



# SEPA™

solar electric power association



Helping Utilities Make Smart Solar Decisions

## Community Solar

Ted Davidovich  
Manager, Utility Planning

SEPA's unique mission is aimed at utility issues ...

SEPA is an educational non-profit (501 c3)

- Celebrating over 20 years of service to utilities and solar
- Membership based – approx. 1000 members
- Providing unbiased information focused on supporting utilities and their needs as they relate to solar adoption
- Providing exclusive member programming, research, education, collaboration and consulting services

### Membership

**530+**  
Utility

**475+**  
solar  
industry &  
stakeholder

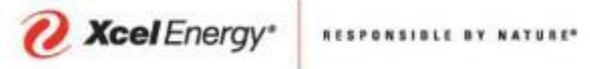
**52%** of  
electricity  
customers

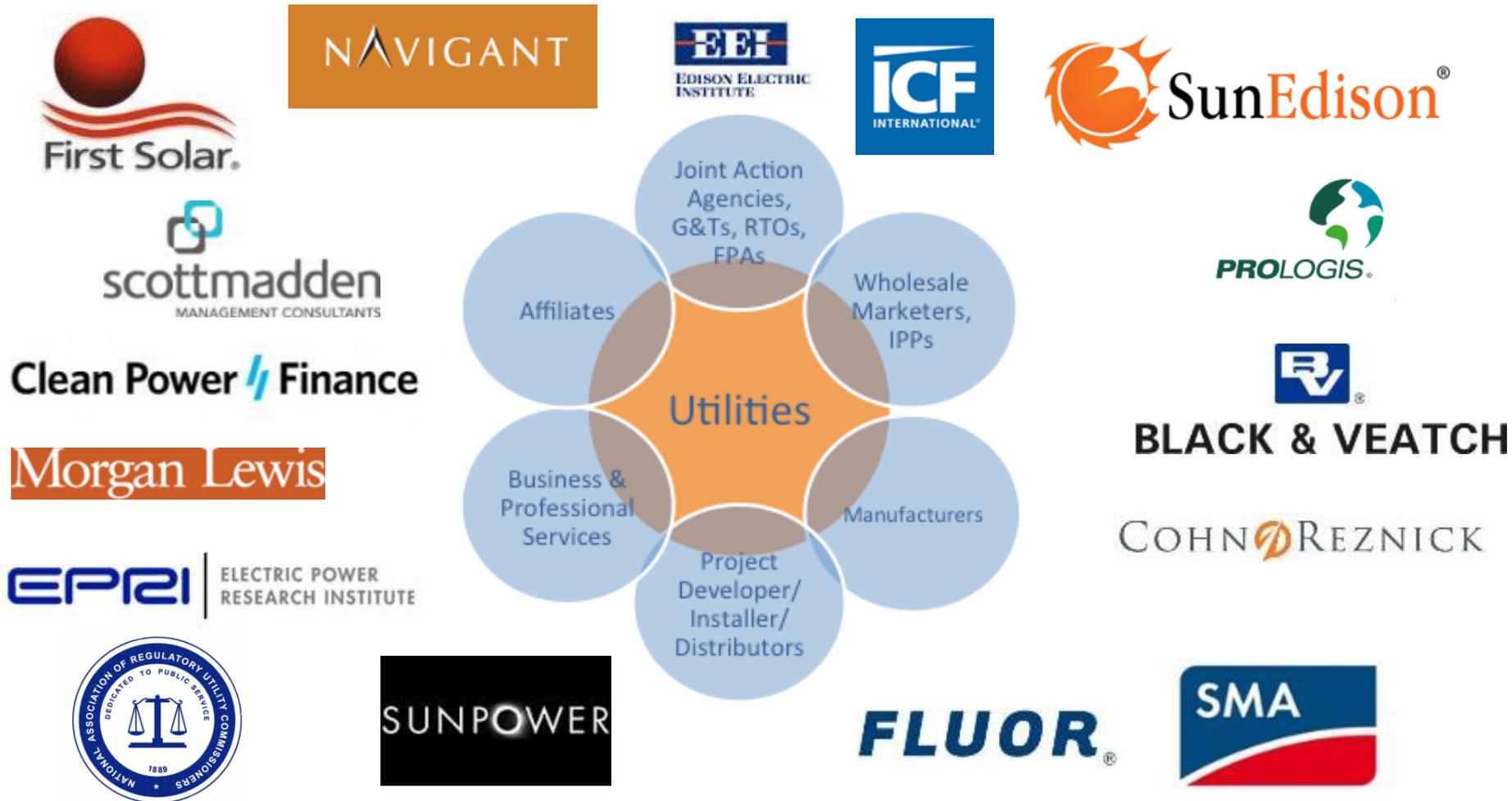
**+90%**  
of installed  
solar  
capacity



...delivered through tailored education, publications, best practices, & consultation

Helping Utilities Make Smart Solar Decisions





# SEPA Events, Products, & Services

**UTILITY  
SOLAR  
CONFERENCE  
SEPA**



Mark Your Calendar!




**SOLAR POWER 15 INTERNATIONAL**

POWERED BY

SEPTEMBER 14-17, 2015 • ANAHEIM CONVENTION CENTER • ANAHEIM, CA

If it's happening in solar, it's happening at SPI.

**SOLAR FUNDAMENTALS**  
Volume 1:  
*Technology*

Authors:  
Becky Campbell  
Daisy Chung




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**UTILITY SOLAR DATABASE**

Powered by SEPA



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**Unlocking Advanced Inverter Functionality:**  
Roadmap to a Future of Utility Engagement and Ownership

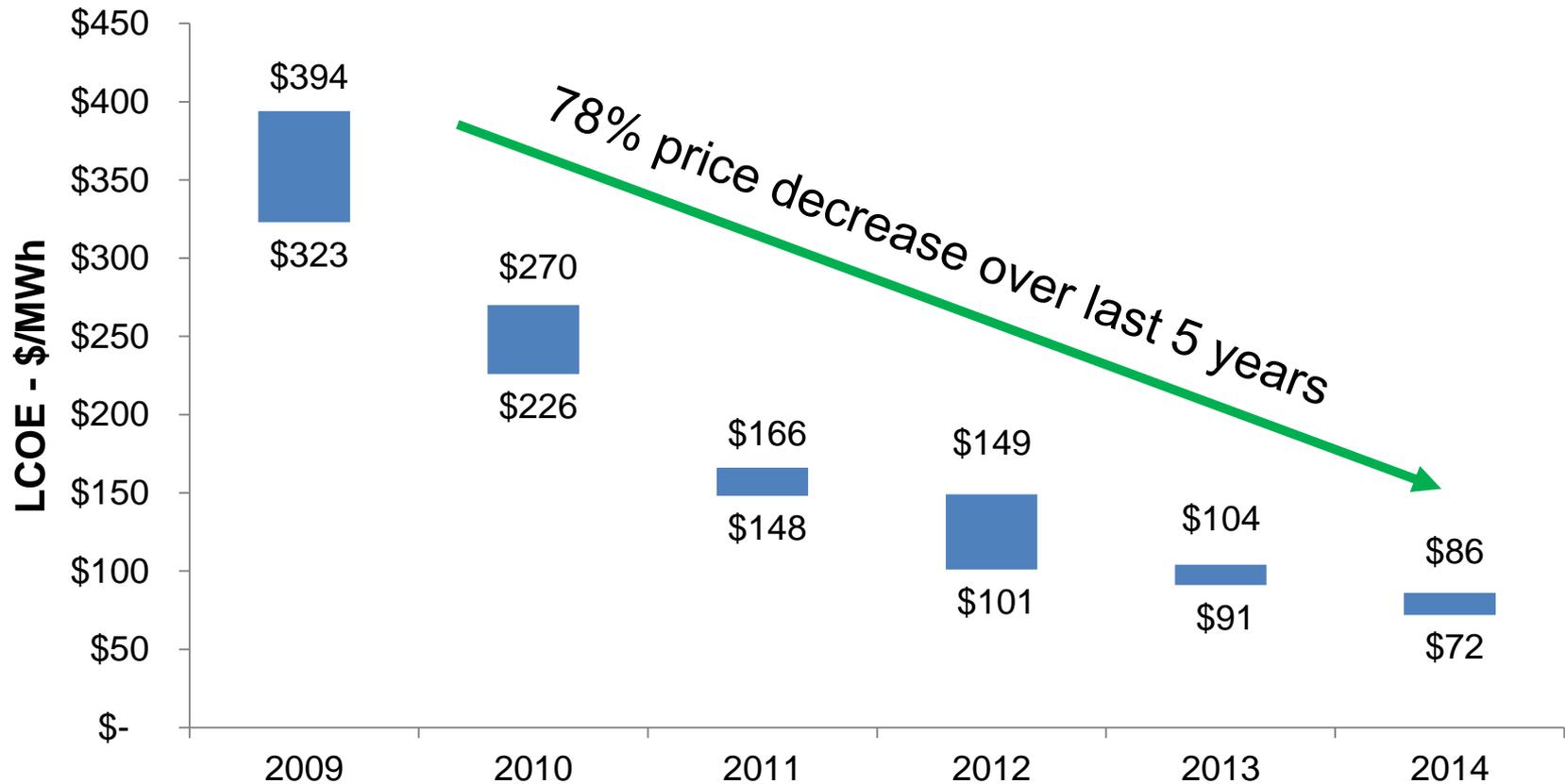
EDD: 04/16/2015  
ISBN: 978-1-937-111-11-1

