

**AUSTIN ENERGY'S TARIFF PACKAGE:** §  
**2015 COST OF SERVICE** § **BEFORE THE CITY OF AUSTIN**  
**STUDY AND PROPOSAL TO CHANGE** § **IMPARTIAL HEARING EXAMINER**  
**BASE ELECTRIC RATES** §

**AUSTIN ENERGY'S SUPPLEMENTAL RESPONSE TO PUBLIC CITIZEN  
AND SIERRA CLUB'S FIRST REQUEST FOR INFORMATION**

Austin Energy ("AE") files this Supplemental Response to Public Citizen and Sierra Club's ("Public Citizen/Sierra Club") Request for Information No. 1-8.

Respectfully submitted,

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**ATTORNEYS FOR AUSTIN ENERGY**

AUSTIN CITY CLERK  
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2016 MAR 28 PM 4 01

**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of this pleading has been served on all parties and the Impartial Hearing Examiner on this 28th day of March, 2016, in accordance with the City of Austin Procedural Rules for the Initial Review of Austin Energy's Rates.

THOMAS L. BROCATO

Austin Energy's Supplemental Response to Public Citizen/Sierra Club's 1st RFI

Public Citizen/Sierra Club 1-8

Value of Solar Tariff:

- A. Please provide any information, communication, data, worksheets or reports that relate to calculations of the residential value of solar tariff, as proposed in the rate case.
- B. Please provide any documents and communication that relate to the current policy of offering the value of solar tariff to residential, but not commercial customers. Has Austin Energy had any discussions related to expanding the value of solar tariff to commercial customers? Please provide any documents and communications.
- C. Austin Energy is contemplating creating a community solar project and creating a special tariff or rate for those customers wanting to invest in community solar. Please provide any information, communication, data, worksheets or reports that relate to a community solar program.
  - i. Did Austin Energy contemplate creating a community solar tariff or rate as part of the current rate package? Why or why not?
  - ii. Does Austin Energy have any draft calculations of what the value of community solar tariff might be? If so, please provide all relevant documents.
- D. In August of 2014, Austin City Council approved Resolution 157, which set a minimum floor for the value of solar tariff. Is Austin Energy aware of this city policy? Does Austin Energy believe that the current proposed value of solar tariff proposed in the rate package meet this city policy? If so, explain how. Please provide any documents and communications or related to the value of solar rate proposed in the rate case and the city policy that creates a minimum floor value.

ANSWER:

- A. Please see the document titled Value of Solar Methodology found at the following link: <http://austintexas.gov/edims/document.cfm?id=210805>.
- B. Austin Energy introduced the residential value of solar (VOS) tariff with the October 2012 rate adjustment. Staff involved in that rate proceeding and Dr. Tom Hoff, of Clean Power Research, the consulting firm retained for the purposes of developing the analytical basis for the VOS calculation, have no recollection of a commercial VOS discussion during the last rate proceeding. The presentation of staff's recommendation is appended as Attachment 1.

At the time of the rate adjustment, the utility moved from 24 to 9 rate classes, with significant changes being made to numerous commercial rate structures, which tend to be more complex than residential rates. Additionally, some commercial customers are served at primary or transmission levels, which would affect the manner in which the tariff would be calculated. As such, it was likely determined that a commercial

solar rate (VOS or otherwise) might be studied prospectively, when billing and meter data management systems could accommodate such a structure.

Commercial solar customers with systems under 20 kW receive net metering treatment - i.e. the customer's billed kWh is reduced by the energy delivered from the customer's solar system and billed at the applicable retail rate. If in any month the net energy use is negative, the customer is credited at the Power Supply Adjustment, or in the case of GreenChoice customers, the GreenChoice Charge. All commercial customers are eligible for the Performance Based Incentive (PBI) which is paid over 10 years and is based on the system's production.

The Local Solar Advisory Committee (LSAC), formed in April 2012, included Austin Energy Staff. Their report, appended as Attachment 2, was issued in November 2012 and notes on page 13 that the utility could consider a potential commercial VOS in lieu of contemplated demand credits. DNV GL, who was retained by AE to evaluate the LSAC recommendations, noted that net-metered commercial and full PBI commercial solar customers implicitly receive capacity benefits from solar by reducing capacity demand during the 4 Coincident Peak (4CP) days that determine capacity/transmission charges. Please see Attachment 3 for DNV GL's report.

Finally, on June 30, 2015, Austin Energy staff met with members of Solar Austin to discuss a resolution that a stakeholder had proposed relative to commercial leasing. During that meeting, the concept of a commercial value of solar was discussed (residential customers are provided the VOS when they enter into a qualified equipment lease). Additionally, discussion in that meeting focused on means by which to continue the strong pace of solar adoption, to the extent market conditions (low prices, ITCs, etc.) were to change.

- C. See Attachment 4 for documents related to the development of the Community Solar Program.
  - i. AE did not contemplate the community solar tariff as part of this rate package because the project is moving through the site plan process and is not expected to be energized until the first half of 2017. Additionally, AE staff is conducting customer research on the optimal rate design for the program. As such, the tariff for community solar will proceed on a separate path, with customary briefings and requests for approval by commissions and City Council.
  - ii. The formula for calculating the VOCS is to take the Value of Solar and subtract the embedded transmission benefits.

Austin Energy's Supplemental Response to Public Citizen/Sierra Club's 1st RFI

- D. Austin Energy is aware of Resolution 157, which provides in pertinent part that for the value of solar tariff, "Austin Energy must set an annual floor equal to the residential electric rates of a Tier 3 customer."

Austin Energy believes that the current proposed value of solar tariff meets this policy. The resolution does not make the distinction as to whether it is Tier 3 summer or winter rates or whether it is limited to the energy charge or also includes the PSA and regulatory charges. The current winter and summer Tier 3 energy charge is 7.2 cents and 9.1 cents respectively. The current Value of Solar rate is 10.9 cents, exceeding the winter and summer energy charges.

Prepared by: KP/TH/BE/ADR  
Sponsored by: Debbie Kimberly





## YOUR ELECTRIC RATES



Austin has changed in the 17 years  
since our last rate review.

Our commitment to our customers remains unchanged.

***Mission:*** *Deliver clean, affordable, reliable energy and excellent customer service.*

***Recommendations on Electric Rates  
December 14, 2011***



# Agenda

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- Need for Rate Increase
- Residential Rate Design and Recommendations
- Commercial and Industrial Rate Design and Recommendations
- Customer Assistance Program (CAP) Recommendations
- Rate Benchmarking and Affordability
- Summary



YOUR ELECTRIC RATES

# Need for Rate Increase





## Key Drivers for Rate Increase and Redesign

- Cost of service study shows fixed cost under-recovery
- 17 years since
  - A rate increase, except for fuel charge (cost pass-through)
  - A formal cost of service study
  - A new rate design
- Significant investments in infrastructure to ensure adequate power supply and reliability to serve new and existing customers
- New costs for AE's share of statewide investments in transmission infrastructure & market operation systems
- Ending balance drawn down for budgets
- Need to protect utility's long-term financial stability
- Added business functions and program offerings expanded



# AE Business Functions Added Since 1994

## New facilities

- Sand Hill Energy Center
- New capital investments in electric systems (such as substations)
- Investment in new operational facilities
  - Backup Control Center for Disaster Recovery
  - Reclamation Facility
  - Customer Walk-In Center (North)

## Expanded programs

- Customer Care & Billing System (replaced twice since 1994)
- Advanced Metering Infrastructure
- Electric Line Clearance
- Energy Efficiency Programs
- Increased Software Maintenance Costs related to Automation Projects

## New business functions

- NERC Compliance Programs
- ISO9000 Quality Compliance (Electric Service Delivery, Call Center)
- Remittance Processing (previously outsourced)
- Wholesale Market Deregulated
- Qualified Scheduling Entity (QSE)
- Energy Trading and Hedging
- Key Accounts
- Market Research & Product Development
- 311 Call Center
- Project Management
- Economic Development (EGRSO)
- Solar Rebate Program
- Austin Climate Protection
- Emerging Transportation Technologies



