

# Reducing the financial burden of solar energy in NJ

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Atlantic County Residential & Commercial Solar Seminar

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# Finding New Jersey Attractive for Solar

- Good investment factors
  - Good solar financial incentives
    - Rebates
    - Tax Incentives
    - SRECs
  - High electricity prices
  - Plenty of sunlight
  - Decent local installer infrastructure
  - Low PV system prices
  
- ❖ New Jersey CURRENTLY has the highest rate of return on solar investments of any other state, based on a formula from Sunpower.

Here today,  
Gone Tomorrow

Photon. “The 13 Solar Colonies” Nov. 2009

# So you're thinking about solar energy?

Why solar?

Save Environment, Save Money, Go Green,  
Become Energy Independent

First and Foremost...

# Energy Efficiency

- Energy Efficient Light Bulbs
- Insulation/weather stripping/new windows
- Energy Star Appliances
- Programmable Thermostat
- New Habits

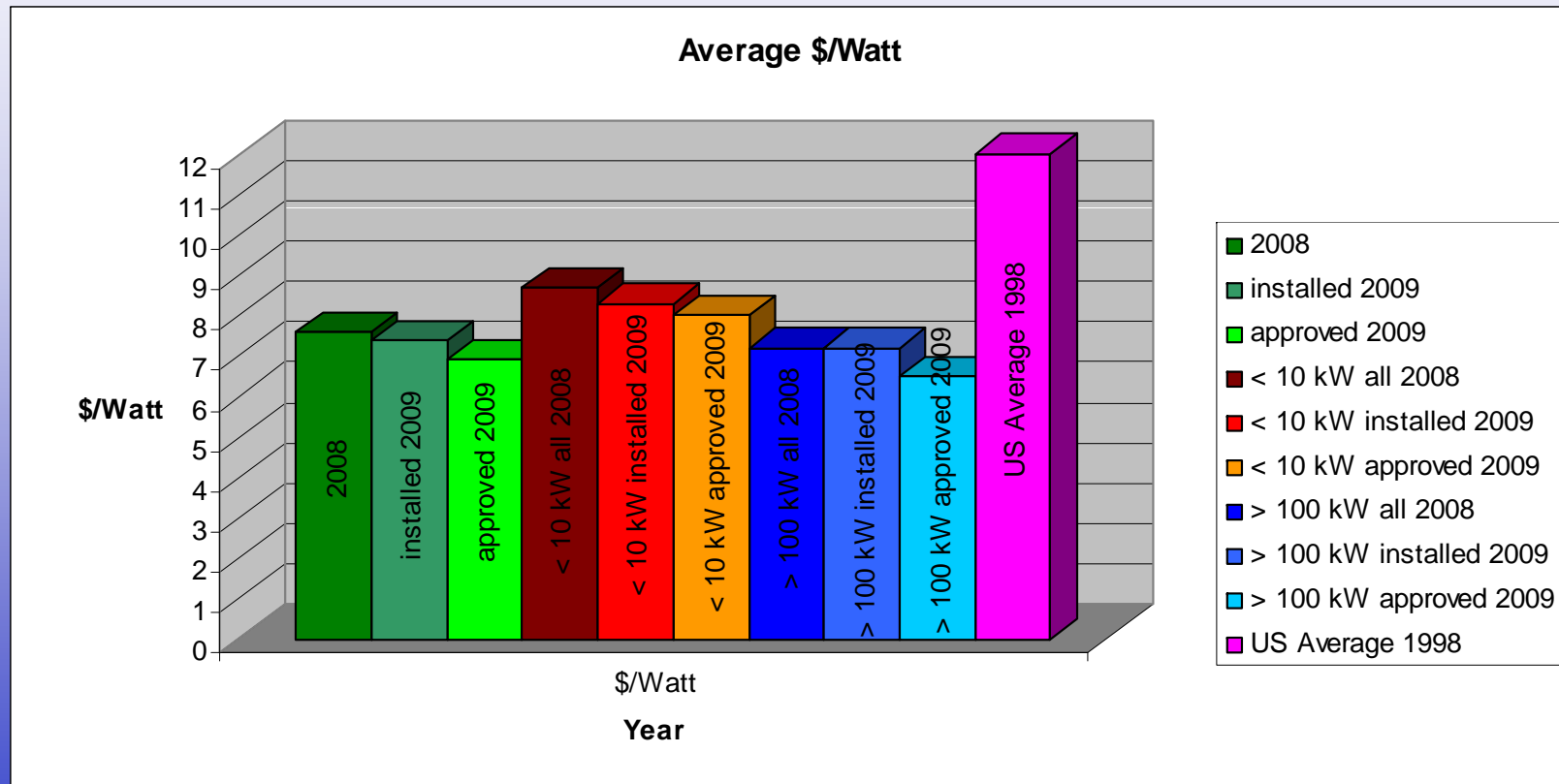
But how does this lower the financial burden of your solar project?