1000 TRINITY DRIVE, FOLDSIDE, VA  
WASHINGTON, DC 22094-1185  
SOLARELECTRICPOWER.ORG

# PRICING OVERVIEW

# Utility-Scale Solar PV LCOE History

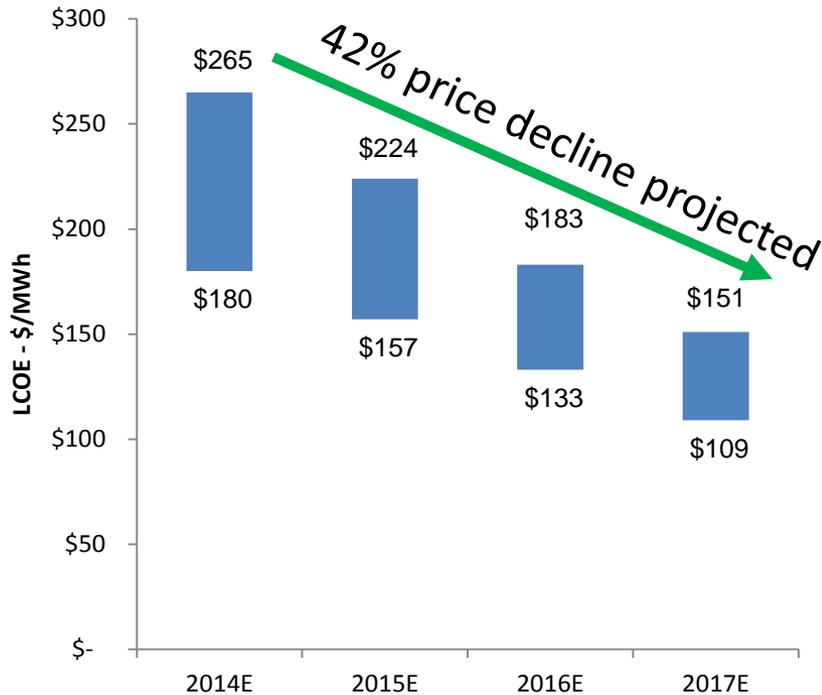
## PV LCOE Price Decline



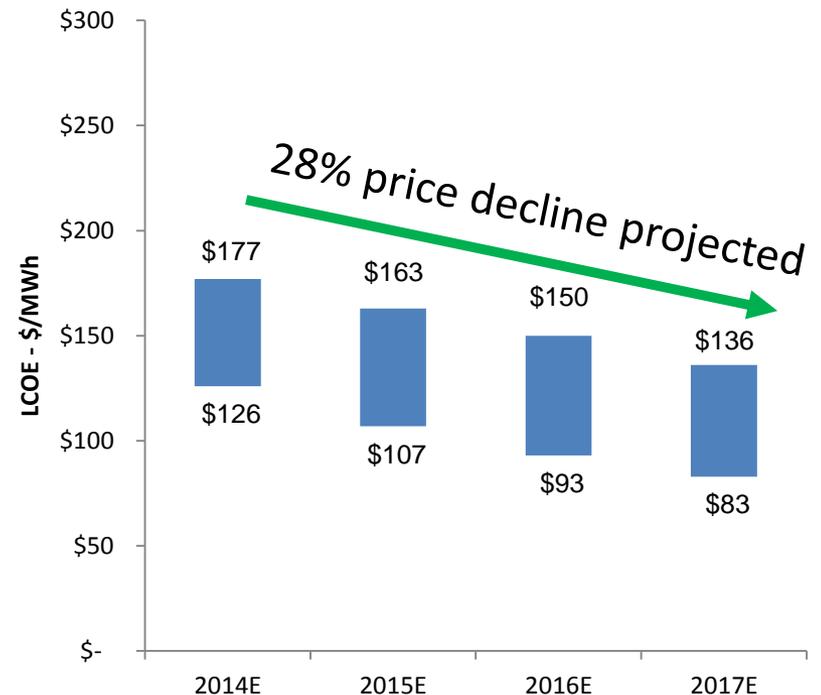
Lazard's Levelized Cost of Energy Analysis - Version 8.0

# LCOE Forecast Comparison

### Rooftop Residential



### Rooftop C&I



## SRP - 2014

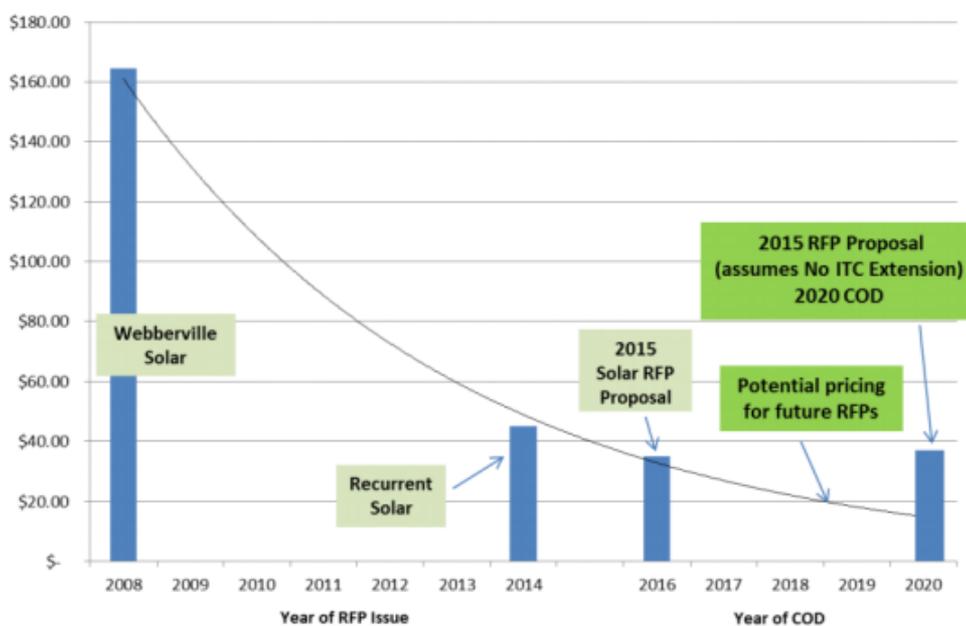
- 21 year PPA with sPower for 45 MW for about **5.3** cents/kWh

## NV Energy -2014

- 20 year PPA with First Solar for 100 MW for **3.87** cents/kWh escalating 3%
- 20 year PPA with SunPower for 100 MW for **4.6** cents/kWh fixed

## Austin Energy - 2015

- 1,295 MW projects bid under **4** cents/kWh



Austin Energy

## Xcel Energy (NM) - 2015

- 2 - 70 MW projects with Nextera for **4.2** cents/kWh levelized

# PRICING DRIVERS

- Based on SEPA market intelligence, pricing for utility-scale solar assets is declining rapidly as well
  - 10 MW: \$1.70-1.90/Watt
  - 20 MW: \$1.50-1.70/Watt
  - 40+ MW: \$1.40/Watt or less
- Power Purchase Agreement (PPA) pricing in some regions is now routinely below \$50/MWh and in some cases below \$40/MWh
  - Typically for very large assets in strong solar resource states

## Capacity factor

- Southwest areas have premium solar source

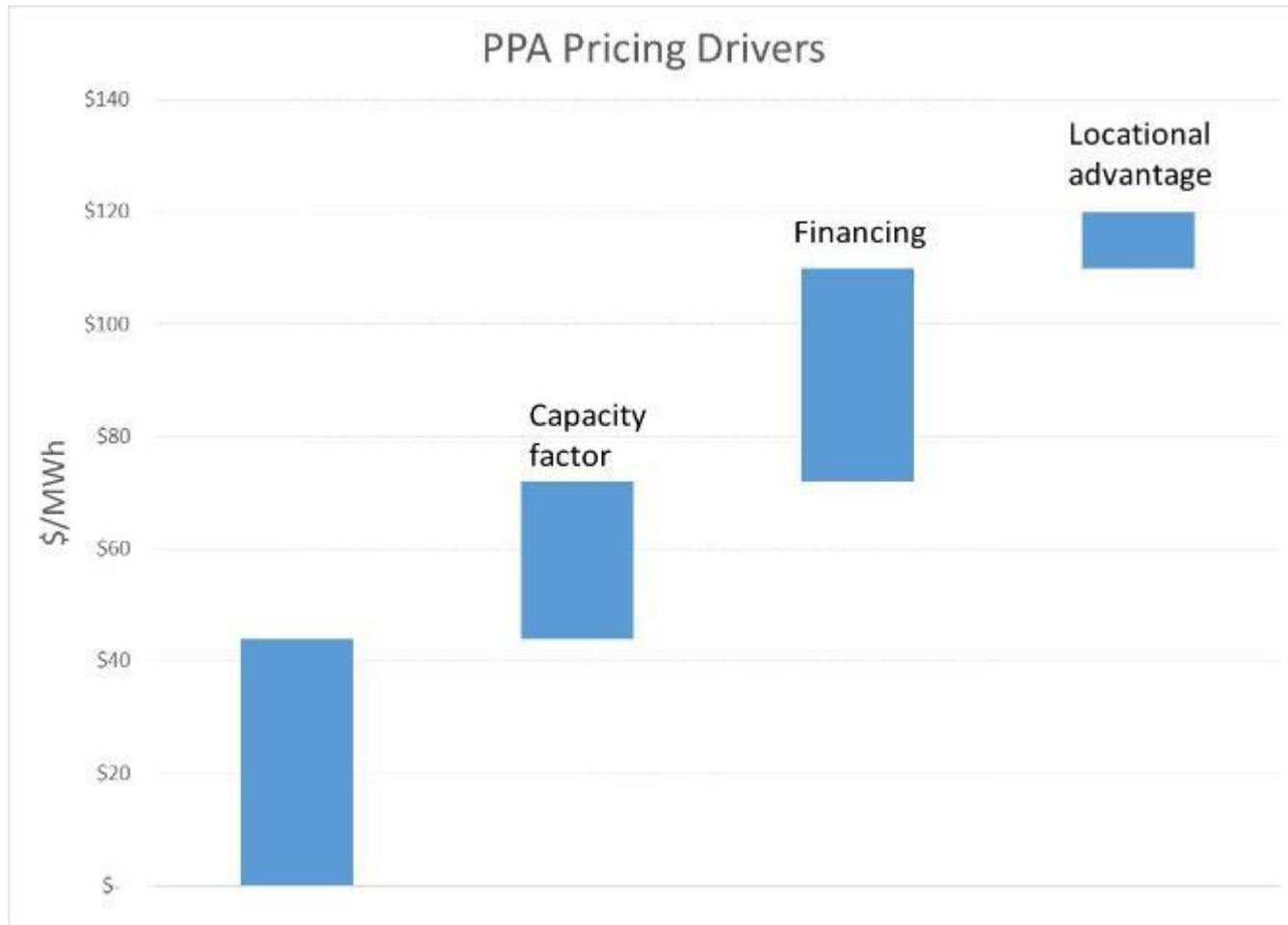
## Financing

- ITC and MACRS vs normalization along with project financing present attractive financial advantages

