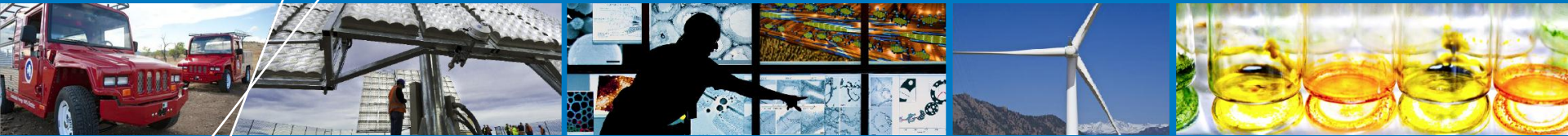


**Thank you for joining the  
Green Power Network webinar,**



**Incorporating Solar in Green  
Power Offers from Coast to  
Coast**

**February 25, 2014**

**The webinar will begin shortly.**

# Housekeeping

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- **Participants are joined in listen-only mode.**
- **Use the Q&A panel to ask questions during the webinar. We will hold all questions until after both speakers have presented.**
- **This webinar is being recorded. The slides will be posted to:  
<http://apps3.eere.energy.gov/greenpower/events/archive.shtml>.**

# Utility Green Pricing Programs Incorporating More Solar into Supply Mix

**NREL**  
NATIONAL RENEWABLE ENERGY LABORATORY

ABOUT NREL | ENERGY ANALYSIS | SCIENCE & TECHNOLOGY | TECHNOLOGY TRANSFER | TECHNOLOGY DEPLOYMENT | ENERGY SYSTEMS INTEGRATION

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News Release NR-3213

**NREL Highlights 2012 Utility Green Power Leaders**  
Top 10 programs support more than 4.2 million MWh of voluntary green power  
June 5, 2013

The Energy Department's National Renewable Energy Laboratory (NREL) today released its assessment of leading utility green power programs. Under these voluntary programs, residential and commercial consumers can choose to help support additional electricity production from renewable resources – such as wind and solar – that diversify our nation's energy portfolio and protect our air and water.

**Utilities Using at Least 2% Solar to Supply their Green Pricing Programs (as of December 2012)**

Rank	Utility	% Solar
1	Sacramento Municipal Utility District	14.5%
2	Tennessee Valley Authority	5.9%
3	Xcel Energy (Colorado only)	3.0%
4	City of Palo Alto (California)	2.5%
5	Alameda Municipal Power	2.0%
5	PacifiCorp - Blue Sky Habitat & Usage	2.0%

Note: While additional individual utility products may include at least 2% solar, this list represents the overall mix provided by the utility to meet all of its green pricing needs.

Utility green pricing programs are one segment of a larger green power marketing industry that counts more than 1.8 million customers, including Fortune 500 companies, government agencies and colleges and universities among its customers, and helps support more than 11,200 megawatts of renewable electricity generation capacity.

NREL is the U.S. Department of Energy's primary national laboratory for renewable energy and energy efficiency.

# Presenters

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- **Leslie Brown, Public Benefits Program  
Business Analyst, Silicon Valley Power**
- **Jay Carlis, Vice President, Retail Division,  
Community Energy**

# Silicon Valley Power

## Incorporating Solar in Green Power Offers

Leslie Brown

Green Power Program Manager

Customer Services and Marketing

February 25, 2014



# AGENDA

- About Silicon Valley Power (SVP)
- SVP as a Solar Friendly Utility
- SVP Solar and Green Power Options
- Neighborhood Solar
- ***Santa Clara Green Power***
- ***Santa Clara Green Power*** Evolution of Program Mix
- Why Increased Solar Content?
- Lessons Learned



# ABOUT SILICON VALLEY POWER

- City of Santa Clara's not-for-profit Municipal Electric Utility
- 52,000 electric meters
- 19.3 square miles
- Almost 3 million MWh of sales annually of which 88% is for industrial use
- The average electric bill in Santa Clara is almost half of those in surrounding communities

Silicon Valley Power 2012 POWER CONTENT LABEL		
ENERGY RESOURCES	2012 SVP POWER MIX	2011 CA POWER MIX** (for comparison)
Eligible Renewable	25.9%	14.0%
-- Biomass & waste	0.4%	2.0%
-- Geothermal	9.7%	5.0%
-- Eligible Hydro	2.0%	2.0%
-- Solar	0.0%	<1%
-- Wind	13.8%	5.0%
Coal	9.0%	8.0%
Large Hydro	12.4%	13.0%
Natural Gas	33.8%	37.0%
Nuclear	0.0%	16.0%
Other	0.0%	0.0%
Unspecified sources of power*	18.9%	12.0%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>

\* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

\*\* Percentages are estimated annually by the California Energy Commission based on the electricity sold to California consumers during the previous year.

\*\*\* These values do not reflect renewable generation determined to be in excess of the RPS target in the first compliance period (2011-2013) that requires 20% of retail sales be procured from renewable sources, and will be applied to future compliance periods.