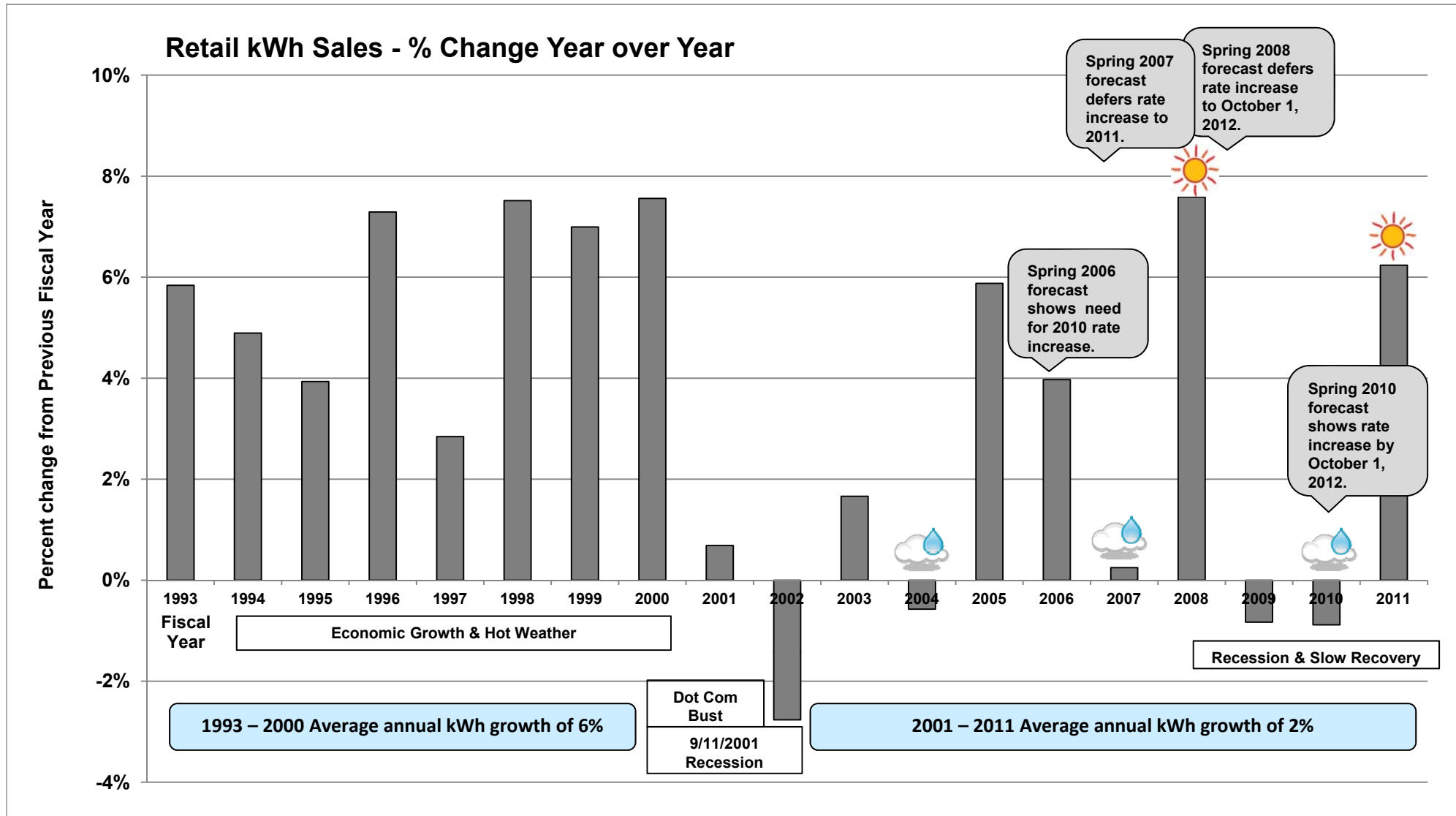
## Rate Increase Forecasts

- Spring 2006 AE's forecast showed need for rate increase by 2010
- Budgeted revenue not sufficient to cover requirements for FY 2009, FY 2010, FY 2011 or FY 2012
  - Cost reductions and use of ending balance and reserves
  - Ending balance drawn down from \$267.4 M at 9/30/2007 to \$37.8 M projected for 9/30/2012
  - Repair and Replacement Fund used for peaking generation
- Forecast budget shortfall each year 2012-2016 without rate relief
- Not financially sustainable; correct structural imbalance to ensure long-term financial stability
  - Combination of revenue enhancements, cost reductions, rate increase
  - Rate review in progress since April 2010





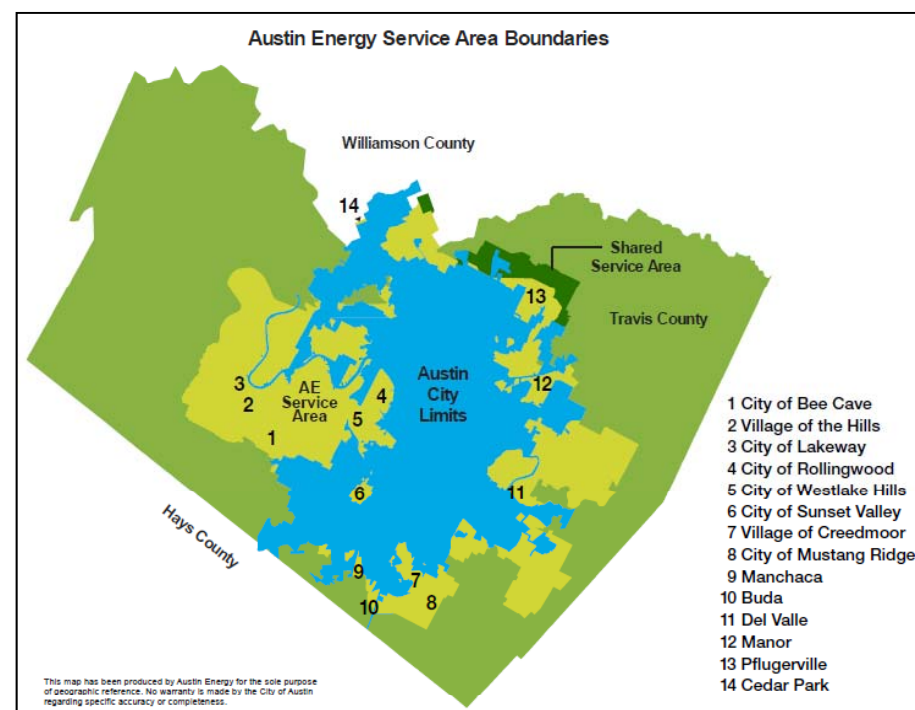
# Kilowatt-Hour Sales History - % Change Year to Year





## Service Area and Texas Electric Market

- AE service area established by Public Utility Commission of Texas (PUCT) in April 3, 1978 Certificate of Convenience and Necessity (CCN)
- 437.06 square miles
  - 206.41 (47%) square miles in City of Austin
  - 230.65 (53%) square miles in surrounding Travis and Williamson Counties, with 11 square miles of shared area with Oncor
- Retail electric provider for 417,000 customers
  - 86% City of Austin (City Council)
  - 14% Outside City of Austin (City Council, PUCT)
  - Transmission Service Provider (PUCT)
- Texas Electric Market
  - 1996 Wholesale electric “open access” market
  - 1999 Electric deregulation legislation
  - 2001 ERCOT Zonal market
  - 2010 ERCOT Nodal market





