



# **New Jersey Board of Public Utilities New Jersey Solar SREC Program Completely Rebate-free since 2010**

## **NASEO-ASERTTI RE Committee Webinar Third Party Sales**

**5/24/12**

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## Solar Installed Capacity Data

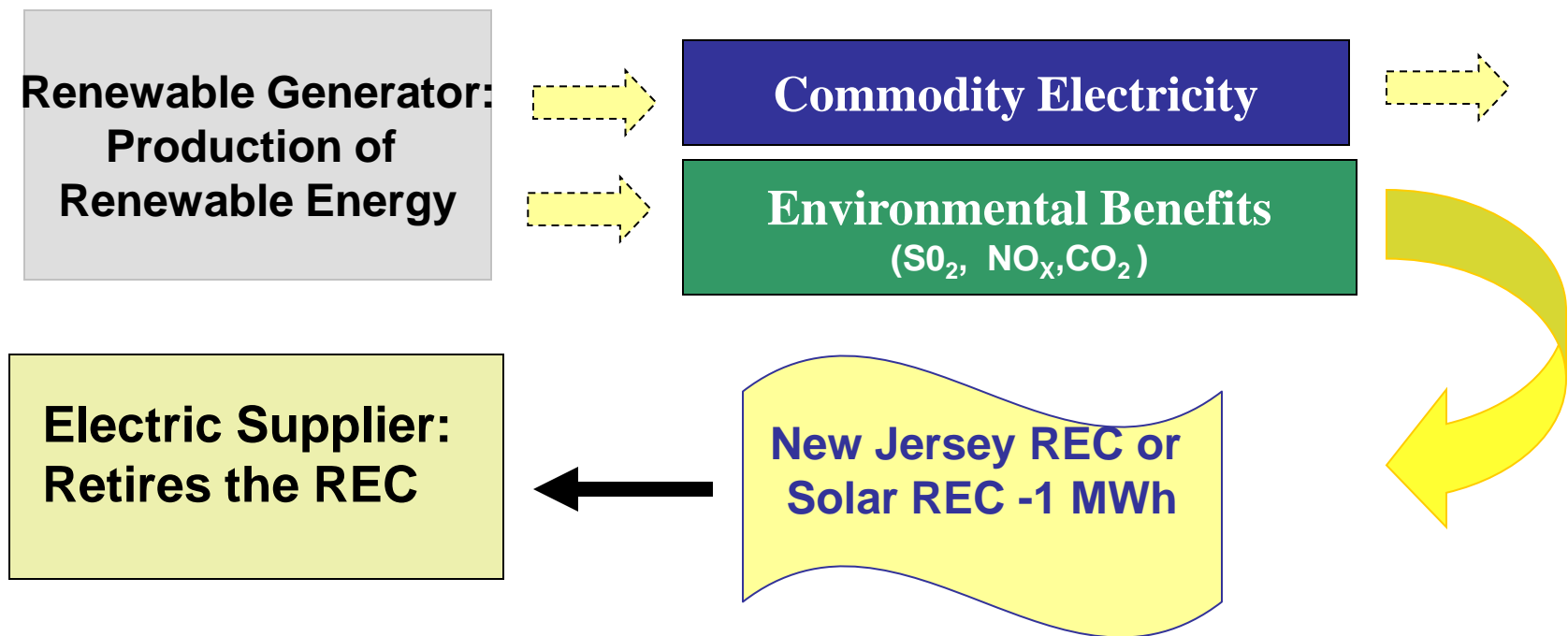


- The preliminary installed solar capacity as of 4/30/12 is approximately 769.9 MW.
  - Approximately 39 MW installed in current month.
- The preliminary solar capacity project pipeline as of 4/30/12 is approximately 510 MW.
  - The pipeline capacity was 526 MW on 3/31/12.



# New Jersey

## Renewable Energy Certificates (RECs)



*Certificates represent the environmental benefits and other attributes associated with electricity generated from a renewable energy generator. May be traded independently of underlying electricity.*