# Thinking it through step by step

- How much are your yearly energy expenditures?
- What are your energy needs after applying energy efficiency measures?
- Is solar practical or even possible on your home/business?
- Then, to match your needs, how much solar energy will you need and how much will it cost?
- Lastly, what are all of your financing options?

A solar installer can help you with these steps...One source: [www.findsolar.com](http://www.findsolar.com)

# Average price per installed Watt of Solar in New Jersey



Lawrence Berkeley National Laboratory

“Tracking the Sun II”

# Net Metering

- Definition: The difference between energy supplied and energy consumed at the customer meter on a kWh basis
- Photovoltaics are eligible for net energy metering in NJ – applicable to residential, commercial, and industrial
- Currently 2MW cap...proposal to remove
- Net Excess Generation: Generally credited to customer's next bill at retail rate; excess reconciled at end of annual period at avoided-cost rate

[www.dsireusa.org](http://www.dsireusa.org)

# (Solar) Renewable Energy Certificates

- Renewable Energy Certificates (REC's or Solar REC's) represent attribute & benefit of green power
- 1 REC = 1MWh energy produced
- Can be sold and traded separately from the electricity



# Incentives

- Federal:
  - Tax credit of up to 30%; no cap  
(Must be placed in service before Dec. 31, 2016)

[www.IRS.gov](http://www.IRS.gov)

- New Jersey:
  - Full exemption from the state's sales tax (currently 7%) for all solar energy equipment
  - Renewable Energy Incentive Program (REIP): up to 50kW
  - SREC Registration Program

[www.dsireusa.org](http://www.dsireusa.org)

[www.njcleanenergy.com/renewable-energy](http://www.njcleanenergy.com/renewable-energy)

Solar Electric Systems (REIP)		
<u>Capacities</u> <u>kW</u>	<u>Residential</u>	<u>Non-Residential</u>
0 to 10 w/ energy audit	\$1.75/Watt	N/A
0 to 10 w/out energy audit	\$1.55/Watt	N/A
0 to 50	N/A	\$1.00/Watt
> 50	N/A	N/A



## Example in New Jersey

- Solar Hours: On a flat-plate solar collector facing south at latitude (39.45 degrees), # of solar hours is about 4.6 kWh/m<sup>2</sup>/day (average per year)
  - 3 kW system
  - 4.6 average daily solar hours
  - 0.80 - De-rating factor of system – ie. Inverter
  - 3 kW X 4.6 hours/day X 0.8 X 365 days
    - = 4030 kWh (4 MWh)/year X 17.7¢ kWh (residential – may go up in future years)
    - = \$712/year (PV offsets - because of net metering)
  - Incentives can offer pay-back in half the time & selling Solar RECs can often lower pay-back significantly