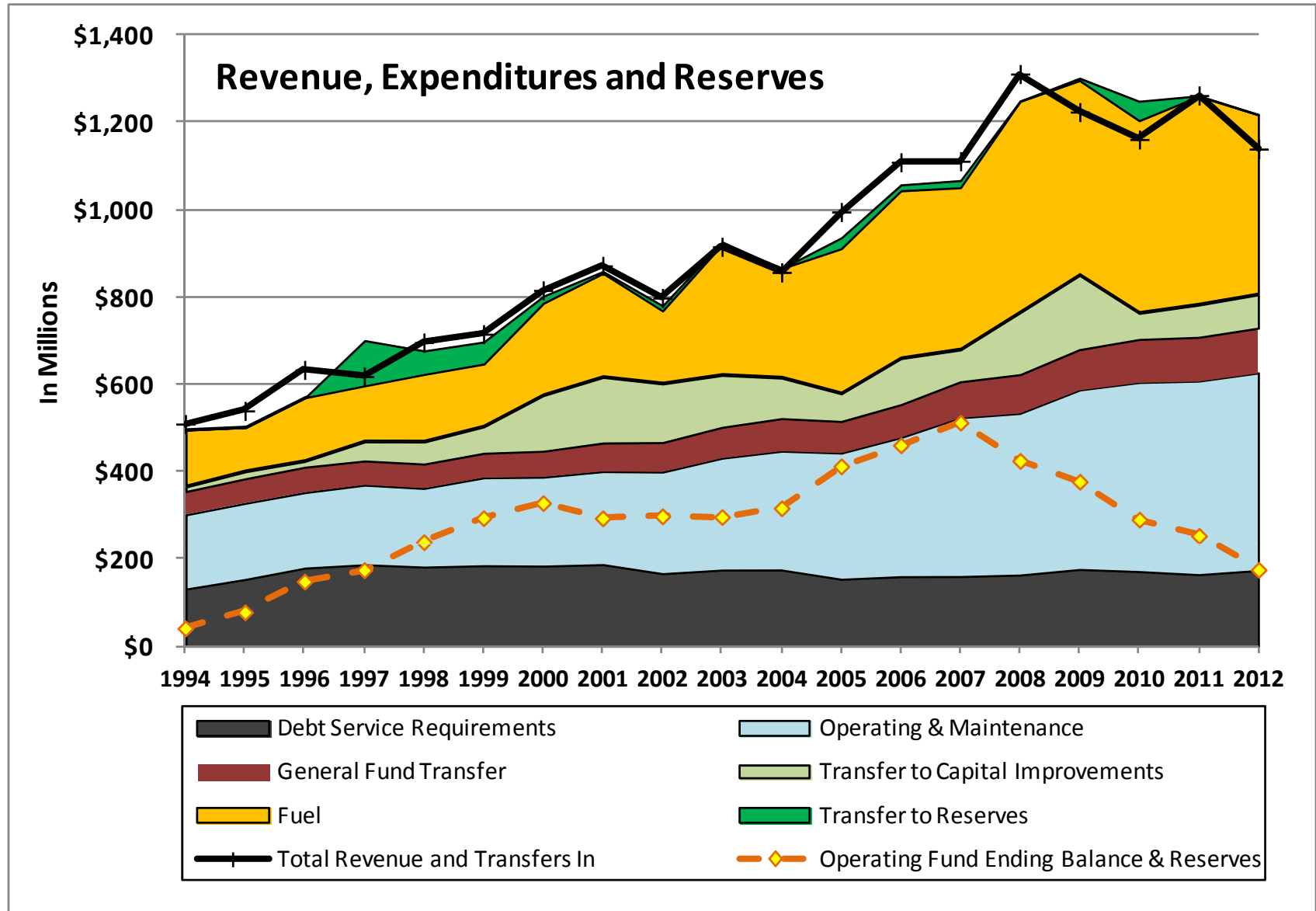


# Changes in Revenue, Customers & System

	<u>1994</u>	<u>2010</u>	<u>Increase from 1994-2010</u>
<b><u>Revenue (000's)</u></b>			
Residential	\$ 194,393	\$ 407,074	\$ 212,681
Commercial	\$ 255,921	\$ 500,342	\$ 244,421
Industrial	\$ 31,030	\$ 122,714	\$ 91,684
	<u>\$ 481,344</u>	<u>\$ 1,030,130</u>	<u>\$ 548,786</u>
<b><u>MWh Retail Sales</u></b>			
Residential	2,754,894	4,238,690	1,483,796
Commercial	3,948,320	5,698,930	1,750,610
Industrial	604,919	2,038,706	1,433,787
	<u>7,308,133</u>	<u>11,976,326</u>	<u>4,668,193</u>
<b><u>Average Monthly Number of Customers</u></b>			
Residential	266,734	368,700	101,966
Commercial	31,898	45,090	13,192
Industrial	8	80	72
	<u>298,640</u>	<u>413,870</u>	<u>115,230</u>
<b><u>Infrastructure Assets</u></b>			
MW Generation includes Purchased	2,420.3	2,922.7	502.4
Transmission Substations	7	11	4
Distribution Substations	44	56	12
Transmission Line Miles	503	618	115
Distribution Line Miles	8,728	11,319	2,591
System Peak Demand (kWh)	1,762,000	2,628,000	866,000
Capital Improvements Program (CIP)	\$ 91,238,560	\$ 237,045,000	\$ 145,806,440
<b><u>Full Time Equivalent Personnel</u></b>			
	1,631	1,722	91