# ABOUT OUR CUSTOMERS

- Home to the headquarters of Intel, Applied Materials, Synaptics, Agilent Technologies, and NVIDIA
- Mission College and Santa Clara University
- Great America amusement park
- San Francisco 49ers headquarters and future stadium
- Over 44,000 residential meters





# ABOUT OUR RESIDENTS

- About 116,000 residents
- 45% white, 37.7% Asian, 19.4% Hispanic/Latino, 2.7% African American
- 39.3% are foreign born persons
- Of persons 25+, 50.5% have a bachelor's degree or higher
- Over half (54.1%) of housing units are occupied by renters
- 68.7% of population is between 18 and 64 years old
- Median value of owner-occupied housing unit is \$618,600
- Median household income is \$92,198



# SVP AS A SOLAR FRIENDLY UTILITY

Ranked #1 by SEPA in 2010 for Annual Solar Watts-per-Customer

Ranked top 10 in 2009, 2011 and 2012



# SVP SOLAR AND GREEN POWER OPTIONS

- Solar Electric Rebates available for residential and commercial customers
  - \$1.75/watt rebate for residents
  - \$1.10/watt or 0.15/kWh rebate for commercial
- Neighborhood Solar Program
  - Residential customers donate \$5-10/month via their electric bill to install solar systems on non-profit facilities in Santa Clara
- Santa Clara Green Power
  - Residential customers match 100% of their electric usage with Green-e certified wind and solar RECs. Residential customer rate \$0.015/kWh (\$15.00/MWh)



# NEIGHBORHOOD SOLAR

- Silicon Valley Power's Neighborhood Solar Program (NSP) is a voluntary, donation-based option largely funded by residential customers that builds solar projects on non-profits throughout Santa Clara
- Precursor for ***Santa Clara Green Power Program***
- Additional program funds come from SCGP.
  - \$2.00 is contributed to NSP for every \$15.00 MWh of Green Power purchased
- NSP projects also generate RECs which are sold to the Green Power program, making the Green Power supply more local and creating an additional ongoing revenue stream for these projects
- Allows residents to support local projects that otherwise would not have happened



# NEIGHBORHOOD SOLAR PROJECTS

- 2004: Haman Elementary School 4.6 kW
- 2007: Valley Village Retirement Center 7.6 kW
- 2010: Bill Wilson Center 11.5 kW

## Latest Recipients:

- 2013: Our Lady of Peace Parish 27 kW
- 2013: St Justin's Parish 22 kW
- 2014: Hope Services 5 kW
- 2014: Muslim Community Association TBD



# ABOUT SANTA CLARA GREEN POWER PROGRAM

Green Power is a traditional REC-based green pricing program with a strong history of supporting solar

- Green-e Energy Certified®
- 2014 is the program's 10 year anniversary
- Residential customer rate \$0.015/kWh (\$15.00/MWh)
- 7.7% participation rate
- Over 3,900 residents and 130 commercial participants



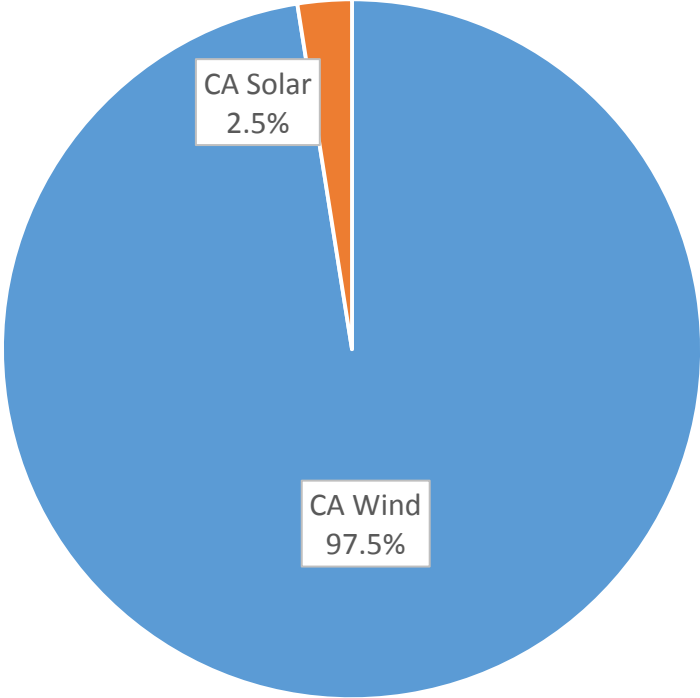
# SCGP IS AN AWARD WINNING PROGRAM

- 2006 DOE “New Program of the Year” Award
- 2007 DOE/EPA “Green Power Program of the Year” Award
- 2008 “EPA Green Power Community”
- 2009 Acterra award winner
- NREL Top 10 for Customer Participation Rate (#7)
- NREL Top 10 for Green Power Sales as a Percent of Total Retail Electricity Sales (#10)