# Ideal Payback

- 3 kW system at \$8/Watt installed = \$24,000
- $\$24,000 \div \$712/\text{year} = 33.7 \text{ years}$
- $\$16,800 \div \$712/\text{year} = 23.6 \text{ years}$  (Federal credit)
- $\$11,550 \div \$712 = 16.2 \text{ years}$  (NJ rebate)
  - Consider 20 year life, yearly cost is \$577/year (assuming no O&M or deprec.)  
Cheaper than the electricity you're offsetting.
- $\$350/\text{MWh SREC (arbitrary)} = 35\text{¢} / \text{kWh} * 4030 \text{ kWh/year} = \$1410/\text{year}$
- $\$1410 + \$712 = \$2122$  (Solar RECs)
- $\$11,550 \div \$2122 = 5.4 \text{ years}$ 
  - This would be longer when you have to pay O&M costs & take into account depreciation & other factors such as financing rates.

# SREC Based Financing Program

ACE

JCP&L

Rockland Electric

ACE and JCP&L  
**SREC-Based Financing Program**



## Program Update

January 2010

Atlantic City Electric Co.  
Jersey Central Power & Light  
Rockland Electric Co.

NERA Economic Consulting (Solicitation Manager)



# Documentation Available

- Any statements in this presentation describing or referring to documents and agreements are summaries only, and are qualified in their entirety by reference to such documents and agreements
- The governing documents for this RFP are:
  - The Request for Proposals under the SREC-Based Financing Program
  - SREC Purchase and Sale Agreement
  - Decisions of the New Jersey Board of Public Utilities (“BPU”) related to this Program
- Updated governing documents were posted on October 1, 2009

Please see the RFP Web site  
for documentation  
[www.njEDCsolar.com](http://www.njEDCsolar.com)

# Presentation Outline

- **Overview**
- **MW Targets and Schedule**
- **General Program Requirements**
- **Three-Step Proposal Process**
- **Evaluation and Award**
- **Results from August Solicitation**
- **Questions**



# SREC-Based Financing Overview

- The Program is designed to enable financing for new solar projects based on reasonable assurances regarding the price and potential revenues that could result from each project's generation of SRECs
- The Program is not a loan program
- The Program is only for the purchase of SRECs. ACE, JCP&L and RECO will not purchase the energy or capacity from solar projects
- The Program is consistent with Stipulation and Orders
  - 10 to 15 year term purchase agreements
  - Anticipate three solicitations each year
  - Requires completion of Initial Application Process with State Programs

*SREC: Solar Renewable Energy Certificate = 1 MWh of solar generation attributes*



# MW Targets

- The Program targets to procure more than 64 MW over three years, 42 MW for JCP&L, 19 MW for ACE, and 3.769 MW for RECO
- The first solicitation did not procure the full target quantity and the shortfall will be procured in a third solicitation

Targets for the 2nd and 3rd Solicitations (2010 Reporting Year)			
	ACE	JCP&L	RECO
2 <sup>nd</sup> Solicitation	5	12	2.267
3 <sup>rd</sup> Solicitation	5	9.41463	0

- The planned quantity may or may not be awarded in a solicitation based on an assessment of the competitiveness of pricing

# Pricing and Contract

- Contracts of 10 to 15 year will be offered as part of proposal
  - Price is constant over the life of the agreement
- Applicants must agree to terms of a Standard SREC Purchase and Sale Agreement (“SREC PSA”)
- SREC PSA requires:
  - an inspection by a verification agent from the BPU’s OCE, paid for by the project.
  - A utility meter to measure gross output from project, paid for by the project
  - A refundable cash deposit within 14 days of BPU approval of an award, to be forfeited if the Commencement Date has not occurred within one year of SREC PSA execution and refunded otherwise
- Projects will be paid for the SRECs on a quarterly basis, after the SRECs have been created and accepted in the PJM Generation Attributes Tracking System (“PJM GATS”)



# General Project Requirements

## Eligible Projects

- ✓ 500 kW or less\*
- ✓ Residential
- ✓ Commercial
- ✓ In ACE's service territory
- ✓ In JCP&L's service territory
- ✓ In RECO's service territory
- ✓ Customer submits Proposal
- ✓ Developer submits Proposal
- ✓ Has cleared the Initial Application Process with State Programs (REIP or SRP) but has not requested interconnection before BPU approval of bids