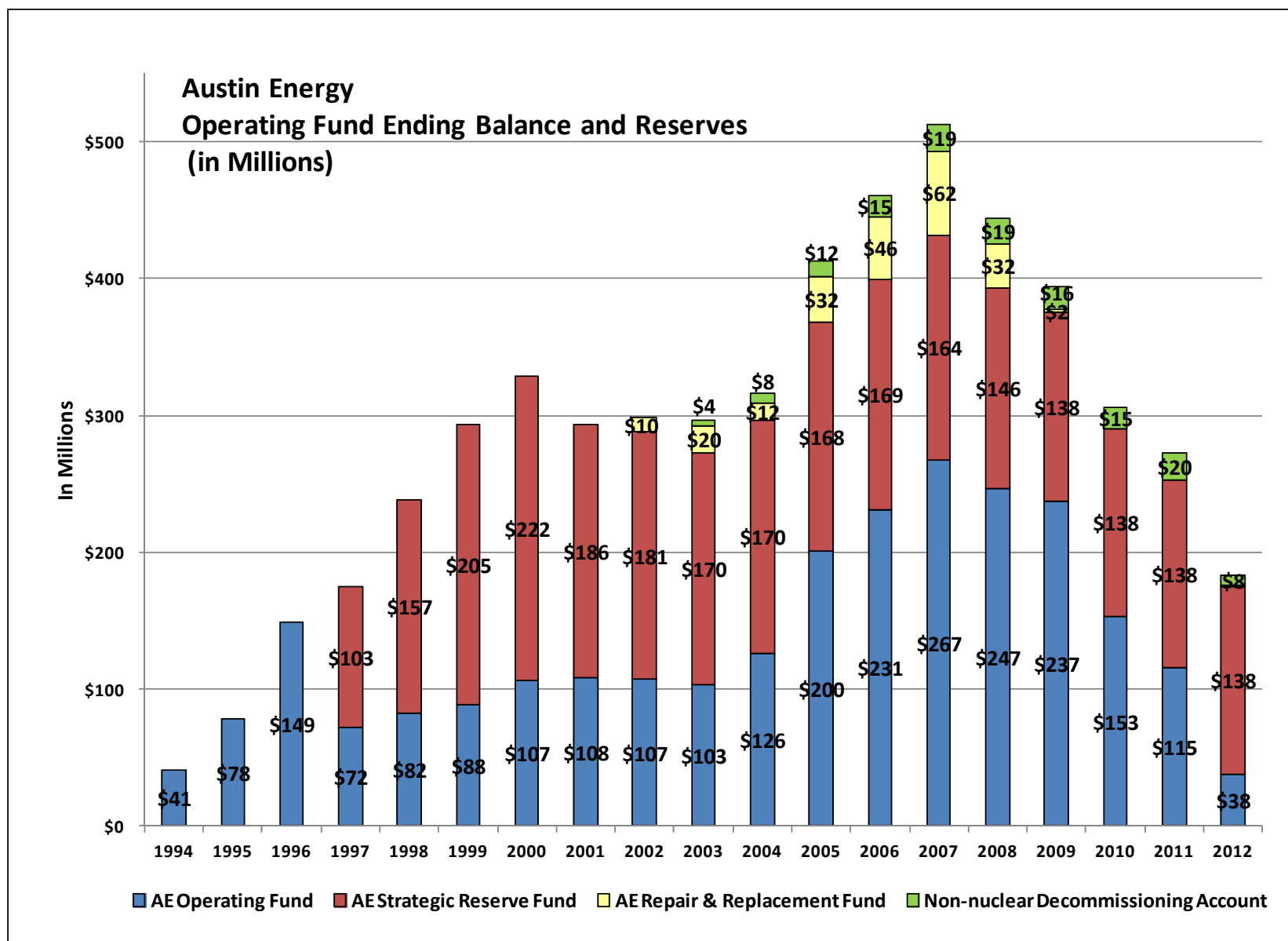


# Use of Reserves to Balance Needs





# Operating Fund Ending Balance and Reserves





## Redesign of Rates

- Consolidate customer classes from 24 to 9
- Move all customer classes closer to cost of service
- Incentivize conservation and energy efficiency (tiers, demand charges)
- Increase fixed charges to improve fixed cost recovery
- Change summer rate period from 6 to 4 months (June – September)
- Move residential customers from 2 tier to 5 tier rates
- All commercial customers on demand charge
- Fuel charge structure not changed
- Community Benefit Charges (Customer Assistance Program, Energy Efficiency Programs, Service Area Street Lighting)
- Regulatory Charge (Transmission Grid, ERCOT Administrative Fee)
- Optional Rates (e.g., GreenChoice®, Time-of-Use, Solar)
- 10% discount for Independent School Districts



## Redesign of Rates

### Residential customers

- Improve cost of service recovery
- Align fixed costs with fixed charges
- Promote energy efficiency
- Improve transparency of rates
- Tiered rates
  - Recover cost associated with demand
  - Incentivize energy efficiency
- Redesign rates for solar program success

### Commercial & Industrial customers

- Improve cost of service recovery
- Align fixed costs with fixed charges
- Promote energy efficiency
- Improve transparency of rates
- Reduce # of customer classes
- Demand charge for all commercial customers
  - Phase in for commercial customers currently non-demand
- Charge for power factor correction



# Rates and Revenue - Increase Breakdown

(Dollars in Millions)

Austin Energy's Revenue Requirement and Proposed Customers' Rate Increase			Austin Energy's Revenue Increase						
Customer Class	Revenue by Class	Percent Increase by Class *							
Residential	\$ 450	20%	Austin Energy's Revenue	2012	2013	2014	2015	2016	Total
Secondary Voltage (< 10 kW)	45	22%	Revenue from Rates	\$1,074	1,120	1,120	1,128	\$1,145	
Secondary Voltage (10 < 50 kW)	101	10%	Annual Revenue Increase	5%	4%	0%	1%	2%	12.5%
Secondary Voltage (≥ 50 kW)	375	6%	Over (Under) Recovery:						
Primary Voltage (< 3 MW)	32	3%	Due to mid-year increase	\$ (46)					
Primary Voltage (≥ 3 < 20 MW)	56	20%	Contract Customer deferral	(25)	(25)	(25)	(17)		
Primary Voltage (≥ 20 MW)	66	17%	Total Over (Under) COS	\$ (71)	(25)	(25)	0		
Transmission Voltage	15	-4%							
Lighting	5	89%							
Total System Increase	\$ 1,145	12.5%							

**Cost Containment through 2016**

\* Percent Increase by Class includes Community Benefit Charges



# Staff Recommended Policy Goals & Metrics

Policy Goals	Metrics
<b>Achieve Revenue Requirement</b>	<ul style="list-style-type: none"> <li>Revenues sufficient to fund core functions and strategic objectives.</li> </ul>
<b>Align with Cost of Service (minimize subsidies across customer classes)</b>	<ul style="list-style-type: none"> <li>No customer class pays greater than 105% or less than 95% of its cost of service.</li> </ul>
<b>Provide Affordable Energy (mitigate impacts within customer classes)</b>	<ul style="list-style-type: none"> <li>No residential customer electric bill below 1,500 kWh to increase by more than \$20 per month on average.</li> <li>Transition non-demand secondary commercial customers to demand rates.</li> </ul>
<b>Affordability Forecast Goal</b>	<ul style="list-style-type: none"> <li>System average rate increases of no more than 2% annually, after implementation of new rates and rate design.</li> </ul>
<b>Rate Benchmarking</b>	<ul style="list-style-type: none"> <li>Customer bills within the lowest 50% of comparable Texas utilities.</li> </ul>
<b>Customer Assistance Program</b>	<ul style="list-style-type: none"> <li>Increase funding by at least 100 percent to assist more customers.</li> <li>Provide a Customer Assistance Program discount.</li> </ul>
<b>Achieve Long-Term Financial Stability</b>	<ul style="list-style-type: none"> <li>New rate design ensures utility's long-term financial strength and is in compliance with Financial Policies.</li> <li>Improve recovery of Customer and Distribution fixed costs through fixed charge collection to at least 60%.</li> <li>Maintains or improves credit ratings.</li> </ul>
<b>Maintain Renewable Energy Program Excellence (GreenChoice® and Solar)</b>	<ul style="list-style-type: none"> <li>Rate redesign retains national leadership position of GreenChoice®.</li> <li>Continue and improve solar programs.</li> </ul>