# How the math works



Residential Solar system 7 kW at \$6,000 per kW installed

Total installed cost of \$42,000

30% ITC – \$12,600 final installed cost - \$29,400

Actual DC 6 kW – avg 7,200 kWhs per year at \$0.15 per year

7 SREC at avg \$300 per MWh for 10 years

\$1,080 per year avoided electric revenues

\$2,100 SREC revenue per year

Total revenue - \$ 3,180 per year

Simple payback 9.2 years

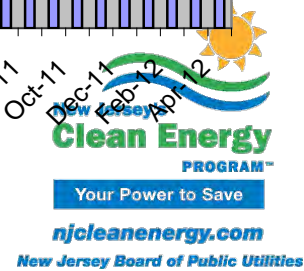
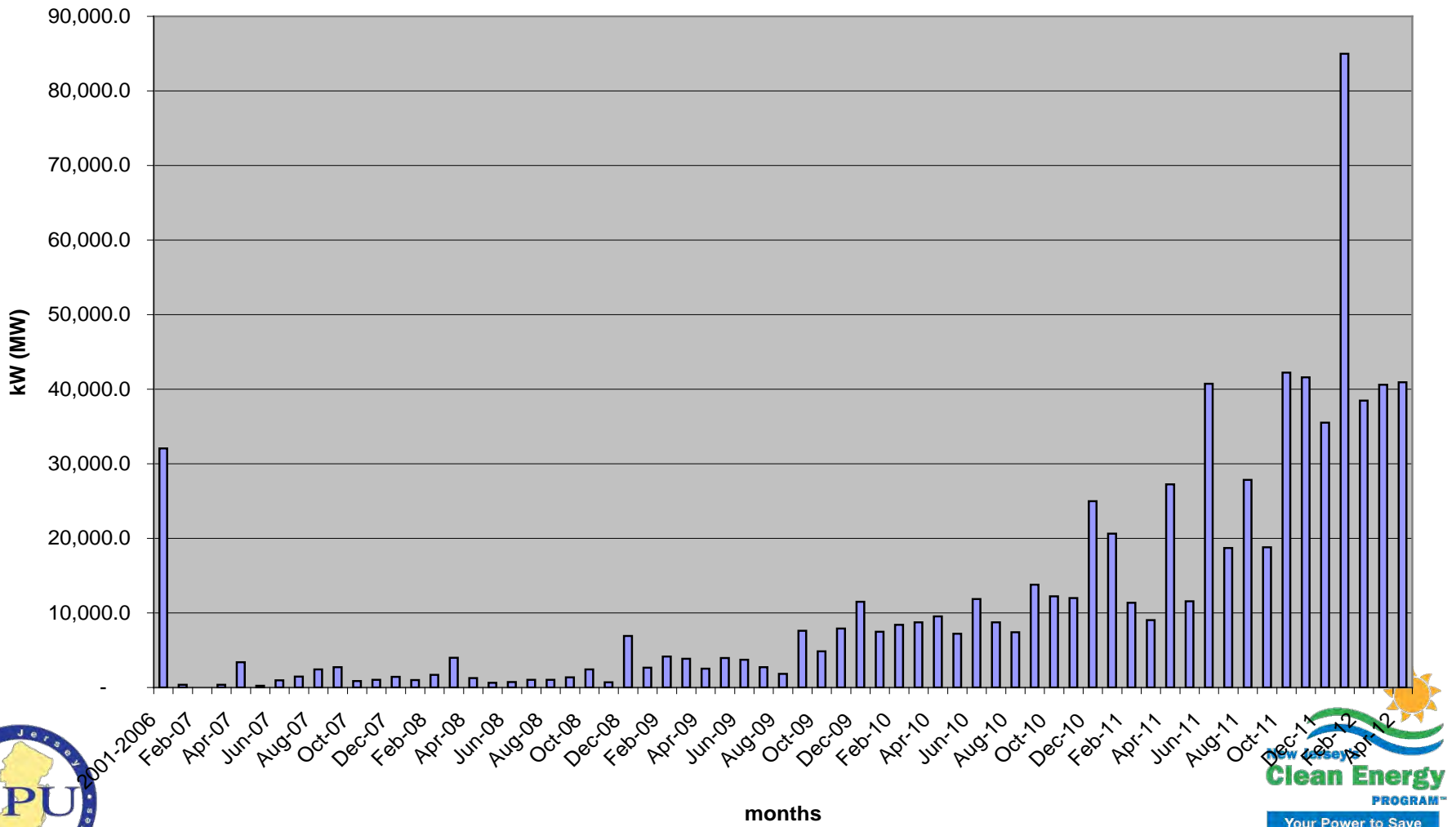
6% interest 10 year \$30,000 loan - \$250 per month

Revenues per month \$265



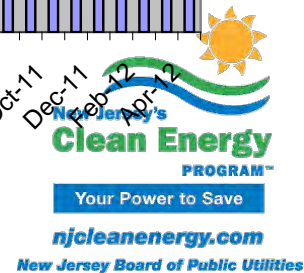
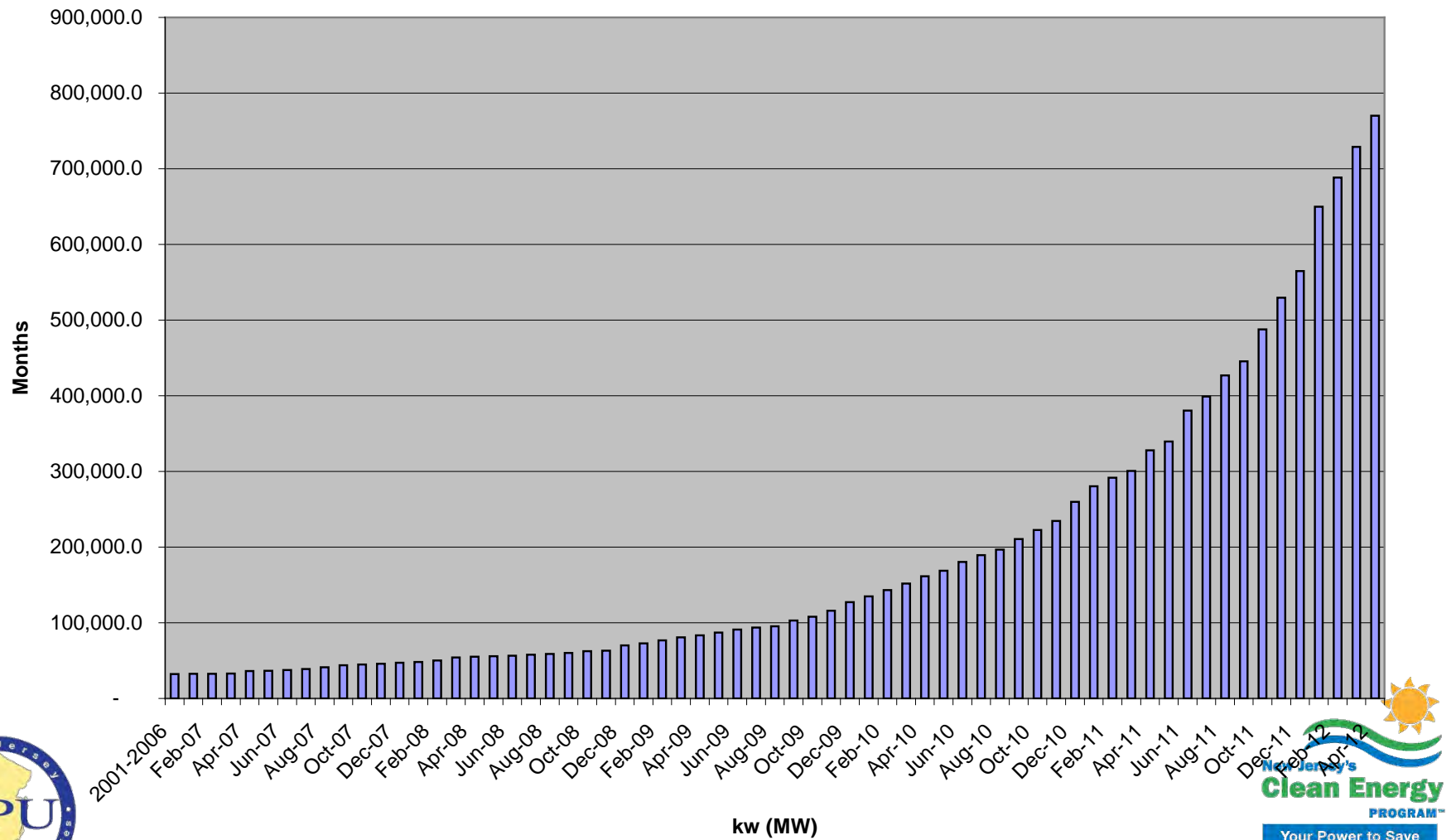