## Projects That Are **Not** Eligible

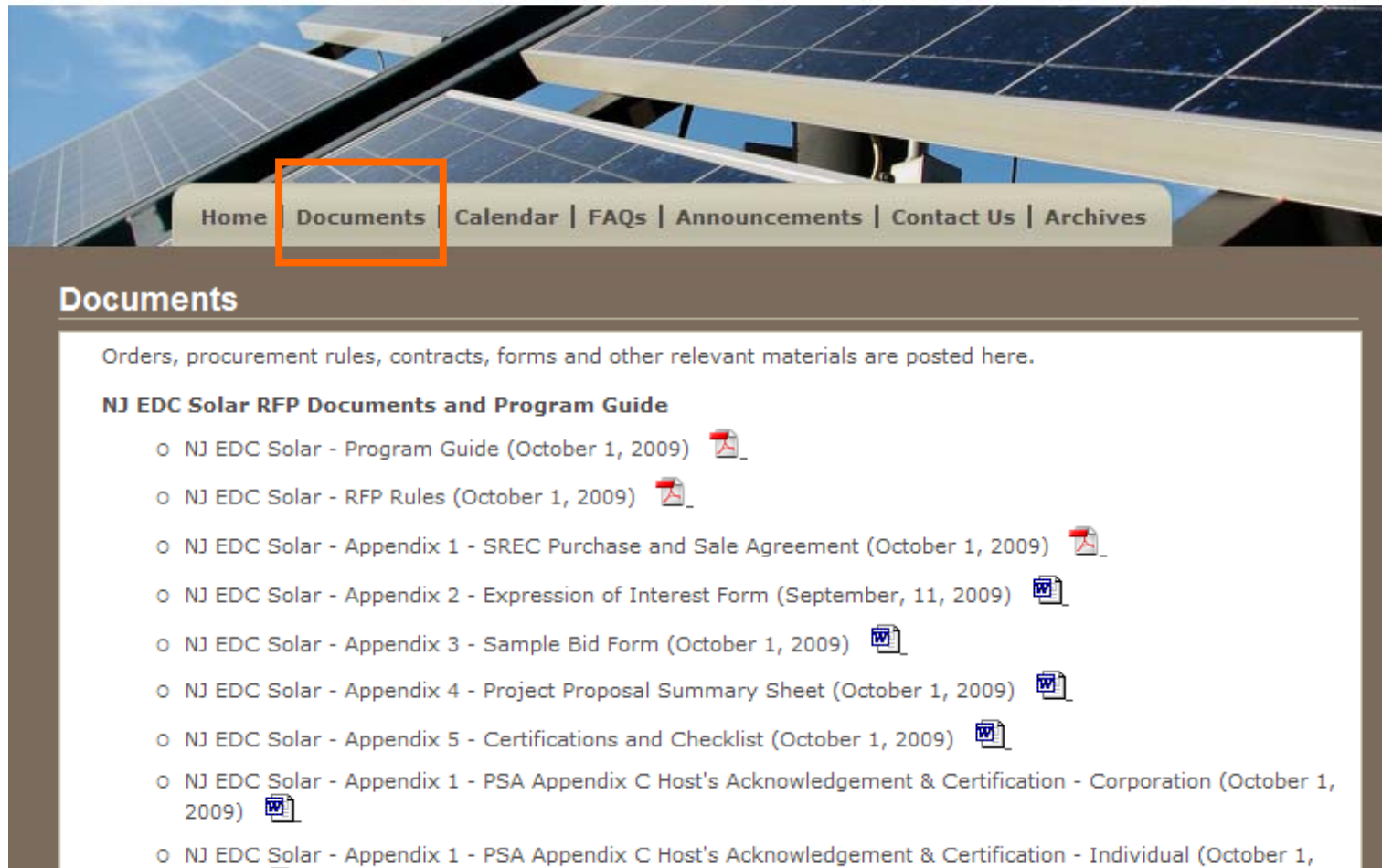
- ✗ A portion (less than 500 kW) of a project that exceeds 500 kW in aggregate\*
- ✗ Has received or will receive rebate from CORE in force 2001-2008
- ✗ Interconnected at transmission voltages
- ✗ Does not agree to net metering arrangements with the EDC
- ✗ Does not agree to install SREC meter at project's expense
- ✗ Does not agree to terms of SREC PSA