YOUR ELECTRIC RATES

# Residential Rate Design and Recommendations







# Residential Rate Recommendations

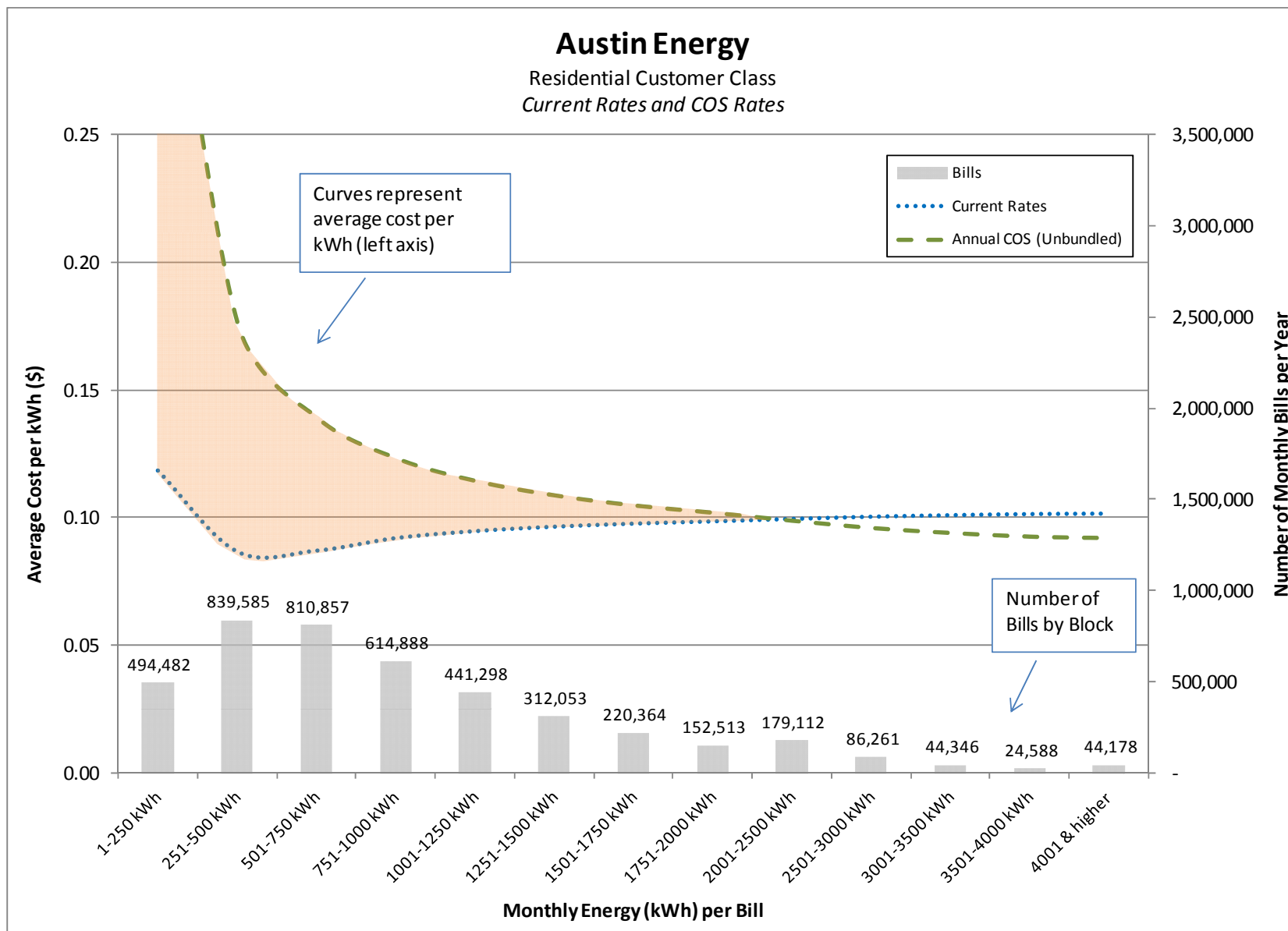
Residential Bill Components	Existing Rate	Cost of Service	Proposed
Customer Charge (\$/month)	\$6.00	\$19.70	\$12.00
Electric Delivery (\$/month)	Inc. Below	\$14.42	\$10.00
Energy Charge (¢/kWh) – Summer Period (June-Sept)			
< 500 kWh (15% of bills)	3.55 ¢	4.172 ¢	2.8 ¢
501 – 1000 kWh (26% of bills)	7.82 ¢		6.0 ¢
1001 - 1500 kWh (25% of bills)	7.82 ¢		8.3 ¢
1501 – 2500 kWh (25% of bills)	7.82 ¢		9.4 ¢
> 2500 kWh (9% of bills)	7.82 ¢		10.6 ¢
Energy Charge (¢/kWh) – Non-Summer Period (Oct-May)			
< 500 kWh (40% of bills)	3.55 ¢	3.618 ¢	1.7 ¢
501 – 1000 kWh (37% of bills)	6.02 ¢		4.4 ¢
1001 - 1500 kWh (14% of bills)	6.02 ¢		6.1 ¢
1501 – 2500 kWh (7% of bills)	6.02 ¢		7.1 ¢
> 2500 kWh (2% of bills)	6.02 ¢		8.2 ¢
Fuel Adjustment (¢/kWh)	3.373 ¢	3.373 ¢	3.373 ¢
Community Benefit Charges (¢/kWh)			
Customer Assistance Program (\$/mo)	Inc. Above	\$1.00	\$1.00
Service Area Street Lighting (¢/kWh)	Inc. Above	0.113 ¢	0.113 ¢
Energy Efficiency Programs (¢/kWh)	Inc. Above	0.294 ¢	0.294 ¢
Regulatory Charge (¢/kWh)	TSAR 0.144 ¢	0.732 ¢	0.732 ¢
Percent Class Rate Change		25.2%	20.1%

Fuel Adjustment to be finalized by January 1, 2012.

Does not include Fuel Adjustment.