**NJ Solar per month 2001- 2012**



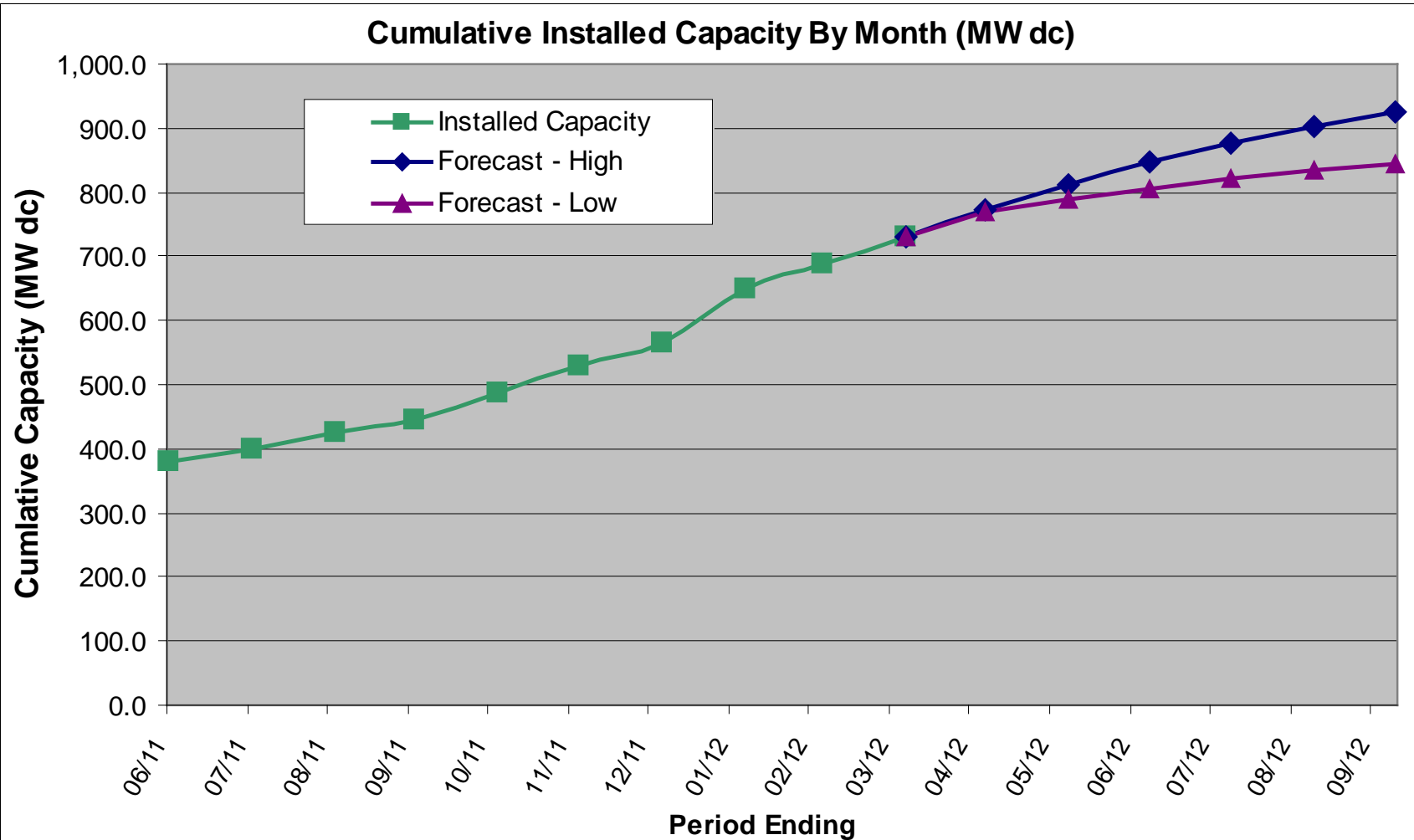


**NJ Solar installed 2001 - 2012**





# NJCEP Solar Generation Forecast as of 3/31/12



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# Solar Projects by Interconnection Type



## Installed Solar Projects as of 11/30/11

Interconnection Type	Qty	System Size	Percent
Behind the meter	12,841	439,534.4	82.7%
Direct Grid Supply	55	92,191.2	17.3%
Totals	12,896	531,725.6	100.0%

Note: The Direct Grid Supply values above include approximately 47.6 MW of capacity from 42 PSE&G Solar 4 All and Pole Attached Solar projects.

## Solar Project Pipeline as of 11/30/11

Interconnection Type	Qty	System Size	Percent
Behind the meter	4,929	419,565.7	70.0%
Direct Grid Supply	37	179,810.1	30.0%
Totals	4,966	599,375.8	100.0%

Note: The Direct Grid Supply values above include approximately 15 MW of approved capacity from PSE&G Solar 4 All projects.