## Locational advantage

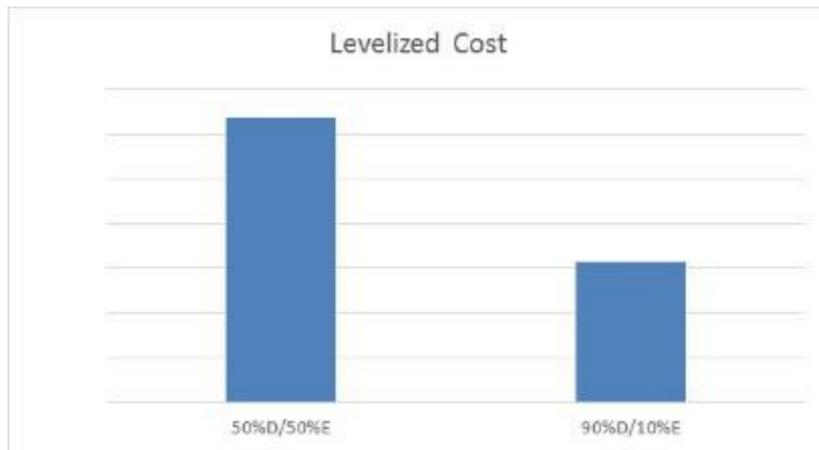
- Building large scale projects at sites that can optimize interconnection costs keeps costs low

# PPA Pricing Drivers



Solar capacity factors in AZ, NV, and West TX / NM of greater than 20% (5% less capacity factor results in 1/3 less energy)

## Project financing versus traditional rate of return



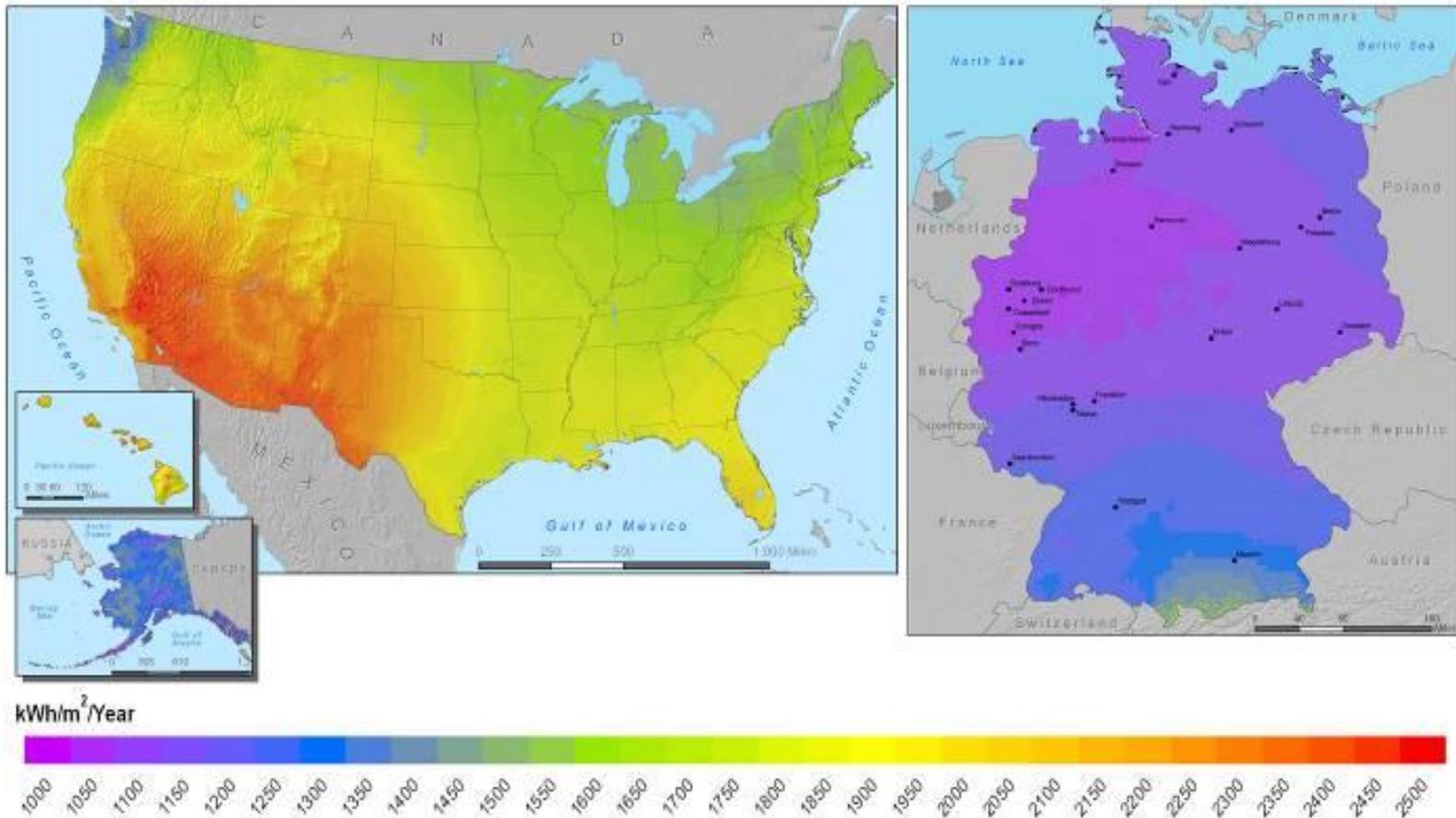
## Advantageous siting

Two designated transmission corridors that are heavily developed with numerous natural gas, petroleum product, and electric transmission lines (including a 500-kV transmission line) pass through the SEZ.



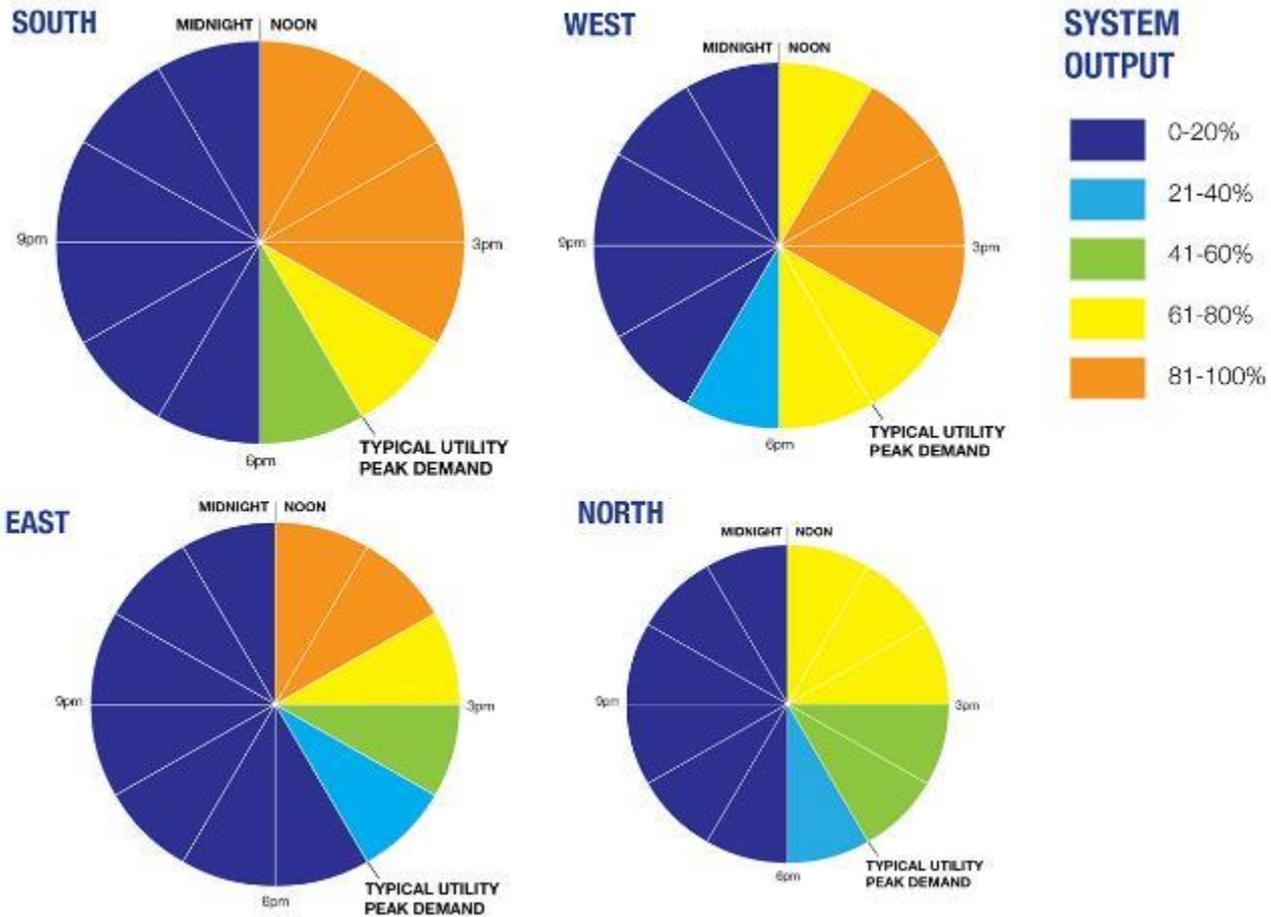
# U.S. / German Irradiance Comparison

Lesson – Always Look on the Bright Side!