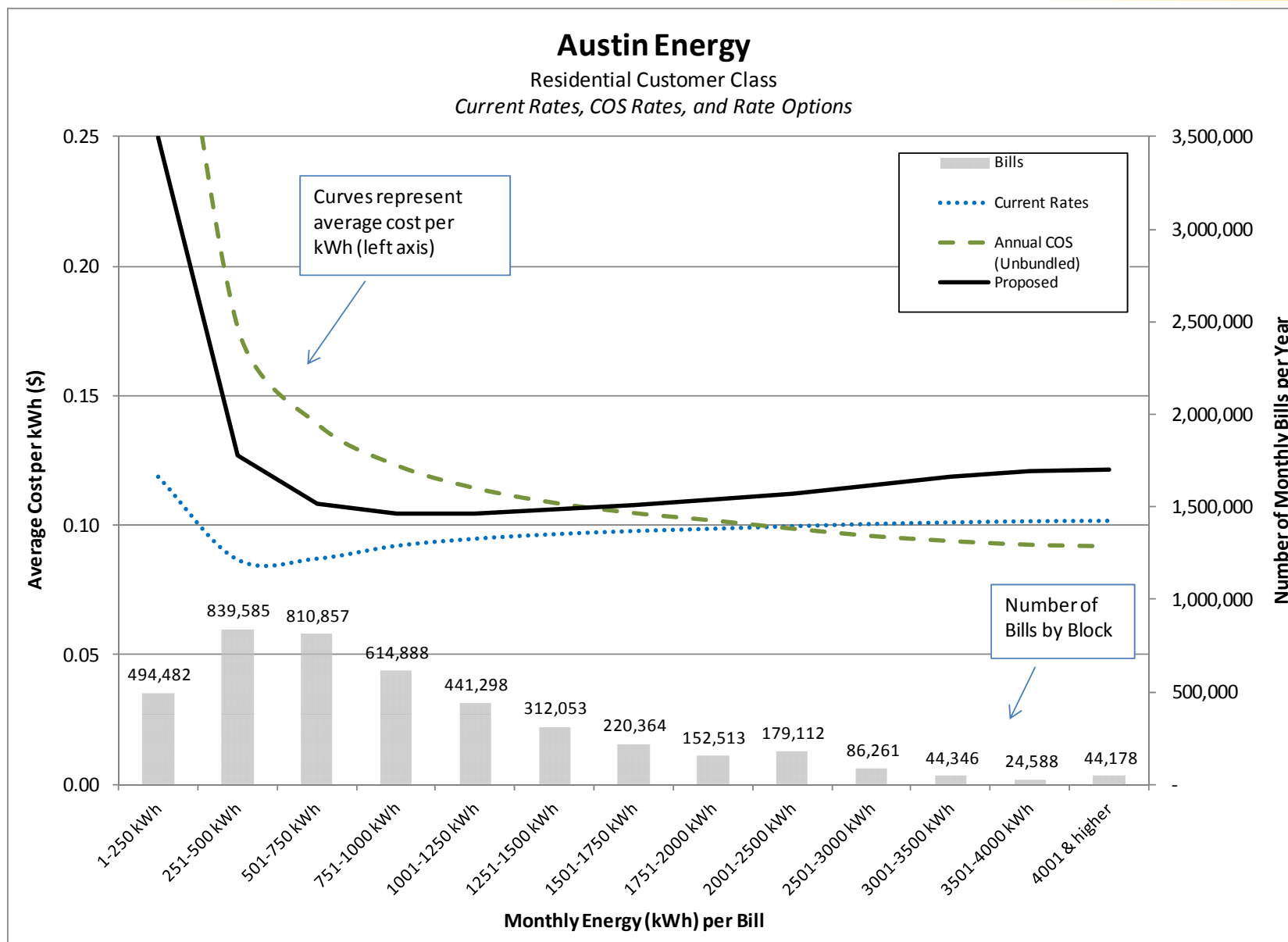


# Cost of Service Gap with Current Rates



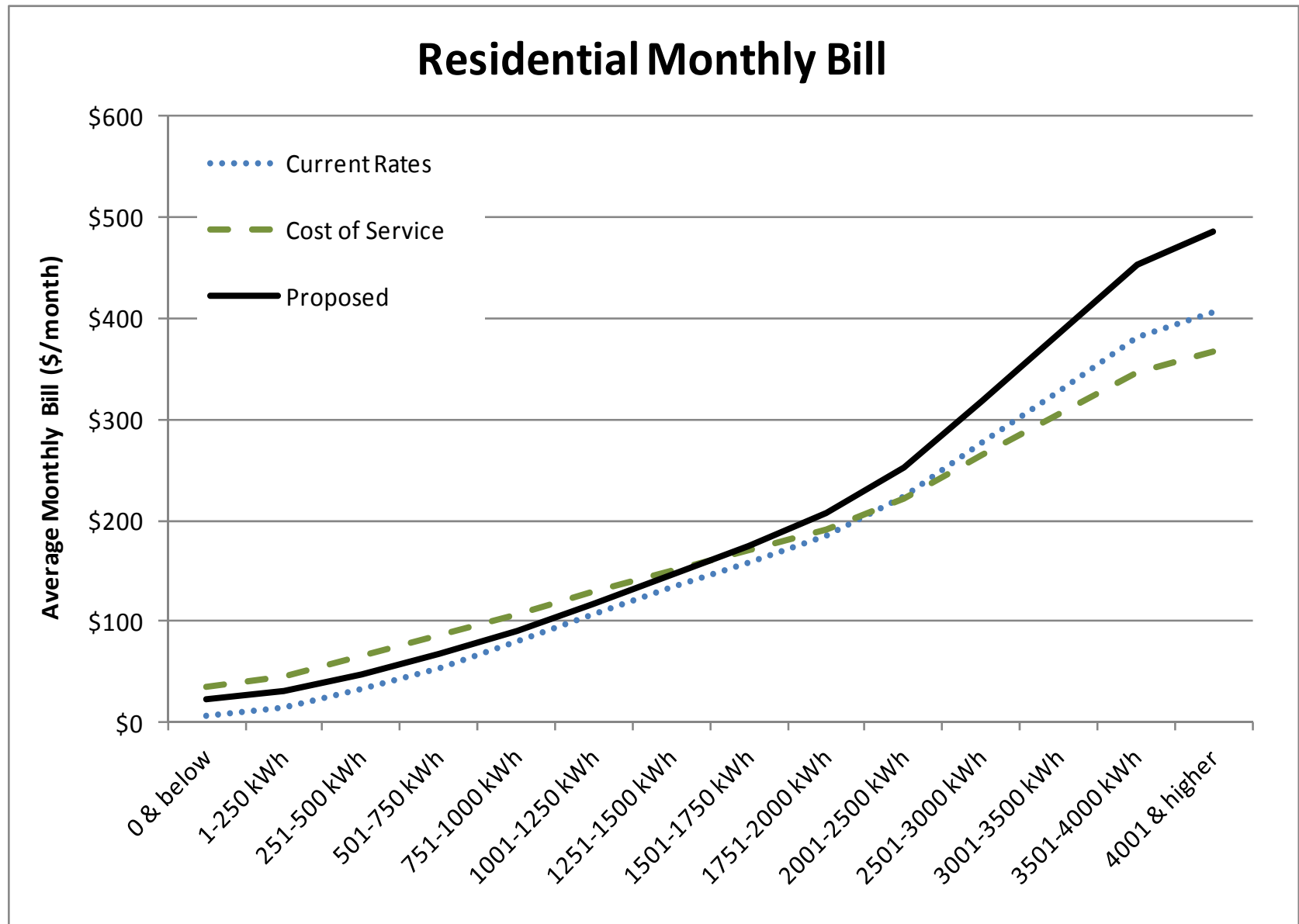


# Cost of Service Gap with Recommended Rates





# Residential Bill Impact





# Residential Bill Impacts (Annual)

Small Apartment with Electric Heat																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr	\$/kWh	\$ Incr
kWh	441	560	481	293	316	467	382	541	455	351	366	472	5,125	427			
COS	\$ 72	\$ 82	\$ 75	\$ 60	\$ 61	\$ 75	\$ 68	\$ 82	\$ 74	\$ 64	\$ 66	\$ 74	\$ 853	\$ 71	95%	\$ 0.17	\$ 35
Existing	\$ 37	\$ 47	\$ 40	\$ 27	\$ 28	\$ 39	\$ 33	\$ 46	\$ 38	\$ 31	\$ 32	\$ 39	\$ 437	\$ 36		\$ 0.09	
Proposed	\$ 50	\$ 59	\$ 53	\$ 41	\$ 43	\$ 57	\$ 51	\$ 64	\$ 56	\$ 45	\$ 46	\$ 52	\$ 618	\$ 51	41%	\$ 0.12	\$ 15
Average Sized Home with Gas Heat																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr	\$/kWh	\$ Incr
kWh	797	532	573	517	928	1,636	1,902	2,011	1,849	1,240	940	1,020	13,945	1,162			
COS	101	79	83	78	112	175	198	208	194	138	113	120	\$ 1,601	\$ 133	17%	\$ 0.11	\$ 19
Existing	70	44	48	43	90	170	200	213	194	125	83	91	\$ 1,372	\$ 114		\$ 0.10	
Proposed	81	57	61	56	92	195	232	247	225	124	93	101	\$ 1,563	\$ 130	14%	\$ 0.11	\$ 16
Medium Sized Home with Electric Heat																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr	\$/kWh	\$ Incr
kWh	4,140	2,163	1,783	1,033	1,471	2,065	2,969	2,631	2,229	1,462	1,420	3,111	26,477	2,206			
COS	380	215	184	121	158	212	290	261	226	157	153	294	\$ 2,650	\$ 221	1%	\$ 0.10	\$ 2
Existing	388	200	164	92	151	219	321	283	237	150	129	286	\$ 2,621	\$ 218		\$ 0.10	
Proposed	476	229	185	102	149	255	386	335	278	148	143	345	\$ 3,030	\$ 253	16%	\$ 0.11	\$ 34
Medium Sized Home with Gas Heat																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr	\$/kWh	\$ Incr
kWh	1,848	1,645	1,424	1,613	1,763	2,321	3,439	3,088	3,665	2,764	1,562	1,497	26,629	2,219			
COS	189	172	154	169	182	234	330	300	349	265	165	160	\$ 2,670	\$ 222	-2%	\$ 0.10	\$ (4)
Existing	170	151	129	147	185	248	375	335	400	298	143	136	\$ 2,716	\$ 226		\$ 0.10	
Proposed	192	169	144	165	182	290	457	404	491	301	159	151	\$ 3,106	\$ 259	14%	\$ 0.12	\$ 32

kWh = Kilowatt Hours



# Residential Bill Impacts (Annual)

Large Home with Electric Heat																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr	\$/kWh	\$ Incr
kWh	3,454	3,090	2,554	1,998	2,337	2,933	3,815	3,431	3,545	3,379	3,075	2,695	36,306	3,026			
COS	323	292	248	201	230	287	362	329	339	316	291	259	\$ 3,478	\$ 290	-6%	\$ 0.10	\$ (17)
Existing	323	288	237	184	250	317	417	374	387	368	287	251	\$ 3,682	\$ 307		\$ 0.10	
Proposed	389	343	275	210	249	381	514	456	473	380	341	293	\$ 4,302	\$ 358	17%	\$ 0.12	\$ 52
Large Home with Gas Heat																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr	\$/kWh	\$ Incr
kWh	1,878	1,547	1,678	2,057	2,947	4,808	4,412	5,809	4,686	2,858	2,152	1,771	36,603	3,050			
COS	191	164	175	206	280	448	414	533	437	273	214	183	\$ 3,518	\$ 293	-8%	\$ 0.10	\$ (25)
Existing	173	141	154	190	319	530	485	643	516	309	199	163	\$ 3,820	\$ 318		\$ 0.10	
Proposed	196	157	172	216	325	664	604	815	646	313	227	183	\$ 4,519	\$ 377	18%	\$ 0.12	\$ 58
Very Large Home with Electric Heat																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr	\$/kWh	\$ Incr
kWh	8,179	6,244	7,041	4,059	5,629	6,493	8,262	8,275	7,194	6,260	3,359	4,277	75,272	6,273			
COS	716	555	621	373	504	592	744	745	652	556	315	391	\$ 6,764	\$ 564	-13%	\$ 0.09	\$ (87)
Existing	774	589	665	381	623	721	921	923	800	694	314	402	\$ 7,807	\$ 651		\$ 0.10	
Proposed	990	744	845	466	666	919	1,186	1,188	1,025	746	377	494	\$ 9,644	\$ 804	24%	\$ 0.13	\$ 153
Very Large Home with Gas Heat																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr	\$/kWh	\$ Incr
kWh	3,504	3,596	5,411	4,635	6,613	7,327	8,903	10,275	9,018	6,220	5,533	4,197	75,232	6,269			
COS	327	334	486	421	586	664	799	916	809	553	496	384	\$ 6,774	\$ 564	-14%	\$ 0.09	\$ (95)
Existing	328	337	510	436	734	815	994	1,150	1,007	690	521	394	\$ 7,915	\$ 660		\$ 0.11	
Proposed	395	407	638	539	791	1,045	1,283	1,490	1,300	741	653	484	\$ 9,766	\$ 814	23%	\$ 0.13	\$ 154