# The Solar Advancement Act

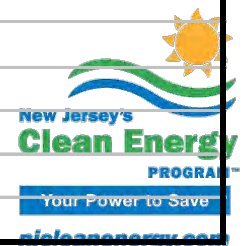
(P.L.2009, c.289) vs. today's RPS

## GWh Requirement Converted to % based upon Retail Sales



Solar RPS Requirement % as of 1/16/10

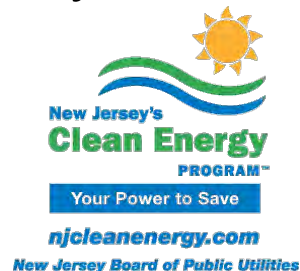
"Energy Year"	GWh Requirement	Converted to MW	Est. Add't Capacity Required over Current (from %)	NEG Scen. Converted to %	CON Scen. Converted to %	POS Scen. Con-verted to %	Solar RPS Requirement % as of 1/16/10
2005	n/a	n/a	n/a	n/a	n/a	n/a	0.01%
2006	n/a	n/a	n/a	n/a	n/a	n/a	0.0170%
2007	n/a	n/a	n/a	n/a	n/a	n/a	0.0393%
2008	n/a	n/a	n/a	n/a	n/a	n/a	0.0817%
2009	n/a	n/a	n/a	n/a	n/a	n/a	0.1600%
2010	n/a	n/a	n/a	n/a	n/a	n/a	0.2210%
EY 2011	306 gwh	255 MW	6.68 MW	0.41%	0.38%	0.365%	0.3050%
<b>EY 2012</b>	<b>442 gwh</b>	<b>368 MW</b>	<b>47.55 MW</b>	<b>0.62%</b>	<b>0.54%</b>	<b>0.519%</b>	<b>0.3940%</b>
EY 2013	596 gwh	497 MW	92.03 MW	0.86%	0.73%	0.690%	0.4970%
EY 2014	772 gwh	643 MW	137.74 MW	1.14%	0.95%	0.880%	0.6210%
EY 2015	965 gwh	804 MW	181.33 MW	1.48%	1.19%	1.084%	0.7650%
EY 2016	1,150 gwh	958 MW	202.79 MW	1.82%	1.41%	1.273%	0.9280%
EY 2017	1,357 gwh	1131 MW	220.60 MW	2.23%	1.67%	1.480%	1.1180%
EY 2018	1,591 gwh	1326 MW	240.56 MW	2.71%	1.95%	1.709%	1.3330%
EY 2019	1,858 gwh	1548 MW	268.47 MW	3.28%	2.28%	1.966%	1.5720%
EY 2020	2,164 gwh	1803 MW	308.53 MW	3.97%	2.66%	2.256%	1.8360%
<b>EY 2021</b>	<b>2,518 gwh</b>	<b>2098 MW</b>	<b>372.31 MW</b>	<b>4.82%</b>	<b>3.09%</b>	<b>2.587%</b>	<b>2.1200%</b>
EY 2022	2,928 gwh	2440 MW	n/a MW	n/a	n/a	n/a	
EY 2023	3,433 gwh	2861 MW	n/a MW	n/a	n/a	n/a	
EY 2024	3,989 gwh	3324 MW	n/a MW	n/a	n/a	n/a	
EY 2025	4,610 gwh	3842 MW	n/a MW	n/a	n/a	n/a	
EY 2026	5,316 gwh	4430 MW	n/a MW	n/a	n/a	n/a	
EY 2027+>	5,316 gwh	4430 MW	n/a MW	n/a	n/a	n/a	



# EDC SREC Program Capacity



- **PSE&G Solar Loan Program – 80 MW**
  - Loan on net metered projects completion for 50% of cost at a set rate 6% for residential and 11% for all others - pay back by SRECs;
- **PSE&G Solar for All – 80 MW**
  - Grid supply projects – rate based at the WACC
- **JCPL, ACE and RECO SREC solicitation 64 MW**
  - Net metered projects -developers bid in the SREC price and term needed to build solar – payments set for term based on the contract
- **The EDC SREC Program are currently approximately 20 of the SREC market**



# ACE, JCP&L, and RECO Awarded, Contracted, and Installed Capacity (MW)



Solicitation	Date	ACE			JCP&L			RE		
		Awarded	Contracted	Installed	Awarded	Contracted	Installed	Awarded	Contracted	Installed
#1	August 2009	0.00	0.00	0.00	1.59	1.59	1.14	0.00	0.00	0.00
#2	December 2009	2.20	2.00	1.74	4.18	2.87	2.86	0.15	0.09	0.09
#3	March 2010	0.11	0.11	0.11	9.22	6.49	5.33	0.00	0.00	0.00
#4	June 2010	0.39	0.39	0.39	3.54	3.44	2.34	0.00	0.00	0.00
#5	October 2010	0.36	0.35	0.35	8.61	8.13	2.06	0.54	0.54	0.17
#6	February 2011	10.50	7.64	0.00	6.76	4.63	1.20	0.80	0.80	0.30
#7	June 2011	3.92	3.03	0.00	6.02	6.02	0.05	2.34	2.18	0.00
#8	September 2011	5.98	6.00	0.00	10.96	0.00	0.00	0.28	0.00	0.00
	<b>Total</b>	<b>23.47</b>	<b>19.52</b>	<b>2.60</b>	<b>50.86</b>	<b>33.17</b>	<b>14.98</b>	<b>4.11</b>	<b>3.61</b>	<b>0.56</b>



Awarded is capacity selected at solicitations, contracted is capacity that signs contract and pays deposit, installed is capacity that is installed

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# PSE&G Awarded, Contracted, and Installed Capacity (MW)



	Solar Loan I (SL I)			Solar Loan II (SL II)			Solar for All		
Energy Year	Awarded	Contracted	Installed	Awarded	Contracted	Installed	Awarded	Contracted	Installed
2008	3.87								
2009	13.38	2.77	2.77						
2010	4.90	11.24	11.24	1.42	0.01	0.01	29.90	5.60	5.60
2011		6.05	6.05	27.98	4.63	4.63	16.90	35.30	35.30
2012		1.32	1.32	2.58	3.64	3.64	4.00	5.10	5.10
<b>Total</b>	<b>22.15</b>	<b>21.38</b>	<b>21.38</b>	<b>31.98</b>	<b>8.28</b>	<b>8.28</b>	<b>50.80</b>	<b>46.00</b>	<b>46.00</b>