# EVOLUTION OF PROGRAM MIX 2004-2009

Green Power Program Mix 2004-2009



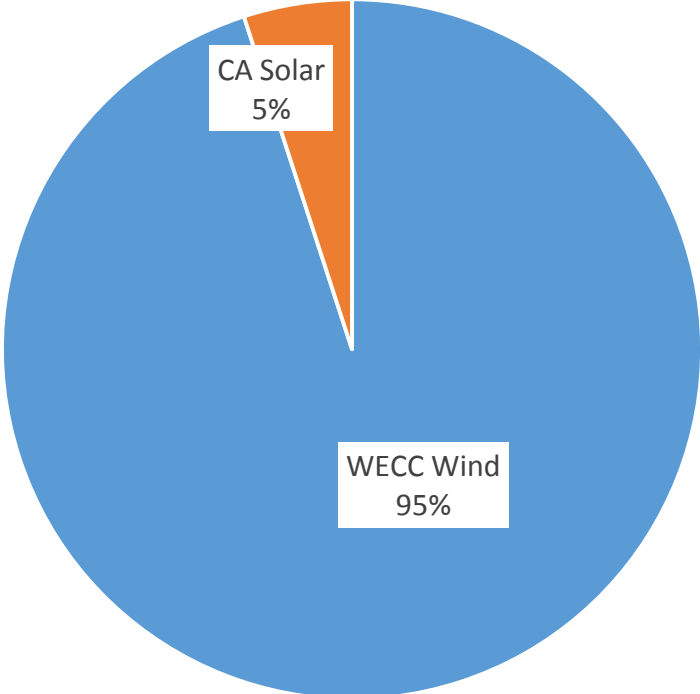
■ CA Wind ■ CA Solar





# EVOLUTION OF PROGRAM MIX 2010-2012

Green Power Program Mix 2010-2012

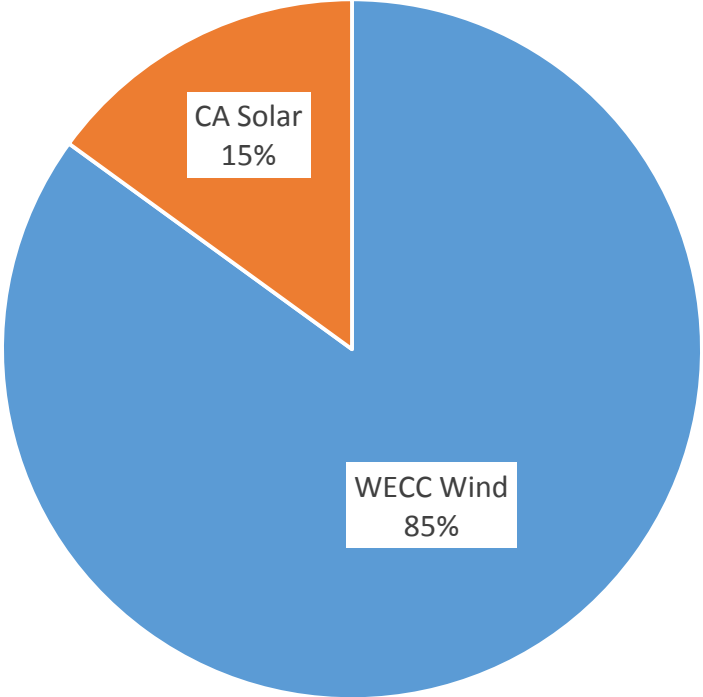


■ WECC wind ■ CA Solar



# EVOLUTION OF PROGRAM MIX 2013

Green Power Program Mix 2013

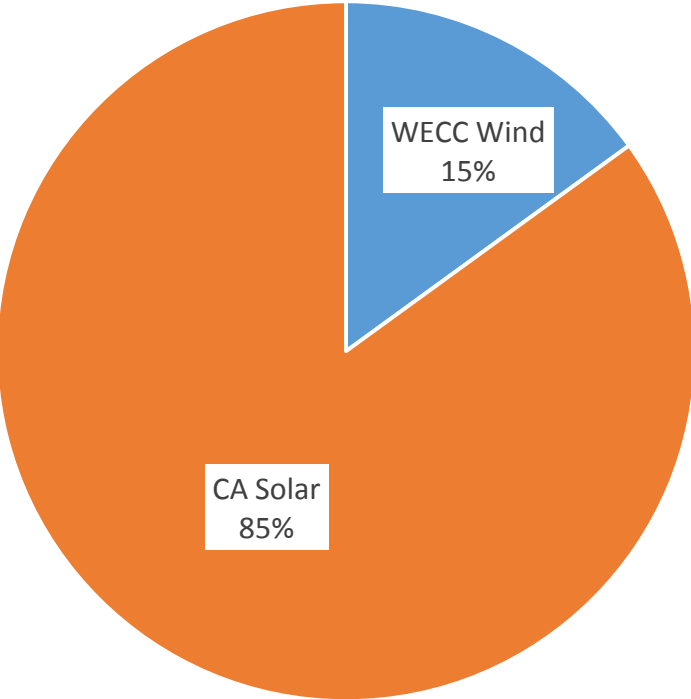


■ WECC Wind ■ CA Solar



# EVOLUTION OF PROGRAM MIX PROJECTED 2014

Projected Green Power Program Mix 2014



■ WECC Wind ■ CA Solar



# WHY INCREASE THE SOLAR SUPPLY?

- The goal was to increase quality of the Green Power program REC product
- Solar Energy is consistently rated #1 by consumers as the most favorable energy concept
- In 2013, the price of WECC wind declined
  - This opportunity allowed SVP to increase the quantity of in-state solar RECs without increasing the cost to customers
- Small, local, community-oriented projects are compelling to customers
  - Program mix sourced from local solar supply to increase customer support and excitement around the program