Helping Utilities Make Smart Solar Decisions

# Impact of Orientation to Timing & Level of Production

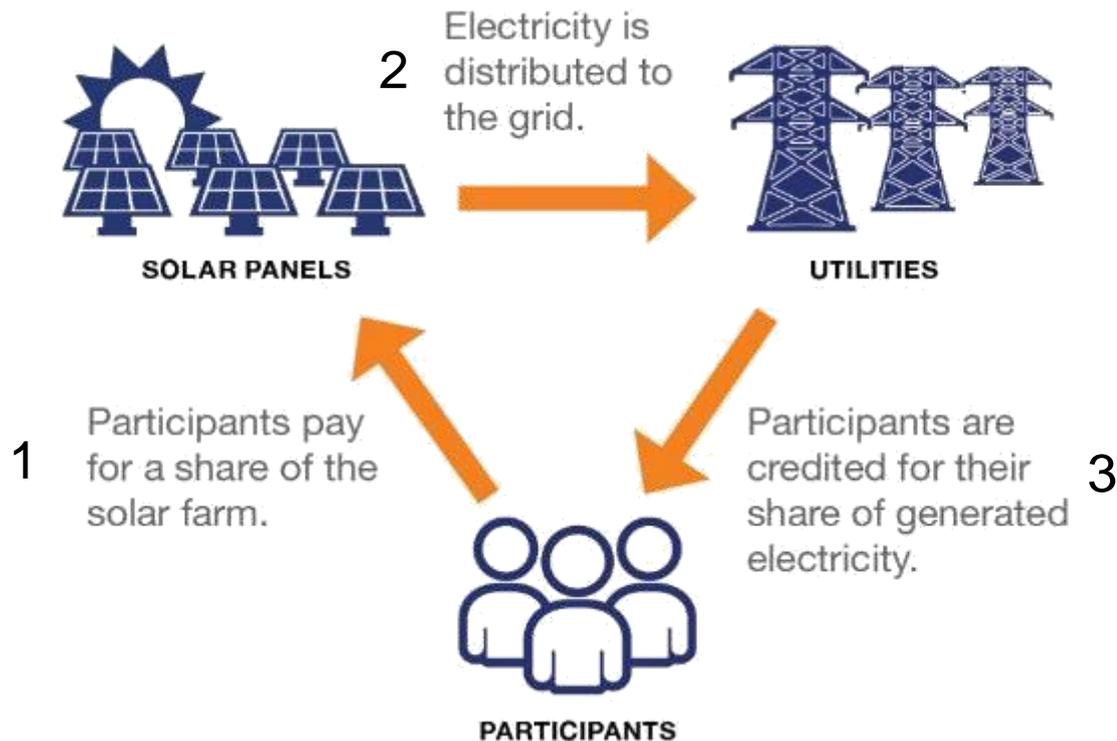


Helping Utilities Make Smart Solar Decisions

# COMMUNITY SOLAR OVERVIEW

# What is Community Solar?

- Voluntary, rooftop alternative for groups of participants
- Supply is most often larger, ground-mounted PV system
- There three defining transactions



System Benefits

- Can be strategically sited
- Leverages economies of scale

Customer Benefits

- Increase customer access to and participation in solar
- Ability to hedge energy costs
- Portability within utility service area
- Leverages economies of scale

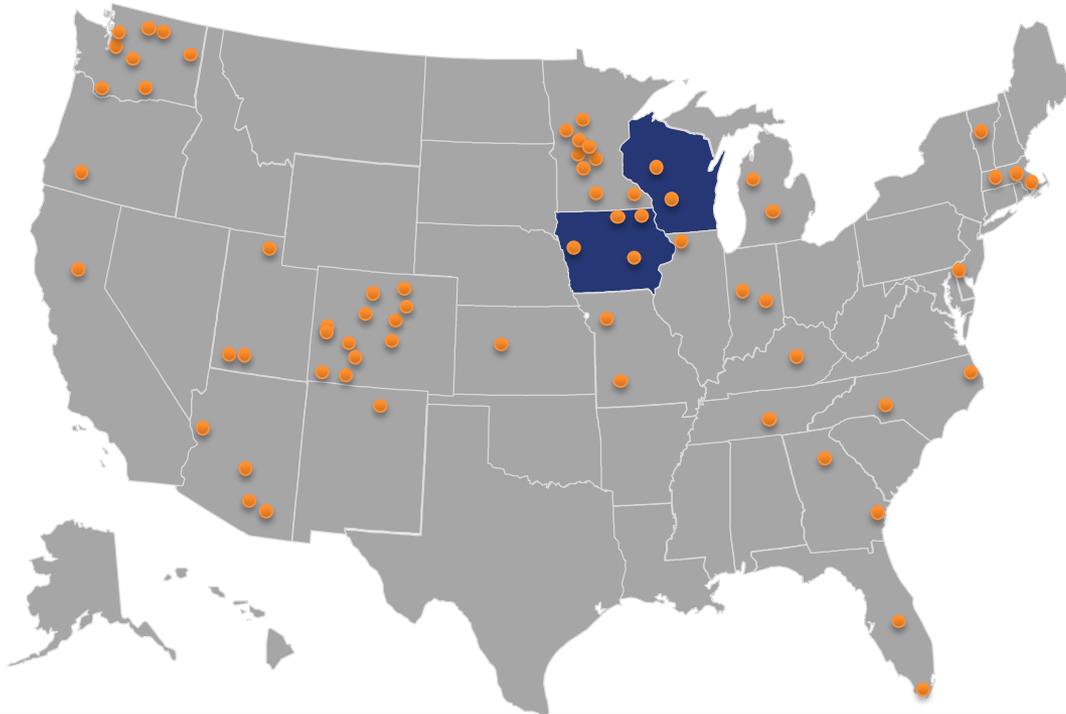
Utility Benefits

- Proactive customer engagement
- Support the local PV industry
- Opportunity to gain understanding of solar resource



Paradox Community Solar Array in Naturita, Colorado (Courtesy of Clean Energy Collective)

- Over 100 programs that are active or announced nationally
  - >69 active programs
  - >60 additional programs that SEPA is aware of that are not yet active
- ~60% of active programs created by cooperative utilities

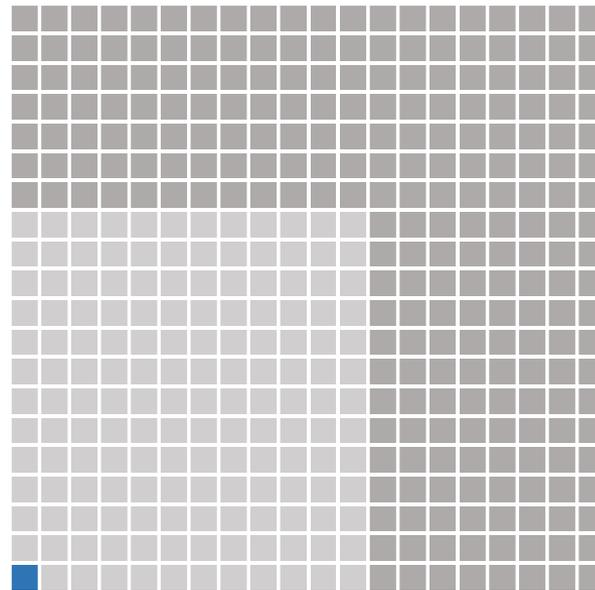


- Median program is 102.5 kW
- 75% of programs leverage systems less than 800 kW
- Two large programs are > 20 MW (TEP, SRP)

## Cumulative Installed US Capacity (2014 MW)

Rooftop Solar →

Community Solar →



← Utility-Scale  
Solar

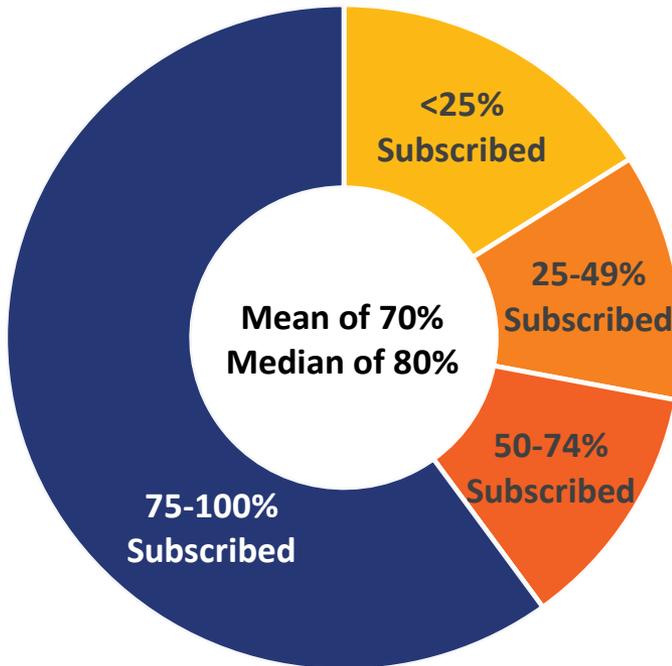
## Up Front Payment Model

- Customer pays up front to purchase or lease a panel and receives a credit on their bill tied to system production
- Bill credit reflects an allocation of actual system output based on proportionate share of system
  - kWh credit
  - Monetary (\$/kWh) credit
- Mimics a rooftop ownership model in that up front capital is required
  - Economics based on a payback period analysis
- Majority of programs in existence leverage this structure
  - Roughly 84% of all programs today require either an upfront payment, or allow for financing of an upfront payment over a period of time