Awarded is capacity approved for loan, contracted is capacity that signs contract, installed is capacity that is installed



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# Solicitation Results

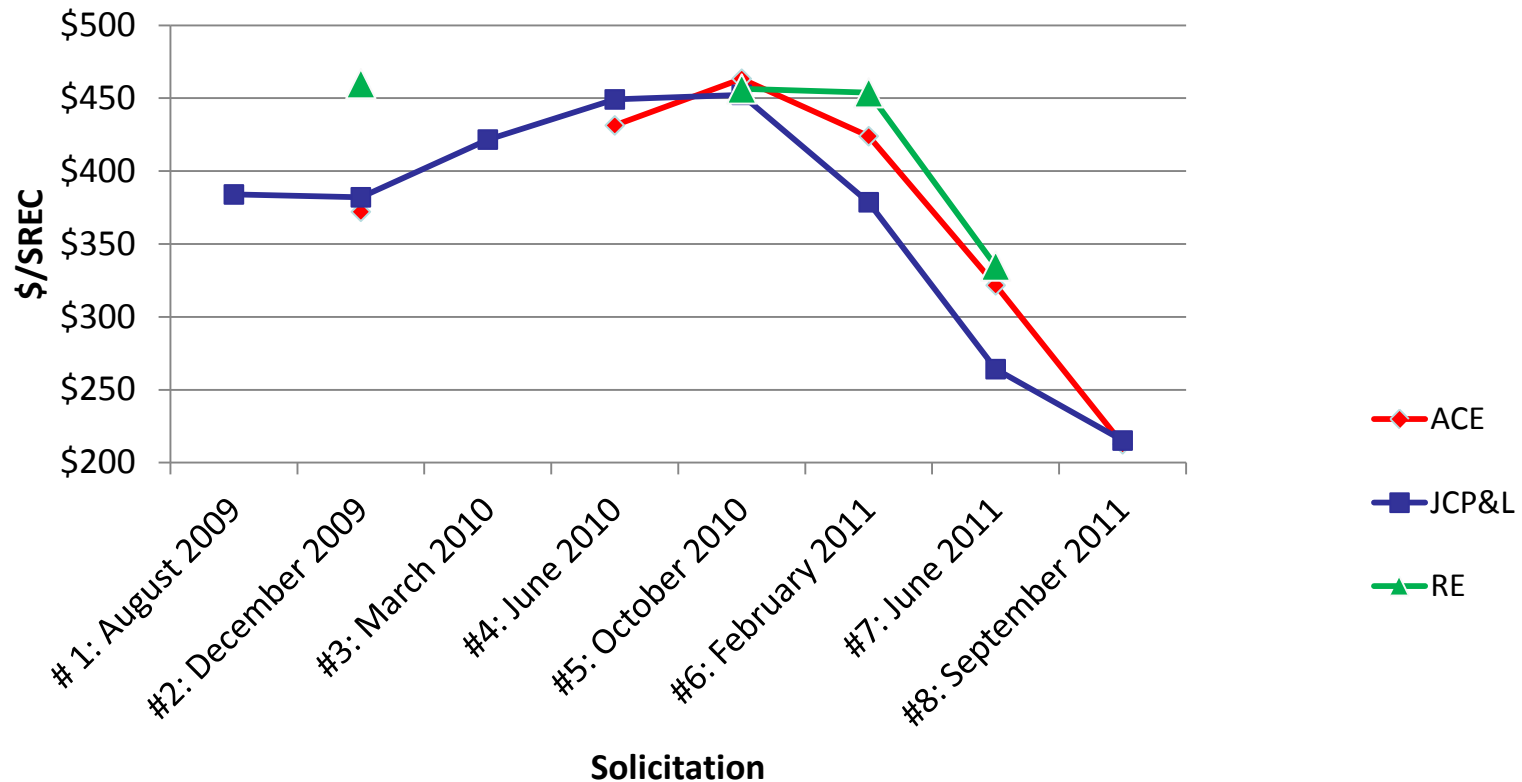


Solicitation	MW Awarded			MW Contracted			Weighted Average Awarded Bid Price (\$/SREC)		
	ACE	JCP&L	RE	ACE	JCP&L	RE	ACE	JCP&L	RE
#1 (August 2009)	0.0	1.6	0.0	0.0	1.6	0.0		\$384	N/A
#2 (December 2009)	2.2	4.2	0.1	2.0	2.9	0.1	\$372	\$382	\$460
#3 (March 2010)	0.1	9.2	0.0	0.1	6.5	0.0		\$422	N/A
#4 (June 2010)	0.4	3.5	0.0	0.4	3.4	0.0	\$431	\$449	N/A
#5 (October 2010)	0.4	8.6	0.5	0.4	8.1	0.5	\$463	\$452	\$456
#6 (February 2011)	10.5	6.8	0.8	7.6	4.6	0.8	\$424	\$379	\$454
#7 (June 2011)	3.5	6.0	2.3	3.0	6.0	2.2	\$322	\$264	
#8 (September 2011)	6.0	11.0	0.3	6.0	0.0	0.3	\$213	\$215	
<b>Total</b>	<b>23.1</b>	<b>50.9</b>	<b>4.1</b>	<b>19.5</b>	<b>33.1</b>	<b>3.6</b>	<b>\$372</b>	<b>\$368</b>	<b>\$382</b>