kWh = Kilowatt Hours



## AE's Commitment to Energy Efficiency

2010 Energy Efficiency Results for Transmission and Distribution Utilities in Texas

Distribution Utility	Peak Demand (Megawatts)	Demand Savings (Megawatts)	Funds Expended (\$)	Number of Metered Customers	Funds Expended per Metered Customer	Spending per MW Peak Demand	Demand Savings per \$ Expended (Megawatts)	kW Demand Savings per MW Peak Demand
SWEPCO	1,452	14.8	\$ 4,282,043	228,712	\$ 18.72	\$ 2,949	3.5	10.2
AEP-Texas Central	4,242	27.0	\$ 12,898,287	817,806	\$ 15.77	\$ 3,041	2.1	6.4
AEP Texas North	1,024	5.1	\$ 2,238,100	183,647	\$ 12.19	\$ 2,186	2.3	5.0
Centerpoint (Houston Area)	16,315	121.0	\$ 28,806,909	2,119,000	\$ 13.59	\$ 1,766	4.2	7.4
Entergy	3,621	13.2	\$ 7,060,072	401,654	\$ 17.58	\$ 1,950	1.9	3.6
El Paso Electric	1,245	9.9	\$ 4,166,737	307,191	\$ 13.56	\$ 3,347	2.4	8.0
Oncor (Dallas, Ft. Worth & North Texas)	24,642	101.1	\$ 41,107,131	3,170,903	\$ 12.96	\$ 1,668	2.5	4.1
Texas New Mexico Power	1,557	5.2	\$ 2,754,742	229,530	\$ 12.00	\$ 1,769	1.9	3.3
Excel	2,260	3.7	\$ 2,004,726	275,453	\$ 7.28	\$ 887	1.8	1.6
<b>Austin Energy</b>	<b>2,628</b>	<b>41.2</b>	<b>\$ 23,523,802</b>	<b>413,881</b>	<b>\$ 56.84</b>	<b>\$ 8,951</b>	<b>1.8</b>	<b>15.7</b>

### Sources:

(1) Frontier Associates, "Energy Efficiency Accomplishments of Texas Investor Owned Utilities" Calendar Year 2010, page 7.

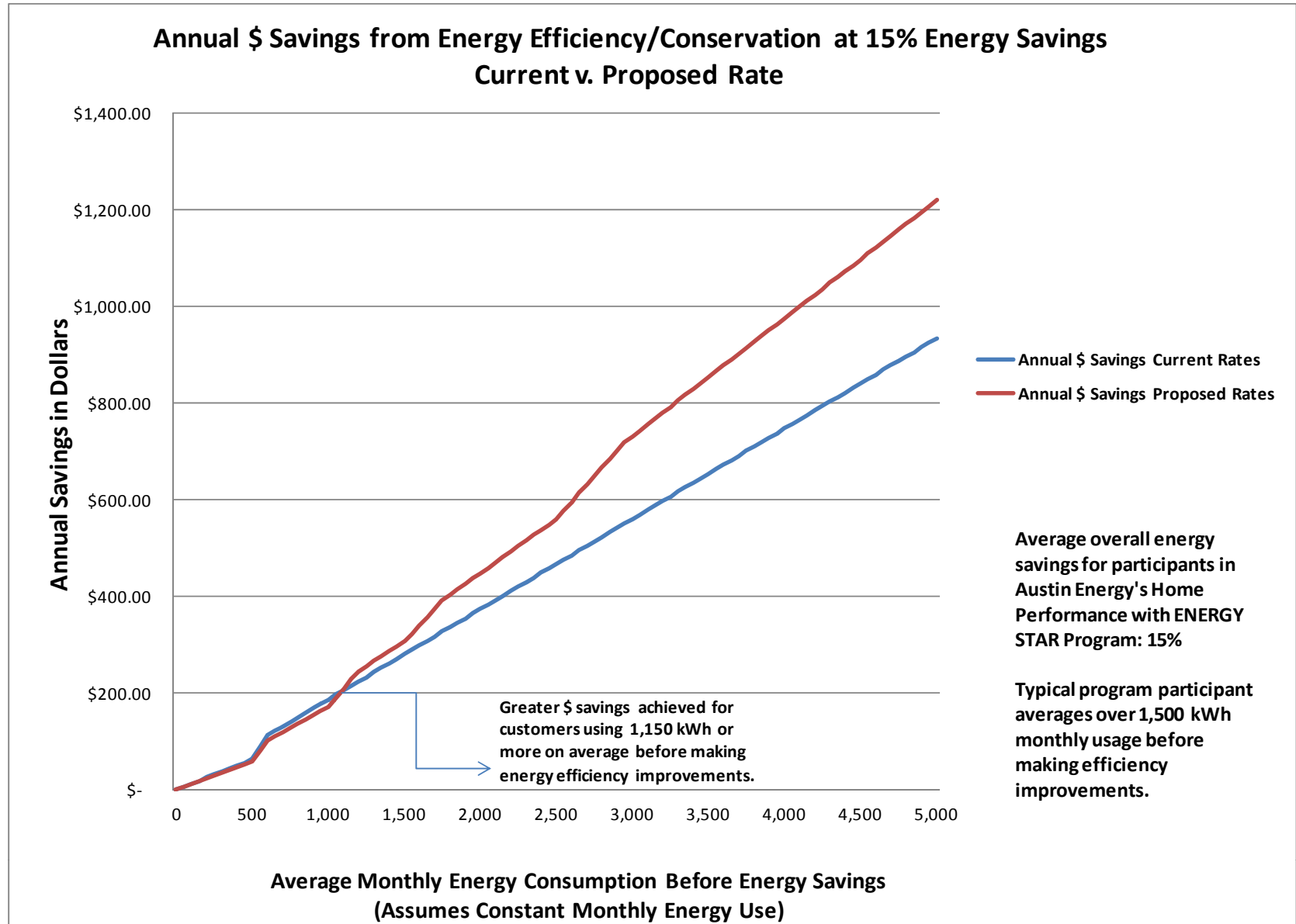
(2) Various Utilities, 2011 Energy Efficiency Plan and Report, Substantive Rules 25.181 and 25.183. April 2011.

<http://www.texasefficiency.com/index.html>.