## Ongoing Payment Model

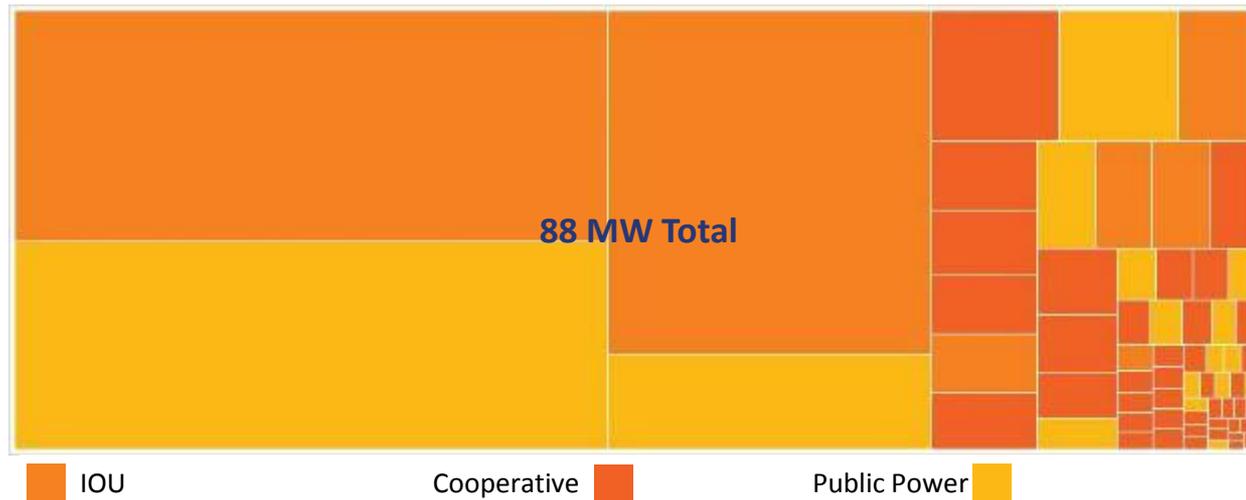
- Customer subscribes to program in either kW or kWh blocks and receives a credit on their bill tied to system production
  - kWh blocks: guaranteed output each month at fixed payment per block
  - kW blocks: variable output each month at fixed price per kWh or fixed payment per block
- Customer pays a premium on day one for solar blocks, but that price is fixed for a long term (e.g., 20 years) providing a rate hedge
- Mimics a rooftop lease model
  - Economics based on break-even analysis
- Fewer programs historically, but gaining interest across the country
  - Roughly 16% of programs today

# Program Subscription Rates



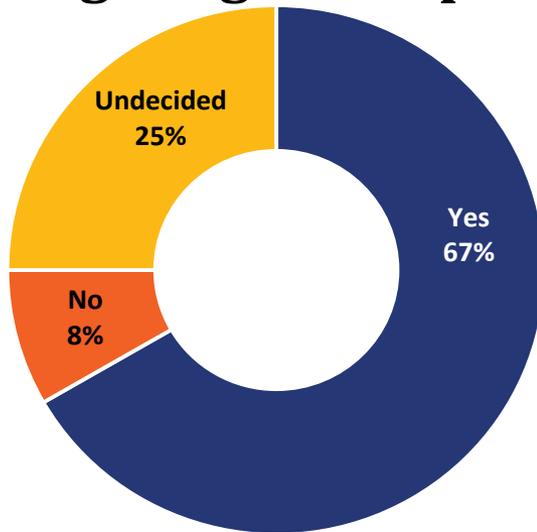
- On average, CS Programs are subscribed at 70 percent of available capacity
  - This value is the same as was found in 2014
- The subscription range has significant variation; one program had only a 3 percent subscription rate, and eight of the programs surveyed had 100 percent subscription
- The variation of subscription rates between programs with ongoing payments and those with upfront payments was **not** statistically significant

# Generating Capacities of Programs

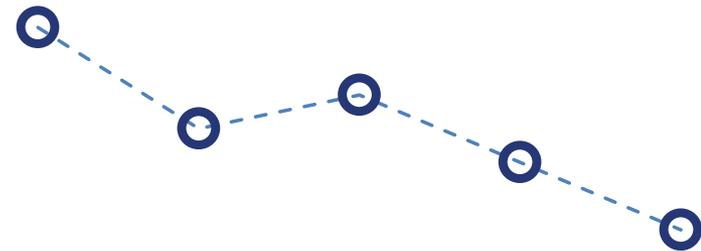


- There was approximately 90 MW of total CS generating capacity in August 2015
- Of the total generating capacity, 87 percent is subscribed by residential customers and 13 percent is subscribed by commercial customers
- On average, a residential participant subscribed to the energy output of 1.5 kW while a commercial participant subscribed to the energy output of 34 kW

## Planning Program Expansions



## Speed to Market



3-6 Months    7-9 Months    10-12 Months    13-18 Months    19-24 Months  
Time Between Decision to Proceed and Date Array Produced Electricity

- Most programs plan to expand their offering in order to keep pace with growing demand
- On average, 10 months elapsed between the time an organization decided to develop a program and the actual date the solar farm began producing electricity
- This development time varied based on the size of the CS program – the time for programs with less than 1MW of capacity was 8.5 months while that for programs above 1MW of capacity was 13.4 months

# Key Questions and Programmatic Attributes to Address



Program Attribute	Definition
<b>System Administrator</b>	Designs, markets, acquires customers, and responsible for tracking & managing the program
<b>System Owner/Purchaser</b>	Entity that physically owns the project (directly or thru PPA)
<b>Offer / Transaction</b>	How the customer pays to participate
<b>Production Guarantee</b>	Who wears production risk; does customer receive fixed or variable kWh each month
<b>Economic Proposition</b>	What the customer receives in return for participating
<b>Target Customer Classes</b>	Which customer classes are eligible to sign up for the program
<b>Siting &amp; Scale</b>	Where the project is located, and how large the project can be
<b>Participation Limit: Res.</b>	Maximum subscription for any residential customer, as a % of average annual consumption
<b>Participation Limit: Non-Res</b>	Maximum subscription level aggregated across all non-residential customers
<b>One-Time Sign-Up Fee</b>	Subscription / administration / registration fee, paid once upon signing up for program
<b>Fee Treatment</b>	Whether or not the fee (if imposed) is refundable and if so, under what conditions
<b>Minimum Term</b>	Tied to one-time fee, the minimum amount of time a customer must stay on the program
<b>Unsubscribed Energy</b>	What occurs with the energy and associated costs for under-subscribed projects
<b>Subscription Transferability</b>	Defines how customers can move in and out of the program with their subscription
<b>Program Length</b>	The length of time the administrator guarantees the customer benefit
<b>REC Treatment</b>	How the RECs from the solar system are transferred, sold, or retired

# Program Attribute Matrix

## Generic Options to Consider

Program Attribute	Typical Options in Program Design*		
System Administrator	Utility		3 <sup>rd</sup> Party
System Owner/Purchaser	3 <sup>rd</sup> Party Asset	Utility PPA with Developer	Utility Asset
Offer / Transaction	Up Front Payment (Panel Purchase / Lease)		Ongoing Payment (kWh or kW Block)
Production Guarantee	Fixed or Guaranteed Output		Variable Output
Economic Proposition	Partial Bill Credit (kWh)	Full Bill Credit (kWh)	Monetary Credit
Target Customer Classes	Residential	Non-Demand Rate Customers	All Customer Classes
Siting & Scale	Community: Small Scale	Locational: Small to Mid Scale	Remote: Utility Scale
Participation Limit: Res.	50% Avg. Consumption	100% Avg. Consumption	150% Avg. Consumption
Participation Limit: Non-Res	<= 20% of Project	<= 50% of Project	No Limit
One-Time Sign-Up Fee	None	<= \$25	<= \$100
Fee Treatment	N/A	Non-Refundable	Refundable After Min. Term
Minimum Term	None	2 Years	20 Years
Unsubscribed Energy	Socialized	Remarketed	Below the Line
Subscription Transferability	Portable & Transferrable	Available to Waiting List	Sold at Market Value
Program Length	5 Years	10-20 Years	PPA Length / System Life
REC Treatment	Retired	Transferred to Customer	Held or Sold to Market

\*Not meant to be all-inclusive, but representative of approaches that generally cover what has been pursued nationally

# **COMMUNITY SOLAR CASE STUDIES**

- Offer: 1 kW blocks, up to 15 kW at \$0.13/kWh based on actual plant generation; net metered bill credit
- Phase 1 Supply: 400 kW PPA
- Term: 25 years
- Additional details:
  - Customers pay a \$50 deposit (refundable after 2 years)
  - Fully subscribed in 6 days; active waiting list for Phase 2
  - Phase 1 does include subsidies