# Weighted Average Awarded Bid Price



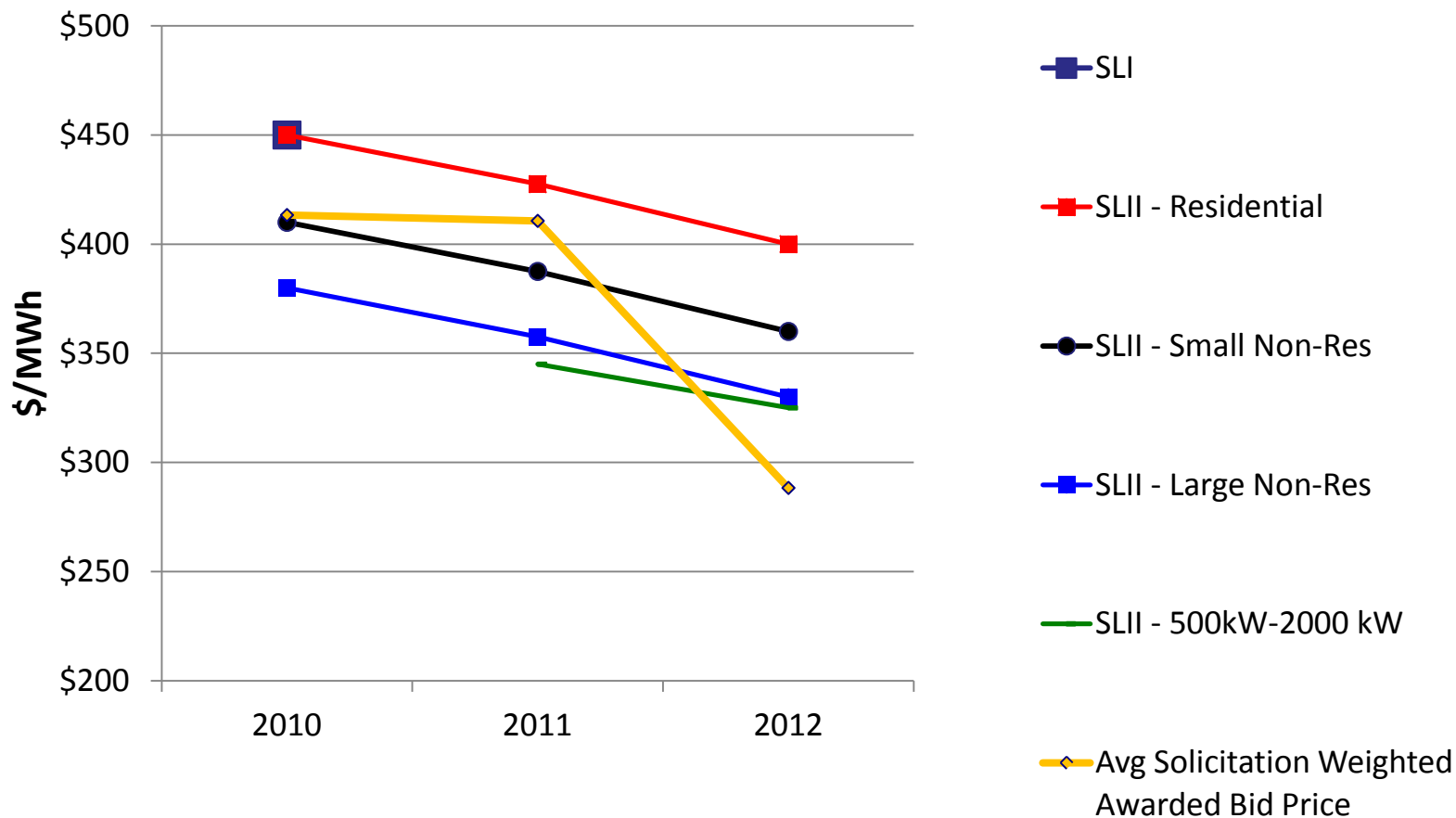
Vertical axis of graph does not start at zero.  
Some data has been redacted due to confidentiality concerns.

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# EDC Weighted Average Awarded Bid Price vs PSE&G Floor Price



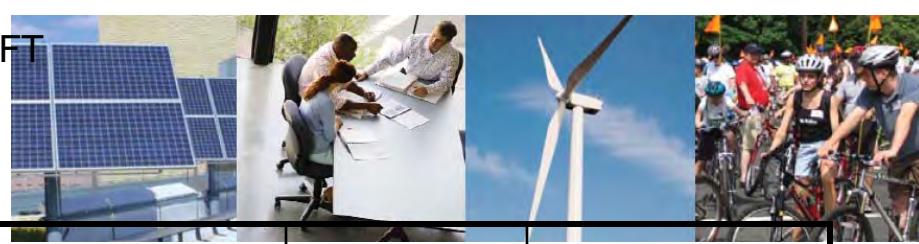
Small Non-Res ≤ 150 kW, Large Non-Res = 150 - 500 kW

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# Auction Results

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Auction	Number of SRECs Auctioned			PSEG* (Solar Loan Programs)	Weighted Average SREC Auction Price
	ACE	JCP&L	RE		
#1 (February 2010)	N/A	N/A	N/A	2,800	\$685.06
#2 (July 2010)	N/A	N/A	N/A	5,750	\$688.03
#3 (October 2010)	N/A	N/A	N/A	5,841	\$665.12
#4 (April 2011)	189	580	15	5,427	\$669.69
#5 (July 2011)	404	1,528	23	5,710	\$475.00
#6 (August 2011)	331	791	8	2,110	\$479.75
#7 (October 2011)	915	3,140	102	10,747	\$227.03
<b>Total</b>	<b>1,839</b>	<b>6,039</b>	<b>148</b>	<b>38,385</b>	