# LESSONS LEARNED

- Customers love solar!
  - Half of all electric ratepayers are renters and on-site solar isn't an option
- Green pricing programs that include solar can tap that demand
- Declining REC prices afford utilities an opportunity to increase solar in the mix
- Funding local solar projects connects customers to the program
- Green Power customers were happy to have some of their \$\$ go to a program like Neighborhood Solar.
- Be flexible with program design and options for larger customers



3Degrees is Santa Clara's Green Power Program marketing partner





# Solar Power and Voluntary Green Power Programs

February 25, 2014

Jay Carlis  
Vice President

Community Energy Inc.

# Agenda

- Solar Development Experience
- Solar in Voluntary Green Power Programs
- Community Solar: Voluntary Green Power 2.0



# Community Energy Introduction

- Renewable Energy Developer and Marketer Since 1999
- Pioneered Voluntary Market in the East
- 800MW of Wind and Solar Power Developed



# Solar Development

**62 MW of Solar on-line or  
under construction**



# What It Takes

- Smart, Cost-Effective Development
- Experienced Developers
- Long-Term Offtake
  - Energy and RECs
  - 10-25 years
  - Investment-Grade Credit

# What It Takes

# Creative Thinking!



# Keystone Solar Farm

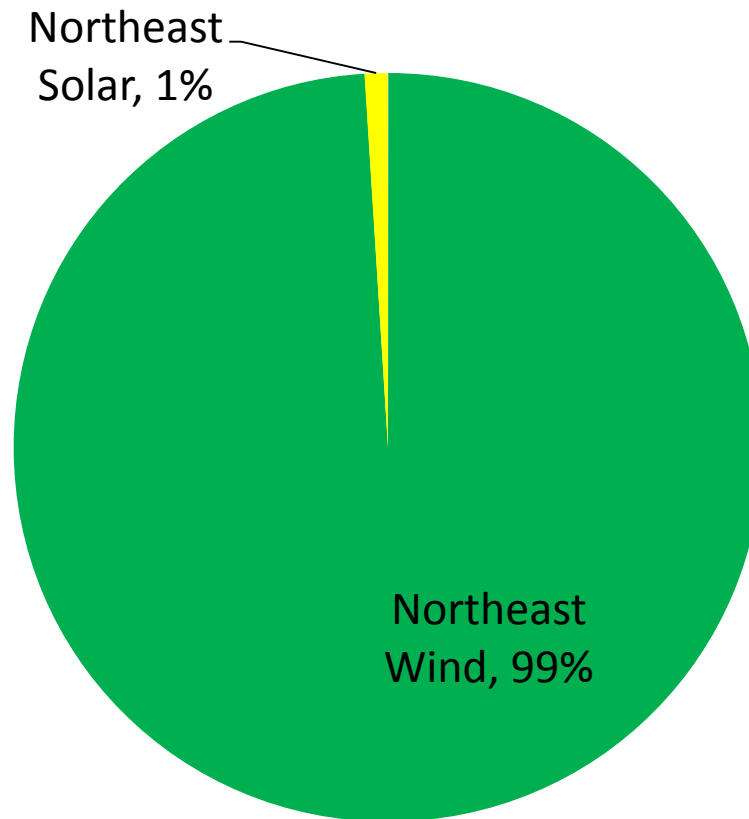


Eastern University  
Franklin & Marshall College  
Drexel University  
Juniata College  
Marywood University  
Millersville University  
Clean Air Council  
The Phillies