<http://www.ouc.com/environment-community/solar/community-solar>

- Offer: Participants lease panels and receive a monthly retail rate bill credit
- Supply: 20 kW utility-owned (site can accommodate up to 120 kW)
- Term: 22 Years
- Additional Details:
  - Participants have two pricing options:
    - One-time payment of \$800/panel
    - 5-year on-bill payment of \$15/month (or \$900/panel) with no credit check



<http://www.gvp.org/content/solar-farm>

- Offer: Participants purchase panels for a cost of \$485/panel (after incentives), and receive bill credit for production
- Supply: 333 kW CEC/Participant owned system
- Term: Lifetime of project
- Additional Details:
  - Fort Collins Utilities selected third-party administrator, Clean Energy Collective
  - Low-interest financing options are available through CEC
  - The project will be sited on utility-owned property



- Program launched in 2011
- Customer pays upfront to lease  $\frac{1}{4}$ ,  $\frac{1}{2}$ , or full 270-watt panels
  - \$920 for a full panel
- Supply: 227 kW cooperative-owned PV system
  - Leveraged ARRA grant to pay for more than 50% of the project cost
- Customers receive 36 kWh/month/panel full bill credit
  - e.g., virtual net energy metering
- Customers see immediate savings, but the buy-in is high
- 23% of panels are currently leased



- Offer: Purchase solar energy in annual blocks of 500 kWh
  - Energy cost component - price based on average cost from all installations
  - Delivery cost component – based on delivery costs normally included in standard rate
  - Energy cost component can only go down (as more systems are added) while delivery cost component updated as part of regular rate cases
- Minimum term – 12 months
- Monthly kWh allocated as a % of annual PV generation based on seasonal generation pattern of PV in SMUD's service area
- Residential customers must participate in optimal time-of-use-rate
- Multiple sites
- REC's retired on participants' behalf

- Offer: Purchase solar energy in blocks of 200 watts
  - Price based on PPA costs plus administration costs
  - Sized up to 100% of most recent 24 months consumption
- Enrollment deposit of \$200 per kW which contributes toward final customer cost
- Up to 3 MW system
- Maximum single customer subscription is 40% of total capacity and 400 kW per customer
- Bill credit at embedded electric production costs
- 25 year term
- Transferrable in service territory and upfront deposit refundable pro-rata only if no longer a customer
- RECs retired on participants' behalf

## First community solar program for low income families

- Participants must be at 80% or less of the area median income to qualify
- Customer receives net metering bill credit for four years
- After 4 years, the block of panels (targeted at 90% of annual consumption) is assigned to another household for the next 4 year period
- Initial plan for 7 families to receive ~ 3.5kW-ac each
  - 35 families over the 20 year program
- Offer: 2 cent/kWh participant fee to “pay it forward”, split between GRID and GVP to defray management costs
  - Expected bill savings of \$600 each year
- Equipment donations from SunEdison, Enphase and IronRidge and “sweat equity” from corporate partner staff, community college students, and low-income participants
- 24kW-ac system

# **COMMUNITY SOLAR PROGRAM NUANCES**

- Cherryland Electric - credit at **last years' average wholesale rate**
- City of Ellensburg - **quarterly** on bill credit at BPA **wholesale rate**
- Eau Claire Electric Coop - bill credit at **energy piece** of retail rate
- Roanoke Electric Coop - bill credit at **avoided cost rate**
- Trico Electric Coop – bill credit equivalent to **virtual net metering**

- Ashland Municipal Utilities – **zero interest loan** with monthly payback
- City Utilities Springfield MO. - instead of variable fuel adjustor rate pay **fixed fuel adjustor rate** of 4.04 cents/kWh
- Grand Valley Power – **lease with 5 years of payments**
- Kandiyohi Power Cooperative – **24 month loan**
- TEP - \$3.00/150 kWh block but **exempt from Renewable Energy Standard Tariff and Purchased Power and Fuel Adjustment Clause**
- Western Iowa Power Cooperative – **12 or 24 no interest** payments

- City Utilities Springfield MO. – **cancellation fee** of \$100 if leave before 24 months
- Delta Montrose Electric Association – Lease in **\$10 increments**
- Duck River Electric Cooperative – **Limited partnership**
- Farmers Electric Coop – multi stage project, initial amount of **panels at 25% or 50% discount** depending on stage of project
- Grand Valley Power – first CS program for **low income families**

- Hawkeye REC – initial per panel amount then after a date panels **discounted each month until fully subscribed**
- Orlando Utilities Commission - **\$50 deposit refunded with interest** at end of 2 years
- SMUD - **\$100 penalty** if cancel in first 12 months
- Steele-Waseca Electric Cooperative - **\$170 for first panel with free 16 hour hot water heater control program**, \$1,225 if not

## Hawkeye REC

<http://www.hawkeyerec.com/cooperative-community-solar/>

- Clear description of program
- Links to FAQ, production and other relevant info
- Contacts

## Cooperative Community Solar

### RenewableRays

*The Power of Cooperative Solar*

A cooperative community solar project for our members is officially energized and online. Hawkeye REC's Renewable Rays is a small solar project (25 kW) located at our headquarters in Cresco. Construction began on July 14 and went online July 24. There are 90, 275-watt panels built by United States manufacturer, SolarWorld. We are still in the process of soliciting member interest and participation. Members can purchase the output of a unit for a one-time cost of \$1,200 that will allow a one-for-one credit from the output of the community solar project to the member's monthly electric bill for the next 20 years. Starting September 1, 2014 the remaining units will be discounted each month until the project is fully subscribed. This will allow all participants to be on the same 20-year time frame. It locks in your renewable energy that will hedge your electric costs for the next 20 years. The unit output cost includes insurance, operations, maintenance and all other costs associated with operating the community solar project over 20 years.

The project is designed NOT to be subsidized by members not participating in the project. Hawkeye REC is also pleased to report that its community solar model is being used by electric cooperatives all across the United States and implemented through the National Renewables Cooperative Organization.

If you are interested in learning more about participating in our community solar project please contact Ted Kjos, manager of marketing and communications, by calling 1-800-658-2243 or 563-547-3801 or emailing [tkjos@tec.coop](mailto:tkjos@tec.coop). You can also look for more information in upcoming newsletters as the project progresses.

### Solar Production

Monitor the operation and output/production of Hawkeye REC's Renewable Rays Community Solar project.

Read the [Ribbon Cutting Ceremony](#) article from the September 2014 newsletter.  
 Read the [Renewable Rays Energized](#) article from the August 2014 newsletter.  
 Read the [Solar Project Update](#) from the April 2014 newsletter.  
 Read the [Manager's Article](#) from the August 2013 newsletter regarding the Cooperative Community Solar Project.

### Frequently Asked Questions

Please refer to our [FAQ section](#) (PDF file).

## WE'RE HERE TO SERVE OUR MEMBERS

Toll-free: (800) 658-2243  
 Phone: (563) 547-3801  
 24-Hour Outage Line: (800) 927-5265  
 Secure Payments: (888) 480-9735  
 Office Hours: 7:30 a.m – 4:00 p.m. M-F  
 Closed Holidays  
 Address:  
 24049 State Hwy 9  
 PO Box 90  
 Cresco IA 52136-0090  
 Email Address:  
[info@hawkeyerec.com](mailto:info@hawkeyerec.com)



## RECENT NEWS & UPDATES

[National Lineman Appreciation Day – April 18](#)

[Youth Tour Winner Announced](#)

[REC Day on the Hill – Iowa Capitol](#)

[Read more news](#)

[Orlando Utilities Commission](http://www.ouc.com/environment-community/solar/community-solar)  
<http://www.ouc.com/environment-community/solar/community-solar>

- Clear description of program
- Links to production and subscription form

[Home](#) • [Environment & Community](#) • [Solar](#) • [Community Solar](#)

## Community Solar

### A First for Central Florida

OUC has developed Central Florida's first community solar farm at our Gardenia facility. The community solar farm gives OUC's Orlando residential and small business customers access to sustainable, maintenance-free solar energy without the hassles and costs associated with installing panels on their homes or businesses. The 400 kW array produces an average of 540,000 kWh annually, which is enough energy to meet the power needs of about 40 homes and is the equivalent to avoiding 949,316 pounds of carbon dioxide emissions. It also acts as covered parking for employees and visitors.



### Community Solar Farm Portal

[Check out the live status](#) of the solar farm's power.

The OUC's first Community Solar Farm is fully subscribed! To sign up to be on a waiting list for a future community solar project, [please complete and submit this form below](#).

### How Community Solar Works

OUC's Community Solar Program allows you to choose the number of solar power blocks that work best for your household or business, up to 15 kW blocks, and pay a fixed rate. The amount of energy produced by your solar blocks will appear on your monthly bill just as if you had rooftop solar panels.



[Orlando Utilities Commission](http://www.ouc.com/environment-community/solar/community-solar)  
<http://www.ouc.com/environment-community/solar/community-solar>

- Clear description of program
- Solar calculator

## Pricing

The rate for Community Solar Farm subscribers is \$0.13/kWh and you can subscribe to blocks in 1 kW up to 15 kW increments. A one-time \$50 deposit is required regardless of how many blocks you subscribe. At the end of two years, OUC will credit the deposit and accrued interest to your account for OUC customers in good standing.



Use the calculator to calculate your average premium.