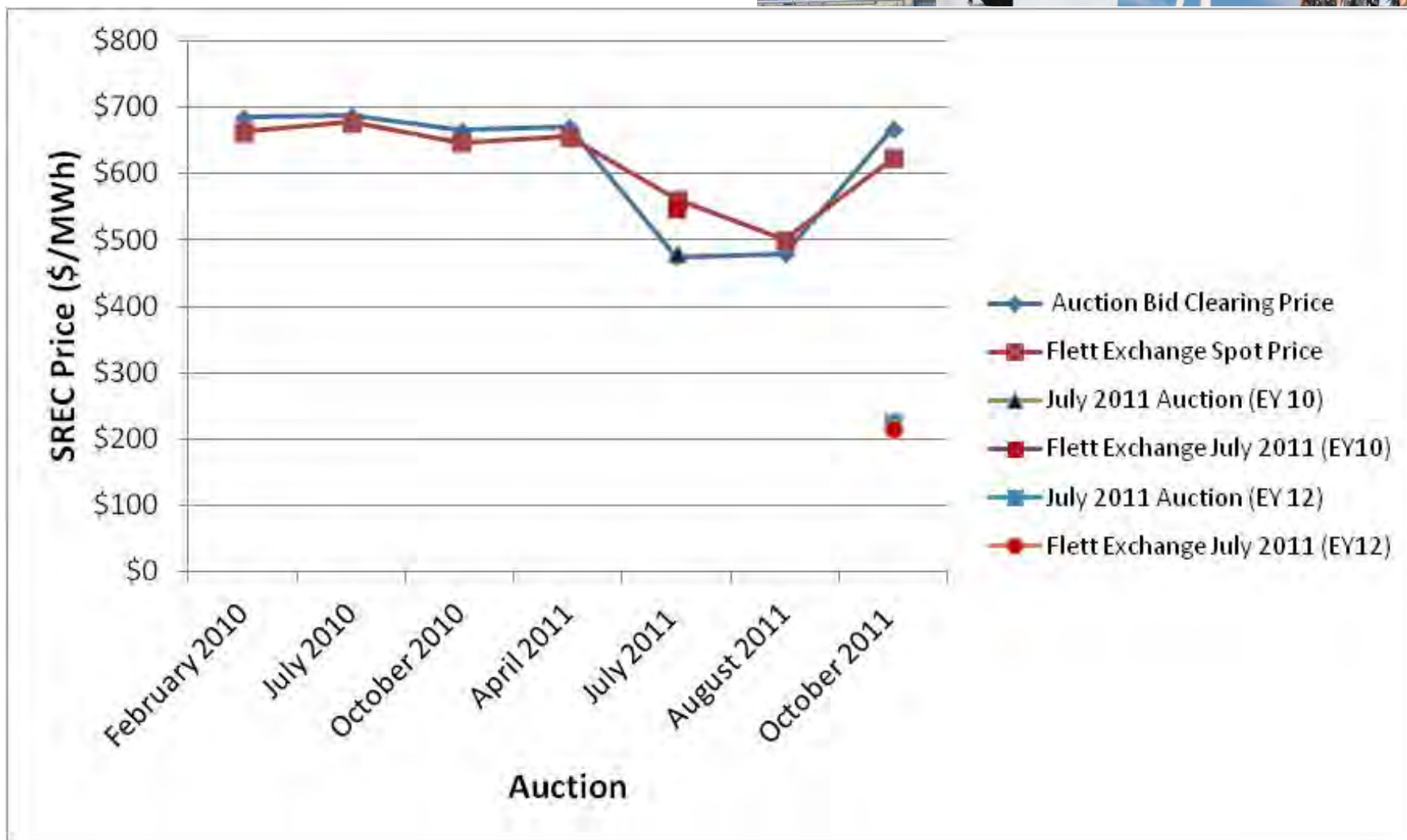
	ACE	JCP&L	RE	PSE&G
<b>Overall Weighted Average Auction Price</b>	\$372.48	\$366.17	\$324.09	\$515.65

\*Solar Loan I and Solar Loan II  
PSE&G auctioned 1,352 SRECs in August 2009



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# Auction Prices vs Flett Exchange SREC Market Prices