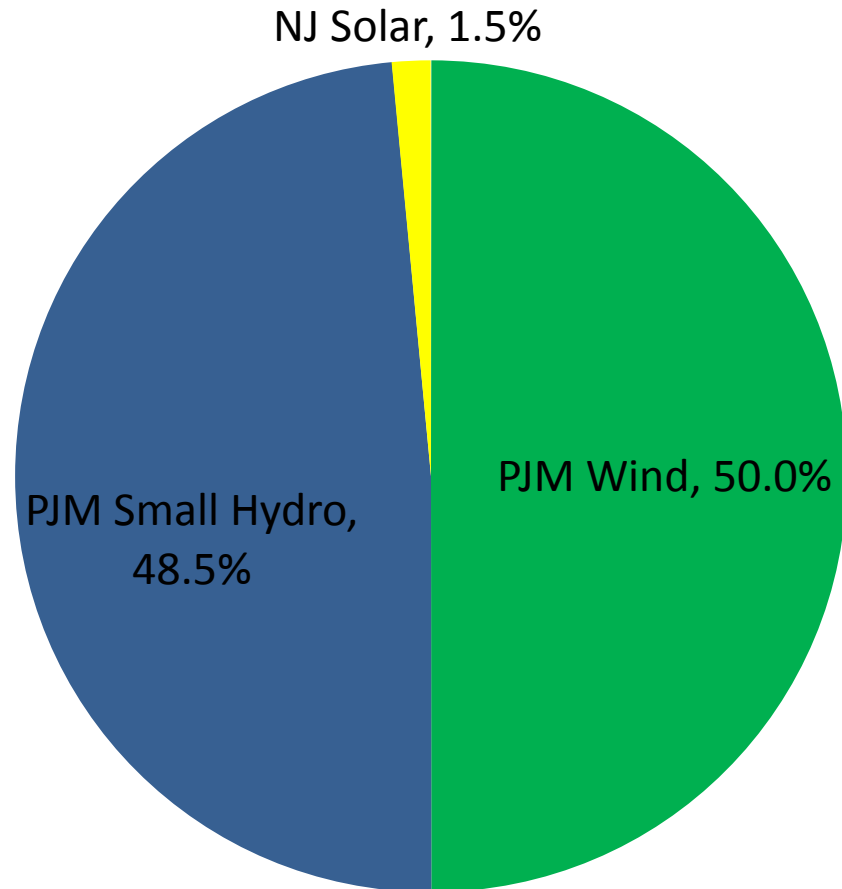
# Utility Green Power Programs



# CT Clean Energy Options



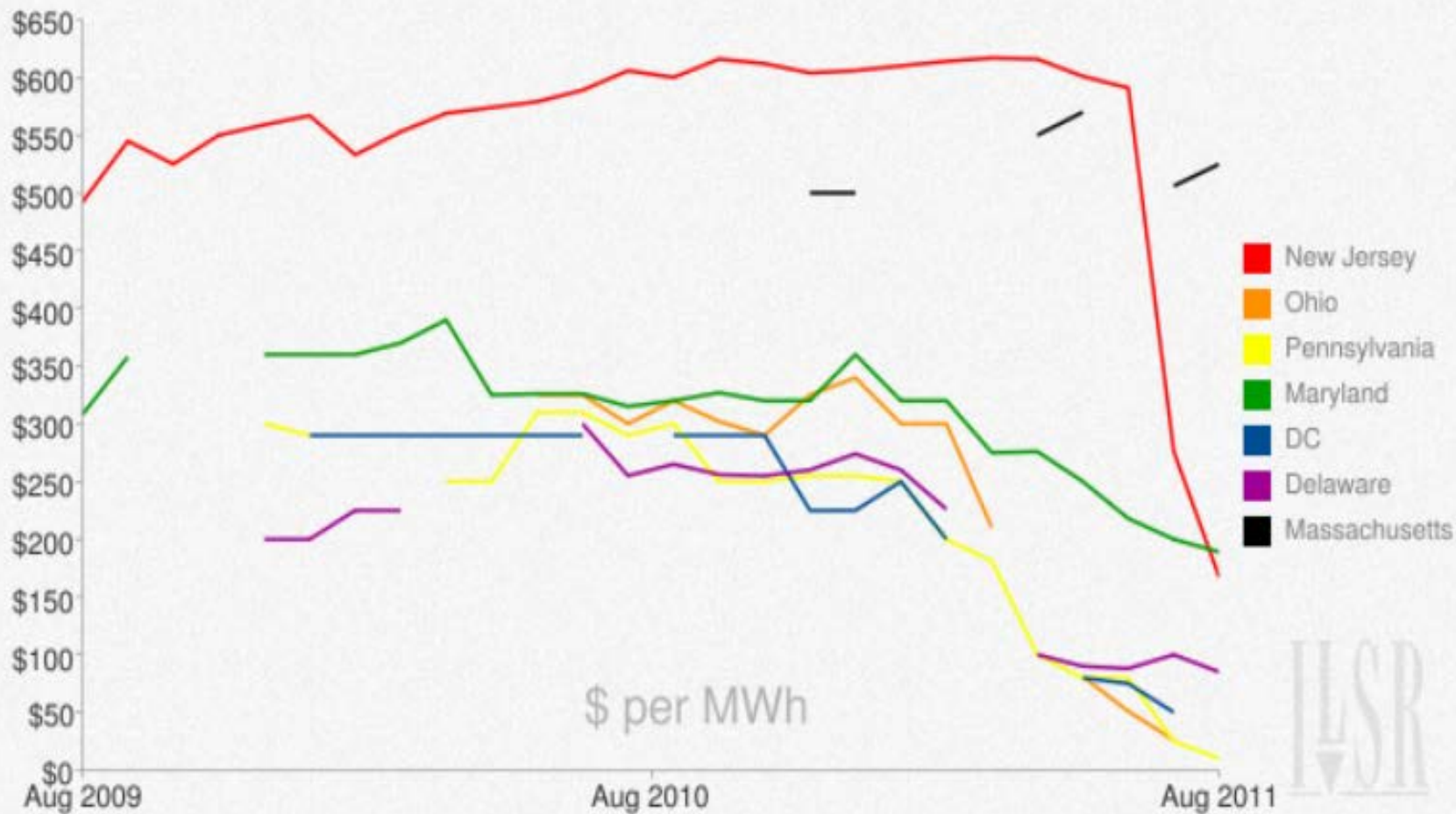
# NJ CleanPowerChoice



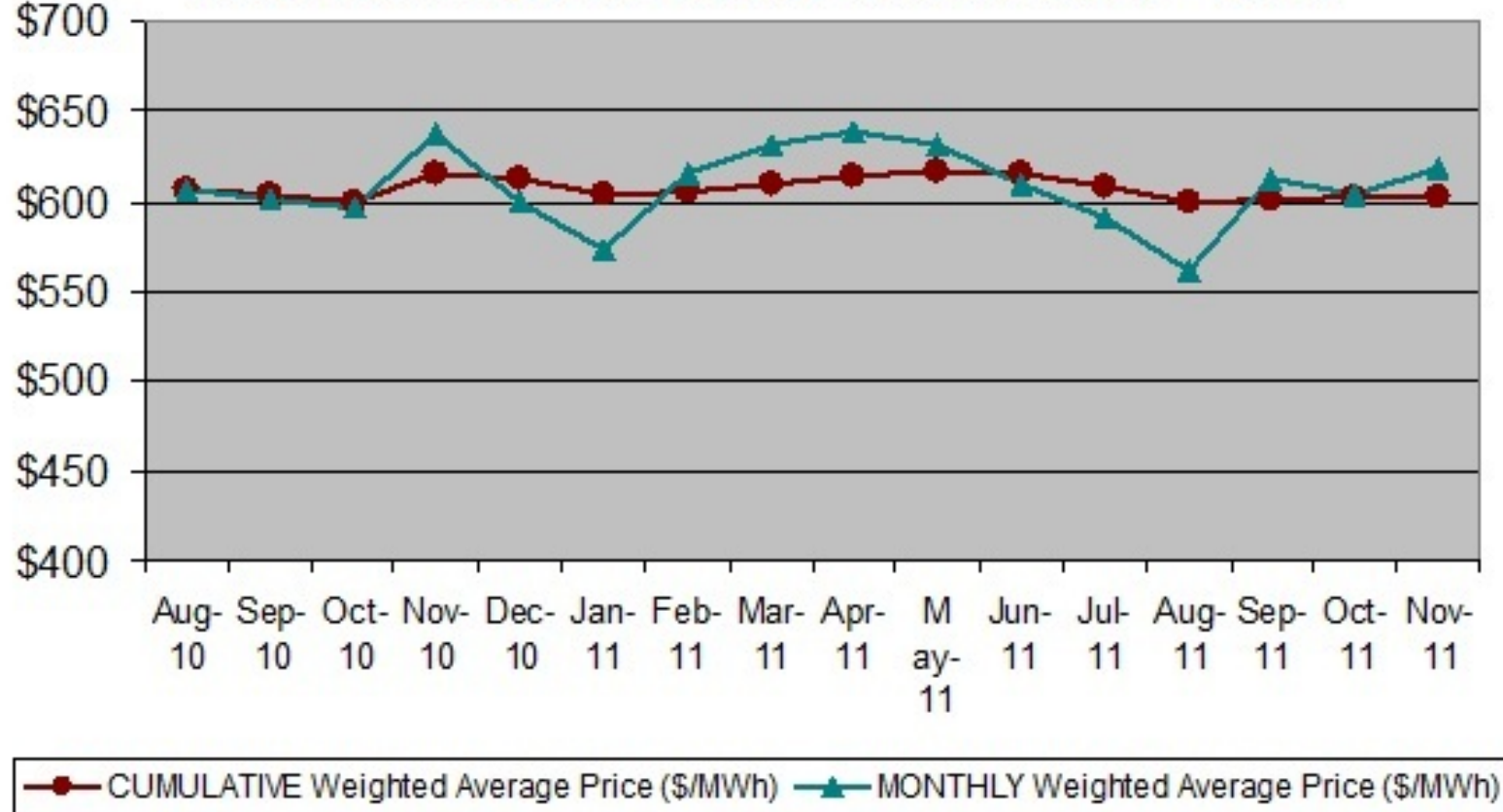




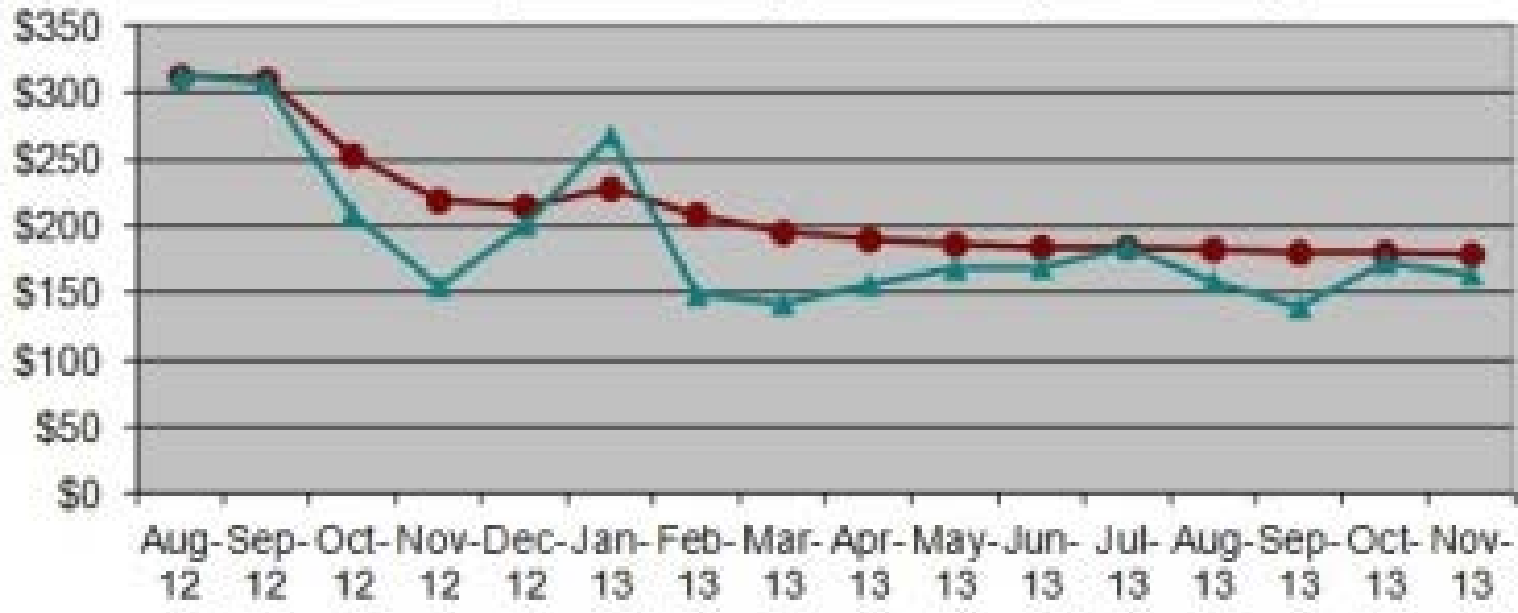
### SREC Price Volatility



**NJ SREC Trading Price - Energy Year 2011 (SACP = \$675)**



**NJ SREC Trading Price - Energy Year 2013 (SACP = \$641)**

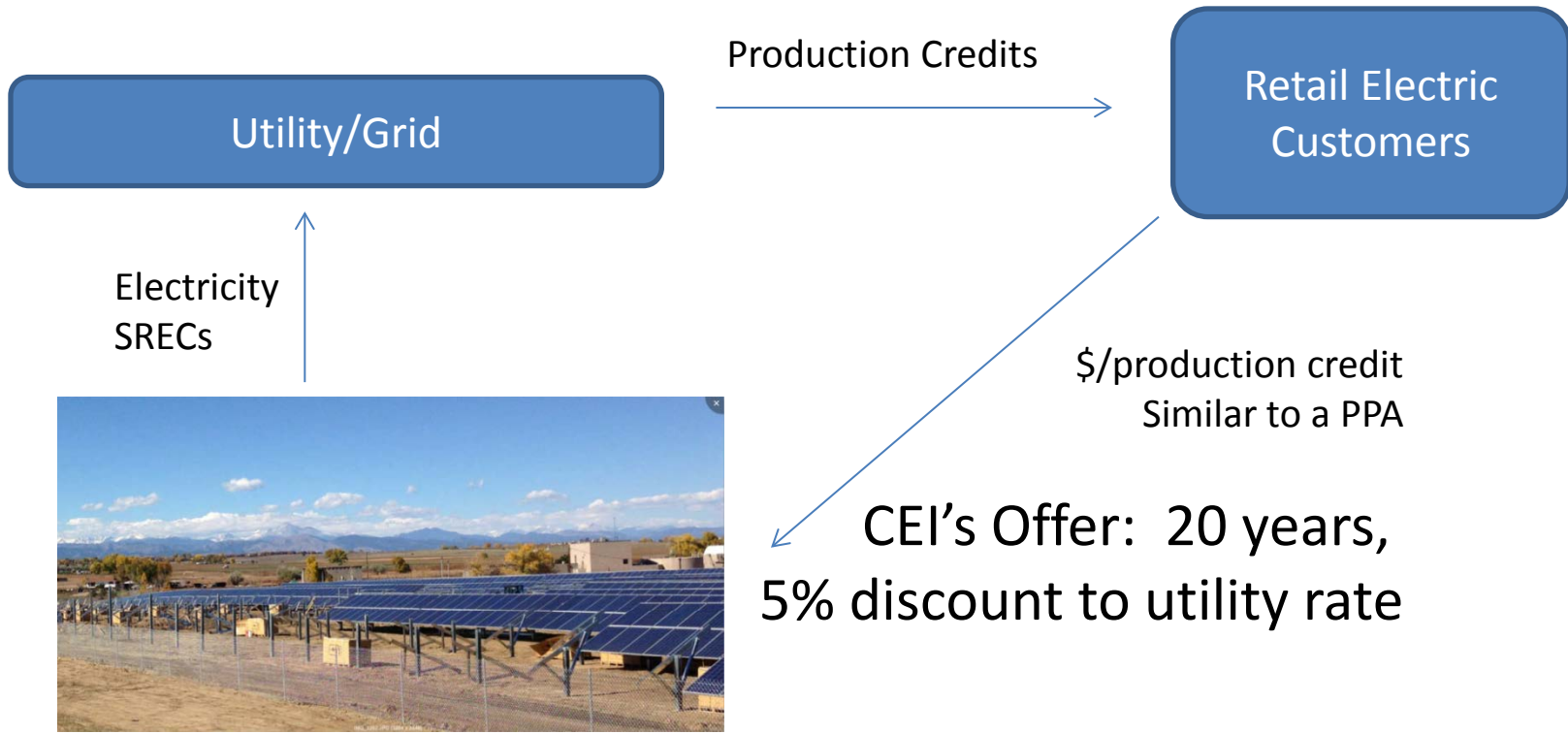


—●— CUMULATIVE Weighted Average Price (\$/MWh)    
 —●— MONTHLY Weighted Average Price (\$/MWh)

# Community Solar Voluntary Green Power 2.0

- Fixed-Price Benefits of Solar Power for the 75%