[▶ CALCULATE SOLAR](#)

## Features & Benefits

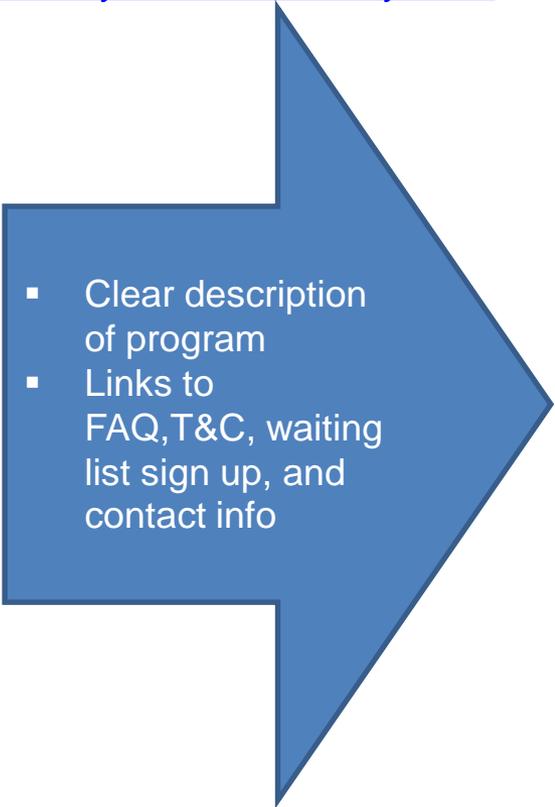
- No up-front expenses, installation or equipment maintenance costs (On average, a 5 kW photovoltaic array can cost \$25,000 or more to install on your home or business.)
- No rooftops required—great for renters, condo owners and those customers whose rooftops are shaded by trees or nearby buildings
- Ability to easily move with you to another residence in OUC's service territory
- Rate guaranteed for the duration of your subscription up to 25 years for this solar farm



Check out a live video feed from the construction site at OUC's Gardenia campus.

## Orlando Utilities Commission

<http://www.ouc.com/environment-community/solar/community-solar>

- 
- Clear description of program
  - Links to FAQ, T&C, waiting list sign up, and contact info

- Clean, green renewable energy at an affordable price

### **As a community solar farm subscriber, you will also:**

- Have access to a web portal showing real-time array production
- Be invited to attend a community solar farm ribbon cutting ceremony
- Receive permanent recognition at the site as an original subscriber of the OUC Community Solar Farm
- Receive special subscriber signage for your home or business

**OUC's first Community Solar Farm is fully subscribed! To sign up to be on a waiting list for a future community solar project, please complete and submit the form below.**

[SIGN UP](#)

### **Helpful Links**

- [FAQ](#)
- [Community Solar Brochure](#)
- [Sign up to be on the waiting list](#)
- [Terms & Conditions](#)
- [Contact Us](#)

**City Utilities of Springfield MO**  
[https://www.cityutilities.net/resident/form/form\\_solar.htm](https://www.cityutilities.net/resident/form/form_solar.htm)

- On-line subscription form
- Also phone number to subscribe

## Reserve Your Solar Energy Blocks



We invite you to use this online form to enroll in the CU Solar Initiative program. Or, if you prefer, you may call us at (417) 874-8200.

**Personal Information**

\* Name:

\* Address:

\* City:  \* State:  \* Zip:

---

**Account Information**

CU Account Number:

---

**Contact Information**

\* How may we contact you?

Phone: (  )  -  ext.

or

Email:

---

**Reserve Your Solar Energy**

Each block is approximately 1kW per year (or approximately 162 kWh per month). Each block will have an additional cost associated. You can calculate your estimated energy needs and estimated costs with the [solar calculator](#). Actual solar energy produced for each block will vary each month, based upon many factors, like cloud cover and length of day.

\* Number of Solar Energy blocks you wish to order:  
 (From 1 to 200)

---

**Complete Your Request**

Submitting this request will enroll you in our Solar Initiative program.  
 Enrollment information will be sent to your CU mailing address. Enrollment is based upon solar farm availability and date/time you submit your request.

\* (indicates required fields)

**Please Note:** This form is not intended for use in reporting emergencies requiring immediate attention, such as natural gas leaks and downed electrical lines. For utility emergencies, call CU at (417) 863-9000, or dial 911.

If you require additional assistance using this form, call City Utilities at (417) 863-9000.

**Orlando Utilities Commission**  
<http://www.ouc.com/environment-community/solar/community-solar/community-solar-terms-and-conditions>

- Clear and concise Terms and Conditions of program

#### Terms & Conditions:

1. The program is available to Orlando Residential and General Service Non-Demand Commercial Customers only and subject to the terms and conditions of OUC's Tariff provisions.
2. Service address must be in OUC's Orlando electric service territory.
3. Customers may subscribe to any number of kW blocks between 1 and 15. Fractional block quantities are not permitted. The amount of energy produced by the Community Solar Farm will vary month to month depending on the year's season and weather conditions. For more information please visit [www.ouc.com/communitysolar](http://www.ouc.com/communitysolar).
4. The Community Solar Farm program requires a minimum 2 year participation period.
5. The solar energy rate of \$0.13/kWh will remain constant throughout the program.
6. If your purchased energy from the solar farm is greater than the energy used by your home/business in any month, OUC will buy the excess energy back at your retail rate.
7. A one-time subscription deposit of \$50.00 will be charged to the OUC account for the address listed above. The deposit will be charged to the account on the next monthly bill after the application is received by OUC.
8. For Customers who maintain a good credit rating with OUC and remain on the program for the entire 2 year initial participation period, OUC will credit the deposit and accrued interest to the customer's account at the end of the 2 year term.
9. Deposits for Customers whose credit rating is not in good standing throughout the initial 2 year participation period will be held on the account until the Customer reaches 2 years of good credit, thereafter, the deposit and accrued interest will be credited to the Customer's account.
10. Customers moving within OUC's Orlando electric service territory will have their subscription and any existing deposit transferred to their new address.
11. Customers moving outside OUC's Orlando electric service territory will have the subscription deposit and any accrued interest credited to the final bill.
12. Customers cancelling participation before the required 2 year participation term will forfeit the subscription deposit. Accrued interest will be credited to the Customer's account.
13. OUC reserves the right to terminate Customer's participation if its credit rating with OUC is unacceptable.

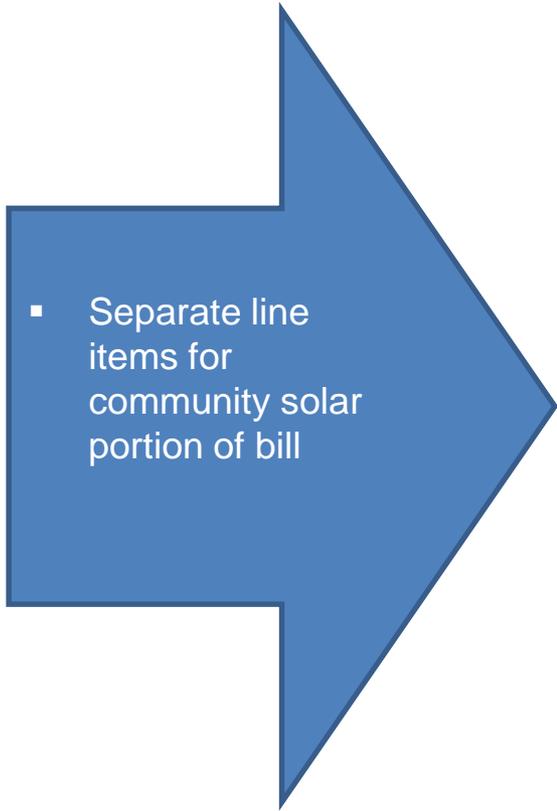
For additional program information, please call: 407-434-2263.

I understand and accept all terms and conditions outlined in this Community Solar Farm Program Participation Application.

First and Last Name \*

Date \*   
(MM/DD/YYYY)

## SCE's Residential Community Renewables Bill Example



VALUED CUSTOMER / Page 3 of 3

### Details of your new charges

Your rate: DOMESTIC CR  
Billing period: Mmm dd 'yy to Mmm dd 'yy (xx days)

Category	Description	Amount
Delivery charges	Basic charge	xx days x \$x.xxxxxx = \$xx.xx
	Energy - Summer	
	Tier 1 (within baseline)	xxx kWh x \$x.xxxxxx = \$xx.xx
	Tier 2 (up to 30%)	xxx kWh x \$x.xxxxxx = \$xx.xx
Generation charges	DWR bond charge	x,xxx kWh x \$x.xxxxxx = \$xx.xx
	DWR energy credit	x,xxx kWh x -\$x.xxxxxx = -\$xx.xx
	SCE Energy - Summer	
	Tier 1 (within baseline)	xxx kWh x \$x.xxxxxx = \$xx.xx
Community Renewables Rate	Community renewables charge	xxx kWh x \$x.xxxxxx = \$xx.xx
	Community renewables credit	xxx kWh x -\$x.xxxxxx = -\$xx.xx
	Subtotal of your new charges	\$xxx.xx
	State tax	xxx kWh x \$x.xxxxxx = \$xx.xx
<b>Your new charges</b>		<b>\$xxxx.xx</b>

- Your Delivery charges include:**
- \$xx.xx transmission charges
  - \$xxx.xx distribution charges
  - \$xx.xx nuclear decommissioning charges
  - \$xx.xx conservation incentive adjustment
  - \$xx.xx public purpose programs charge
  - \$xx.xx new system generation charge
- Your Generation charges include:**
- \$xx.xx competition transition charge
- Your overall energy charges include:**
- \$xx.xx franchise fees
- Additional information:**
- Service voltage: xxx volts
  - Your summer baseline allowance: xxxxx kWh
  - Community Renewables 2015 PGIA Vintage
  - Community Renewables subscription: 10%
  - Community Renewables monthly facility output: x,xxx kWh from Mmm dd 'yy to Mmm dd 'yy

Average cost per kilowatt hour			
Tier 1	Tier 2	Tier 3	Tier 4
\$x.xx	\$x.xx	\$x.xx	\$x.xx
xxx kWh	xxx kWh	xxx kWh	xxx kWh

**Understanding Your Bill...**  
Your usage for this billing period falls in the fourth tier. Energy usage is based upon a tiered structure. For most customers, the price you pay per kilowatt hour increases as you use more energy. The average cost per kilowatt hour (kWh) figures in the chart to the left are based on averages. Actual prices may vary. For more information visit [www.sce.com/tier](http://www.sce.com/tier).