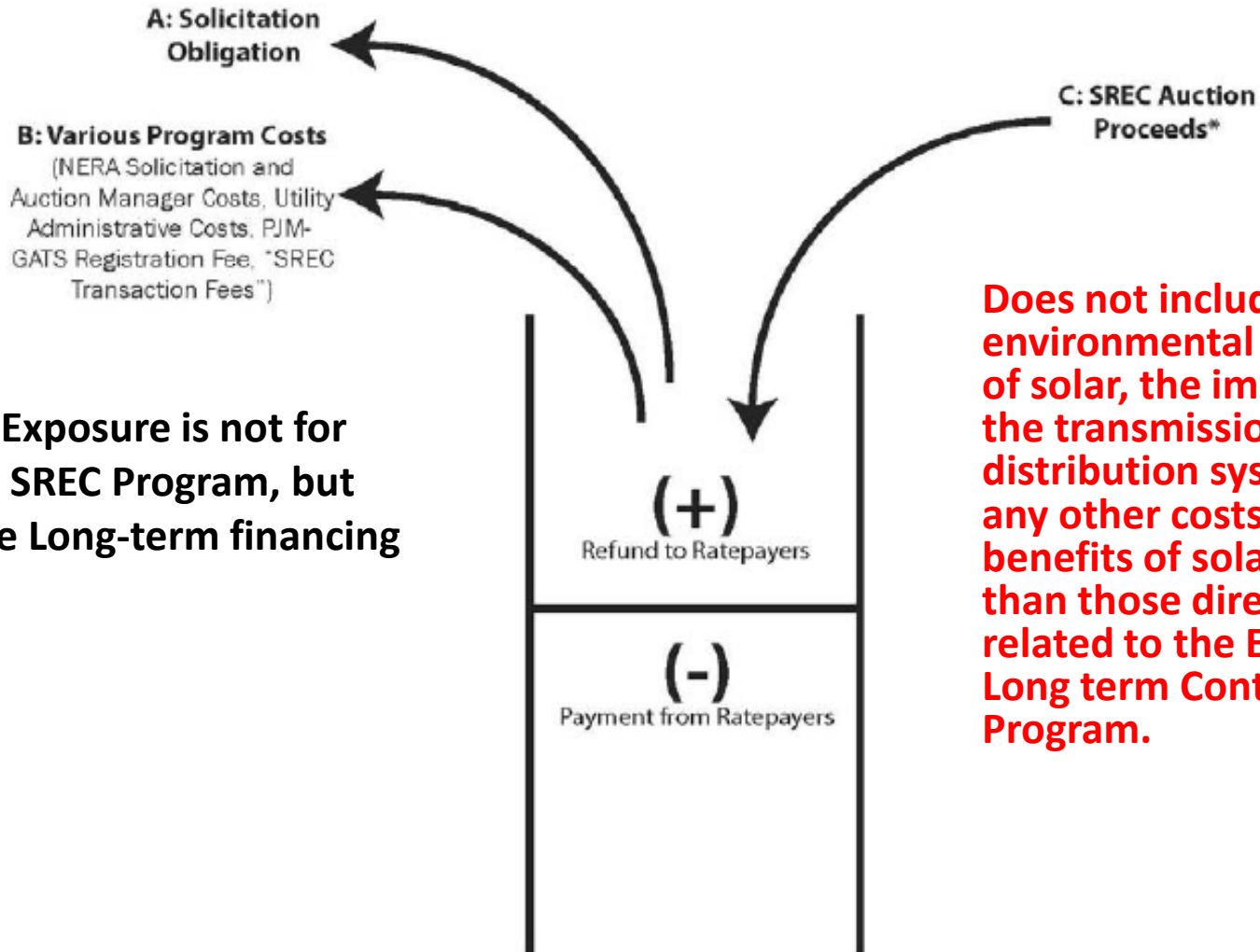


Flett Exchange does not report the volume of transactions and, when no transactions occur, the offered price is reported.

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# Ratepayer Exposure for Long-term Financing Programs Only



Ratepayer Exposure is not for the overall SREC Program, but only for the Long-term financing Program.

Does not include any environmental benefits of solar, the impacts on the transmission and distribution system, or any other costs or benefits of solar other than those directly related to the EDC Solar Long term Contract Program.



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**Table 7: Net Ratepayer Refund or Payment under Four SREC Price Scenarios**

Energy Year	Scenario 1: SREC Price = \$0			Scenario 2: SREC Price = \$200		
	ACE	JCP&L	RECO	ACE	JCP&L	RECO
2010	(\$1,056,101)	(\$7,469,625)	(\$84,396)	(\$489,218)	(\$3,795,484)	(\$47,702)
2011	(\$7,058,239)	(\$17,656,241)	(\$1,828,070)	(\$3,767,226)	(\$9,461,596)	(\$891,336)
2012	(\$10,436,564)	(\$23,913,661)	(\$1,984,122)	(\$5,108,435)	(\$12,531,574)	(\$1,003,526)
2013	(\$9,878,134)	(\$22,090,772)	(\$1,946,202)	(\$4,220,005)	(\$9,616,884)	(\$939,006)
2014	(\$9,878,134)	(\$22,090,772)	(\$1,946,202)	(\$4,220,005)	(\$9,616,884)	(\$939,006)
2015	(\$9,878,134)	(\$22,090,772)	(\$1,946,202)	(\$4,220,005)	(\$9,616,884)	(\$939,006)
2016	(\$9,878,134)	(\$22,090,772)	(\$1,946,202)	(\$4,220,005)	(\$9,616,884)	(\$939,006)
2017	(\$9,878,134)	(\$22,090,772)	(\$1,946,202)	(\$4,220,005)	(\$9,616,884)	(\$939,006)
2018	(\$9,878,134)	(\$22,090,772)	(\$1,946,202)	(\$4,220,005)	(\$9,616,884)	(\$939,006)
2019	(\$9,878,134)	(\$22,090,772)	(\$1,946,202)	(\$4,220,005)	(\$9,616,884)	(\$939,006)
2020	(\$8,822,033)	(\$14,621,147)	(\$1,861,806)	(\$3,730,788)	(\$5,821,401)	(\$891,304)
2021	(\$2,946,467)	(\$4,822,951)	(\$128,177)	(\$617,150)	(\$659,708)	(\$60,716)
<b>Total</b>	<b>(\$99,466,342)</b>	<b>(\$223,119,029)</b>	<b>(\$19,509,985)</b>	<b>(\$43,252,852)</b>	<b>(\$99,587,951)</b>	<b>(\$9,467,626)</b>

**Table 7 Continued: Net Ratepayer Refund or Payment under Four SREC Price Scenarios**

Energy Year	Scenario 3: SREC Price = \$400			Scenario 4: SREC Price = \$600		
	ACE	JCP&L	RECO	ACE	JCP&L	RECO
2010	\$77,666	(\$121,342)	(\$11,008)	\$644,549	\$3,552,800	\$25,686
2011	(\$476,214)	(\$1,266,951)	\$45,398	\$2,814,799	\$6,927,694	\$982,132
2012	\$219,694	(\$1,149,486)	(\$22,931)	\$5,547,822	\$10,232,602	\$957,665
2013	\$1,438,123	\$2,857,004	\$68,189	\$7,096,252	\$15,330,891	\$1,075,385
2014	\$1,438,123	\$2,857,004	\$68,189	\$7,096,252	\$15,330,891	\$1,075,385
2015	\$1,438,123	\$2,857,004	\$68,189	\$7,096,252	\$15,330,891	\$1,075,385
2016	\$1,438,123	\$2,857,004	\$68,189	\$7,096,252	\$15,330,891	\$1,075,385
2017	\$1,438,123	\$2,857,004	\$68,189	\$7,096,252	\$15,330,891	\$1,075,385
2018	\$1,438,123	\$2,857,004	\$68,189	\$7,096,252	\$15,330,891	\$1,075,385
2019	\$1,438,123	\$2,857,004	\$68,189	\$7,096,252	\$15,330,891	\$1,075,385
2020	\$1,360,458	\$2,978,345	\$79,198	\$6,451,703	\$11,778,091	\$1,049,699
2021	\$1,712,166	\$3,503,535	\$6,746	\$4,041,482	\$7,666,778	\$74,208
<b>Total</b>	<b>\$12,960,631</b>	<b>\$23,943,129</b>	<b>\$574,726</b>	<b>\$69,174,119</b>	<b>\$147,474,202</b>	<b>\$10,617,085</b>





More information on  
New Jersey's Clean Energy Program

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<http://www.njcleanenergy.com/renewable-energy/program-updates-and-background-information/solar-transition/solar-transition>