- Usually Energy-Only (no SRECs)
- Usually on the Utility Bill

# Community Energy Solar Garden



# Community Energy Solar Garden

1.

You and others sign up for shares of a solar project.

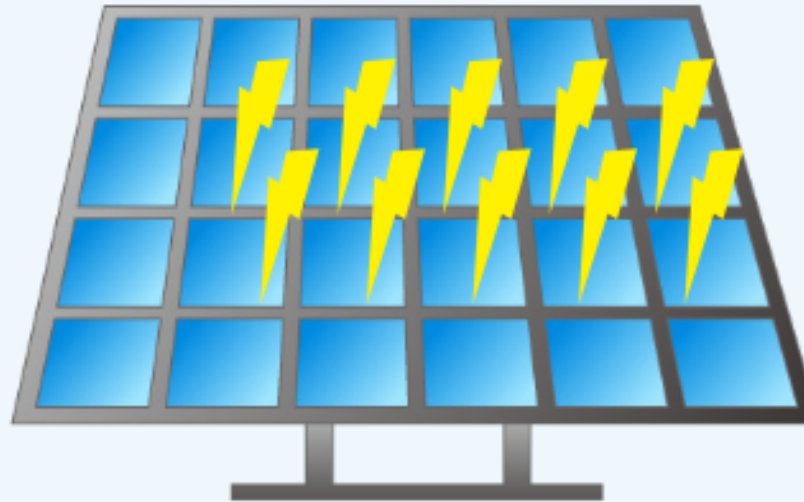


By signing up you make solar happen.

# Community Energy Solar Garden

2.

Each solar share sends solar electricity to the grid each month.



You receive credit based on the solar energy that your shares produce on your electric bill.

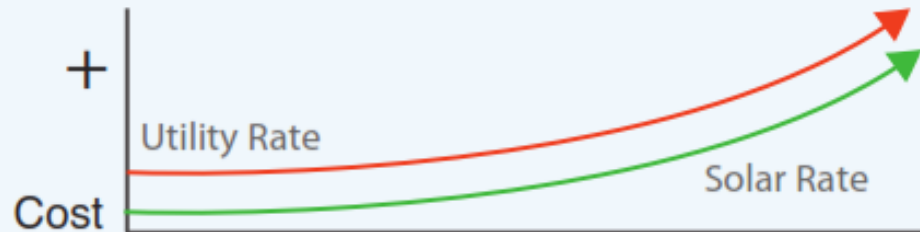


# Community Energy Solar Garden

3.

You can change the way  
you purchase energy.  
You have a couple of choices.

## Lock in 5% Annual Utility Savings



What you could earn over 20 years: **\$1,500**\*



### The Gaws

Powered Since: Nov. 2008

Rooftop System: 2.4 kW

EST. ANNUAL POWER GENERATION

**3,155** kWh

## Solar Power for your Home

**You simply pay for your solar power by the month, just like your utility bill, only lower**

Pay less for electricity today and your savings can grow over time as utility rates continue to increase. More homeowners nationwide choose SolarCity than any other solar provider.\* SolarCity will install your system for free. Every 5 minutes someone makes the switch to clean energy with SolarCity. Join the movement today by adding cleaner, more affordable solar to your home.

Free Consultation

# HOW IT WORKS

A SolarCity solar power system lets you generate your own electricity. You simply pay for your solar power by the month.

It's just like your utility bill  
**ONLY LOWER**

## High utility bills?

switch to clean, more affordable energy

Learn More

## How Much Can I Save?

SolarCity makes it easy and affordable for you to save



Pricing Options

**1** LET'S GO

FREE

Energy Explorer

# How Do We Build 700GW of Solar?

- Does messaging matter?
- How do we reach new audiences?
- Can we design products that build new projects?





# Contact Info

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