### Things you should know

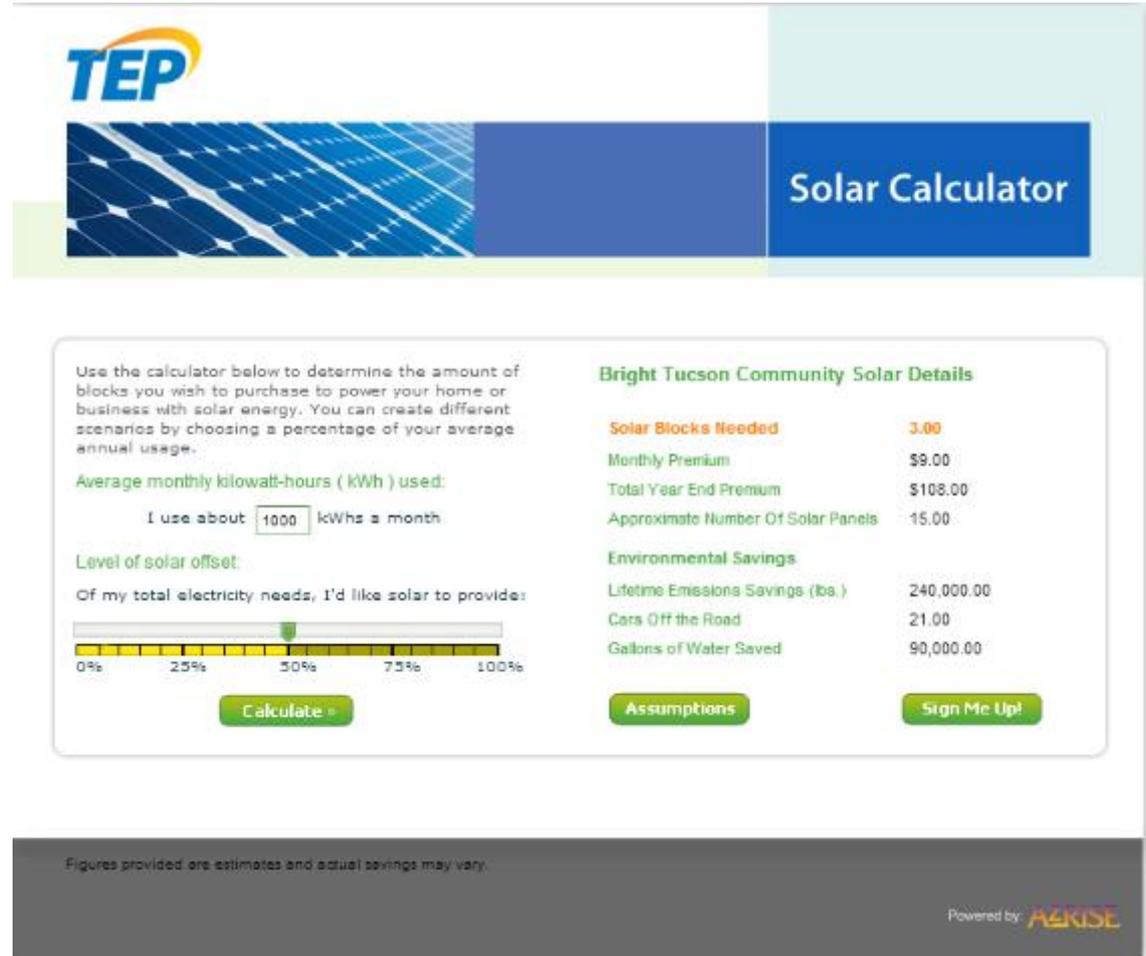
**SAVE MONEY ON YOUR BILL WITH CARE or FERA Income Qualified Programs**  
You can save 20% or more on your electric bill with the California Alternate Rates for Energy (CARE) program. Family Electric Rate Assistance (FERA) offers a discount for households of 3 or more exceeding their baseline usage by over 30%. If you are recently unemployed, you may also be eligible. For more information and eligibility requirements, visit [www.sce.com/careandfera](http://www.sce.com/careandfera) or call (800) 798-5723 (TTY 800-352-8580).

**AHORRE DINERO EN SU FACTURA CON cuidado o FERA Programas basados en los ingresos**  
Usted puede ahorrar un 20% o mas en sus facturas electricas con el programa Tarifas Alternativas de Energia para California (CARE). El Programa Familiar de Reduccion de las Tarifas Electricas (FERA) ofrece un descuento para los hogares de 3 o mas personas cuyo consumo electrico supere en mas de un 30% su asignacion de linea base. Si recientemente perdio su empleo es posible que califique para estas programass. Para obtener mas informacion y averiguar se califica visite [www.sec.com/careandfera](http://www.sec.com/careandfera) llame al (877) 226-6011 (TTY 800-352-8580).

## TEP Solar Calculator

<http://www.pvsim.com/tepcommunity.html>

- Solar calculator allowing customer to determine participation level
- “Sign Me Up!” button



Use the calculator below to determine the amount of blocks you wish to purchase to power your home or business with solar energy. You can create different scenarios by choosing a percentage of your average annual usage.

**Average monthly kilowatt-hours ( kWh ) used:**  
I use about  kWhs a month

**Level of solar offset:**  
Of my total electricity needs, I'd like solar to provide:

0% 25% 50% 75% 100%

**Bright Tucson Community Solar Details**

<b>Solar Blocks Needed</b>	3.00
Monthly Premium	\$9.00
Total Year End Premium	\$108.00
Approximate Number Of Solar Panels	15.00
<b>Environmental Savings</b>	
Lifetime Emissions Savings (lbs.)	240,000.00
Cars Off the Road	21.00
Gallons of Water Saved	90,000.00

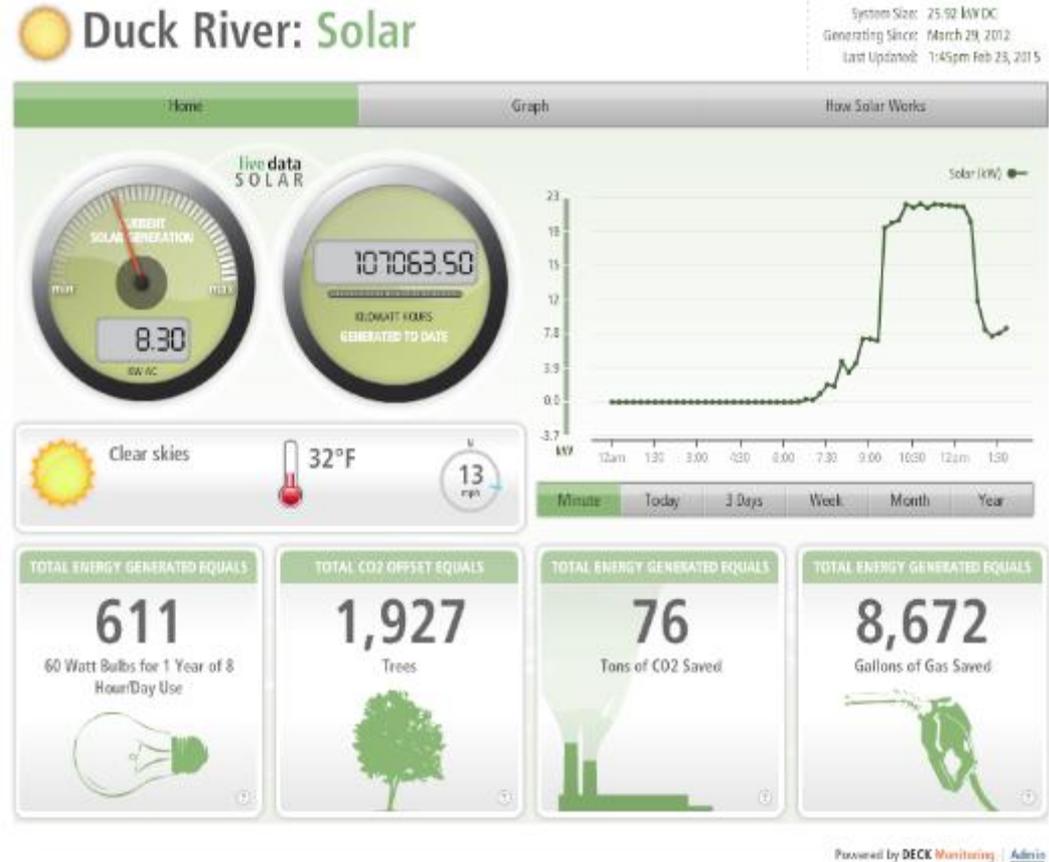
Figures provided are estimates and actual savings may vary.

Powered by: 

## Duck River Solar Monitoring

[http://live.deckmonitoring.com/?id=duck\\_river](http://live.deckmonitoring.com/?id=duck_river)

- Various time horizons for system production
- Equivalent environmental savings



**Ted Davidovich**

Manager, Utility Planning

202-559-2020

[ted@solarelectricpower.org](mailto:ted@solarelectricpower.org)

**THANK YOU**