*\*DC rating*



# RFP Documents Available on Our Web Site

[www.njEDCsolar.com](http://www.njEDCsolar.com)











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## Documents

Orders, procurement rules, contracts, forms and other relevant materials are posted here.

### NJ EDC Solar RFP Documents and Program Guide

- NJ EDC Solar - Program Guide (October 1, 2009) 
- NJ EDC Solar - RFP Rules (October 1, 2009) 
- NJ EDC Solar - Appendix 1 - SREC Purchase and Sale Agreement (October 1, 2009) 
- NJ EDC Solar - Appendix 2 - Expression of Interest Form (September, 11, 2009) 
- NJ EDC Solar - Appendix 3 - Sample Bid Form (October 1, 2009) 
- NJ EDC Solar - Appendix 4 - Project Proposal Summary Sheet (October 1, 2009) 
- NJ EDC Solar - Appendix 5 - Certifications and Checklist (October 1, 2009) 
- NJ EDC Solar - Appendix 1 - PSA Appendix C Host's Acknowledgement & Certification - Corporation (October 1, 2009) 
- NJ EDC Solar - Appendix 1 - PSA Appendix C Host's Acknowledgement & Certification - Individual (October 1,

# RFP response is in three parts

- 1. Expression of Interest**
- 2. Pricing Proposal (Bids)**
- 3. Qualification Package**



# Expression of Interest is submitted by email

- **Bidder submits:**

- Email Address
- Project Application Number with State Programs – either REIP or SRP (“NJCEP Application Number”)
- Contact information (representative and alternate)

- **Solicitation Manager returns to the Bidder:**

- Instructions for the submission of bids (“Pricing Proposal”)
- Password
- Bid Form (for the Pricing Proposal)

Form for EOI Available on Web site

EOI may be submitted at any time prior to noon on ?



# Bids (“Pricing Proposal”) are submitted by electronic transfer

- Bidder submits:
  - Project Application Number with State Programs
  - Price (single price for all SRECs)
  - Length of contract (10-15 years)
  - Size (kW)
  - EDC territory where Project resides
- Solicitation Manager confirms receipt and assesses whether Bid Form compliant with the requirements (if not Bidder can resubmit before the deadline)

**Bid Form Provided to Bidder with Complete EOI**

Pricing Proposal may be submitted at any time after receipt of a complete EOI by ? (spring) for 3<sup>rd</sup> solicitation



# Qualification Package is submitted by overnight delivery

- Bidder submits:
  - Materials from the Initial Application process
  - Project Proposal Summary sheet
  - Customer Acknowledgment
  - Certifications and Checklist for Qualifications
- Solicitation Manager assesses Qualification Package after bids are ranked
- Solicitation Manager may issue deficiency notice to which Bidder has opportunity to cure

Forms Available on Web site

Pricing Proposal may be submitted at any time after receipt of a complete EOI by ? (spring) for 3rd solicitation



# Ranking of Bids

- Solicitation Manager ranks Pricing Proposals on an anonymous basis
- Ranking performed on the basis of the net present value (“NPV”) of payments under the SREC PSA for each annually delivered SREC
- Projects will be selected based on the lowest NPV, up to the approved MW solicited or to the point where pricing is found to be uncompetitive
  - The first Project rejected is the Project that causes the total quantity to exceed the MW solicited or the first Project where the pricing is not competitive (whichever comes first)
- Developer cap (20% in each territory) is applied to the ranked projects



