76	$44,591.00	5.749968
Residential	2011	3.70	$21,441.50	5.795
Residential	2011	3.70	$22,570.00	6.1
Residential	2011	4.23	$29,000.00	6.855792
Residential	2011	5.04	$28,000.00	5.555556
Residential	2011	5.04	$28,000.00	5.555556
Residential	2011	5.04	$28,000.00	5.555556
Residential	2011	5.04	$28,000.00	5.555556
Residential	2011	5.04	$28,000.00	5.555556
Residential	2011	5.04	$28,000.00	5.555556
Residential	2011	5.04	$28,000.00	5.555556
Residential	2011	8.00	$55,121.00	6.890125
2010 Tier 1				6.035848
2010 Tier 1				5.862548