# Example

Example: JCP&L				
Price/SREC	Term	Factor	NPV	Rank
\$375	10	7.0660	\$2,650	3
\$375	11	7.5475	\$2,830	4
\$355	12	7.9980	\$2,839	5
\$350	13	8.4196	\$2,947	6
\$300	14	8.8141	\$2,644	2
\$285	15	9.1832	\$2,617	1

*Longer-term proposals can be competitive if their pricing is sufficiently lower than proposals with shorter terms.*

	JCP&L NPV Factor		ACE NPV Factor	
Discount Rate	6.87%		6.66%	
Year (Term of PSA)	Yearly Factor*	Cumulative Factor	Yearly Factor	Cumulative Factor
1	0.9357		0.9376	
2	0.8756		0.8790	
3	0.8193		0.8241	
4	0.7666		0.7727	
5	0.7173		0.7244	
6	0.6712		0.6792	
7	0.6281		0.6368	
8	0.5877		0.5970	
9	0.5499		0.5597	
10	0.5146	<b>7.0660</b>	0.5248	<b>7.1353</b>
11	0.4815	<b>7.5475</b>	0.4920	<b>7.6273</b>
12	0.4505	<b>7.9980</b>	0.4613	<b>8.0886</b>
13	0.4216	<b>8.4196</b>	0.4325	<b>8.5211</b>
14	0.3945	<b>8.8141</b>	0.4055	<b>8.9266</b>
15	0.3691	<b>9.1832</b>	0.3802	<b>9.3068</b>

\* Yearly Present Value Factor = 1 / (1+Discount Rate)^(Year)

# Solicitation Manager considers input from the Parties

- Solicitation Manager presents preliminary recommendations to the EDCs, Rate Counsel and BPU Staff
- Solicitation Manager considers input of the Parties
- Solicitation Manager presents final recommendations to the BPU, including:
  - competitiveness of process
  - recommended awards
  - Succeeding round MW
  - any special treatment of the small project segment (50kW or below) relative to the BPU's aspirational goal (25% for ACE and JCP&L, 50% for RECO)
- Final Awards are determined by the BPU
- Solicitation Manager notifies the Bidders and announces the results
- Results do not include any individual pricing



# Results from the First Solicitation

- Eight bids received (1,594.73 kW)
- Seven awards made (1,585.37 kW)
- One bid of 9.36 kW was rejected because pricing was found not to be competitive
- The average price of all accepted projects is \$409.71/SREC
- The low price of all accepted projects is \$369.00/SREC



# Schedule for Upcoming Solicitation

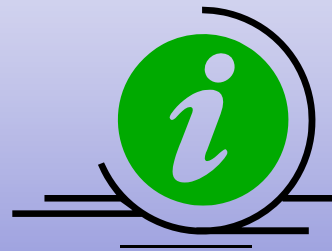
Round 3 Deadline for EOI	? (spring)
Round 3 Deadline for Pricing Proposals	? (spring)
Round 3 Deadline for Qualification Materials	? (spring)

## Current 2<sup>nd</sup> Round

<i>Preliminary Recommendations</i>	<i>Monday, December 21, 2009</i>
<i>Input by the Parties</i>	<i>Tuesday, January 5, 2010</i>
<i>Final Recommendations to BPU</i>	<i>Friday, January 15, 2010</i>
<i>Expected BPU Meeting</i>	<i>Friday, January 22, 2010</i>
<i>Announcement of results</i>	<i>Tuesday, January 26, 2010</i>
<i>Execution of SREC PSA</i>	<i>March, 2010</i>



# Questions?



- ❖ [www.njEDCsolar.com](http://www.njEDCsolar.com)
- ❖ [www.njcleanenergy.com/renewable-energy](http://www.njcleanenergy.com/renewable-energy)
- ❖ <http://www.atlanticcityelectric.com/energy/renewable/connection/>