- AE spends \$57 per metered customer compared to range of \$7 to \$19 for investor owned utilities
- AE achieved 15.7 kW demand savings per MW peak demand compared to range of 1.6 – 10.2 kW for investor owned utilities



# New Rate Structure Promotes Energy Efficiency







YOUR ELECTRIC RATES

# Commercial and Industrial Rate Design and Recommendations





# Customer Classes Consolidated from 24 to 9

Proposed Customer Class	Residential	Secondary Voltage <10 kW	Secondary Voltage 10- <50 kW	Secondary Voltage ≥50 kW	Primary Voltage <3 MW	Primary Voltage 3 - <20 MW	Primary Voltage ≥20 MW	Trans- mission Voltage	Lighting
Average Number of Customers in Test Year	364,521	32,001	10,360	3,214	102	20	2	4	44
Example Customer Type	Homes, Apts., Condos	Small Business, Condo, Billboard, ATM, School Portables	Worship, Auto Repair, Small Office, Retail, Restaurant, Nail Salon, Small School, Daycare	Worship, Large Office, High Rise, Big Box, Retail, School, Hotel	Large Grocery, Big Box Retail, Large Offices, School, Small Industrial, Light Mfg.	Hospital, Datacenter, Large Mfg., University, High Tech	Semi-conductor	Industrial	Street Light, Security Light, Traffic Light, Parking Lot, Ballpark
Average Monthly Load Factor	23%	45%	45%	55%	59%	88%	confidential	confidential	35%



# Commercial and Industrial Recommendations

Orange Highlights indicate Year 1 of 3 Year Phase-In

Bill Components	Secondary Voltage <10 kW	Secondary Voltage <10 kW	Secondary Voltage 10- <50 kW Non-Demand	Secondary Voltage 10- <50 kW	Secondary Voltage ≥50 kW Non-Demand	Secondary Voltage ≥50 kW	Primary Voltage <3MW	Primary Voltage 3 - <20 MW	Primary Voltage ≥20 MW	Transmission Voltage
Customer Charge (\$/month)	18.00	18.00	25.00	25.00	65.00	65.00	250.00	2,000.00	2,500.00	2,500.00
Electric Delivery (\$/kW billed)	1.50	2.50	2.00	4.00	2.00	4.50	2.50	3.50	3.50	N/A
Demand (\$/kW billed)										
Summer	1.00	3.00	2.00	6.50	2.00	8.00	10.00	13.00	13.00	12.25
Non-Summer	1.00	3.00	2.00	5.50	2.00	7.00	9.00	12.00	12.00	11.25
Energy (¢/kWh)										
Summer	5.915¢	4.870¢	4.379¢	2.806¢	4.720¢	2.117¢	1.271¢	1.190¢	0.894¢	0.410¢
Non-Summer	4.065¢	3.229¢	3.873¢	2.300¢	4.214¢	1.611¢	0.777¢	0.696¢	0.400¢	0.208¢
Fuel Adjustment (¢/kWh)	3.373¢	3.373¢	3.373¢	3.373¢	3.373¢	3.373¢	3.296¢	3.296¢	3.296¢	3.254¢
Community Benefit Charges (¢/kWh)										
Customer Assistance Program	0.065¢	0.065¢	0.065¢	0.065¢	0.065¢	0.065¢	0.065¢	0.065¢	0.065¢	0.065¢
Service Area Street Lighting	0.115¢	0.115¢	0.090¢	0.090¢	0.081¢	0.081¢	0.069¢	0.065¢	0.060¢	0.054¢
Energy Efficiency Programs	0.298¢	0.298¢	0.234¢	0.234¢	0.209¢	0.209¢	0.179¢	0.168¢	0.157¢	0.139¢
Regulatory Charge										
(¢/kWh)	0.713¢	-								
(\$/kW billed)		2.34	2.44	2.44	2.56	2.56	2.26	2.90	2.94	2.48
Percent Class Rate Change	22%	22%	10%	10%	6%	6%	3%	20%	17%	-4%

Fuel Adjustment to be finalized by January 1, 2012.

Does not include Fuel Adjustment.



# Lighting Customer Class

Bill Components	Service Area Street Lighting	Metered Lighting Customer- Owned Sports Lighting	Customer Owned Non- Metered Lighting	Austin Energy-Owned Outdoor Lighting			
				100 Watt High Pressure Sodium	175 Watt Mercury Vapor	250 Watt High Pressure Sodium	400 Watt Mercury Vapor
Customer Charge (\$/month)		\$ 15.00					
Energy Charge							
Summer (¢/kWh)	31.026¢	15.065¢	6.114¢				
Non-Summer (¢/kWh)	31.026¢	13.565¢	6.114¢				
Energy (\$/month)				\$ 9.45	\$ 16.21	\$ 24.31	\$ 37.82
Fuel Adjustment (¢/kWh)		3.373¢	3.373¢	3.373¢	3.373¢	3.373¢	3.373¢
Community Benefit Charges (¢/kWh)							
Customer Assistance Program		0.065¢	0.065¢				
Service Area Street Lighting		0.183¢	0.096¢				
Energy Efficiency Programs	0.814¢	0.474¢	0.250¢				
Regulatory Charge							
(¢/kWh)	0.096¢	0.321¢	0.098¢				
Percent Class Rate Change	75%	109%	30%	48%	64%	73%	80%

(A)

(B)

(A) Fuel Adjustment to be finalized by January 1, 2012.

(B) Does not include Fuel Adjustment.



# Commercial Bill Impacts-Secondary Voltage <10 kW

Small Church (E01C)																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr.	\$/kWh	\$ Incr.
kW	8	5	6	4	4	5	5	5	4	3	7	7					
kWh	476	362	373	195	276	359	473	404	332	217	313	434	4,215	351			
Load Factor	8%	9%	8%	7%	10%	11%	13%	12%	11%	11%	6%	8%					
COS	\$ 183	\$ 138	\$ 153	\$ 103	\$ 107	\$ 131	\$ 140	\$ 134	\$ 123	\$ 86	\$ 175	\$ 185	\$ 1,659	\$ 138	349%	\$ 0.39	
Existing	\$ 40	\$ 32	\$ 32	\$ 20	\$ 26	\$ 31	\$ 39	\$ 35	\$ 29	\$ 21	\$ 28	\$ 37	\$ 370	\$ 31		\$ 0.09	
Proposed (Ph. I)	\$ 78	\$ 63	\$ 66	\$ 44	\$ 52	\$ 67	\$ 80	\$ 72	\$ 63	\$ 43	\$ 63	\$ 74	\$ 766	\$ 64	107%	\$ 0.18	\$ 33

Portable School Building (E02)																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr.	\$/kWh	\$ Incr.
kW	3	3	4	2	3	3	4	7	3	3	4	3	12,622	1,052			
kWh	1,080	961	999	926	1,000	1,119	1,047	1,216	987	1,106	1,095	1,085					
Load Factor	49%	40%	37%	57%	44%	48%	39%	24%	41%	48%	38%	59%					
COS	\$ 125	\$ 125	\$ 133	\$ 105	\$ 123	\$ 137	\$ 142	\$ 212	\$ 133	\$ 136	\$ 150	\$ 122	\$ 1,642	\$ 137	35%	\$ 0.13	
Existing	\$ 94	\$ 84	\$ 87	\$ 81	\$ 105	\$ 117	\$ 110	\$ 127	\$ 104	\$ 116	\$ 95	\$ 94	\$ 1,216	\$ 101		\$ 0.10	
Proposed (Ph. I)	\$ 107	\$ 98	\$ 102	\$ 93	\$ 101	\$ 129	\$ 123	\$ 147	\$ 117	\$ 109	\$ 110	\$ 106	\$ 1,342	\$ 112	10%	\$ 0.11	

Small Restaurant (E02)																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr.	\$/kWh	\$ Incr.
kW	8	8	8	8	9	9	9	10	9	8	8	6	37,808	3,151			
kWh	2,228	2,105	2,637	3,138	3,907	4,128	4,376	4,375	3,421	2,998	2,311	2,183					
Load Factor	39%	38%	46%	51%	63%	61%	65%	63%	53%	49%	39%	51%					
COS	\$ 254	\$ 246	\$ 274	\$ 302	\$ 336	\$ 379	\$ 390	\$ 395	\$ 341	\$ 313	\$ 278	\$ 231	\$ 3,740	\$ 312	5%	\$ 0.10	
Existing	\$ 187	\$ 177	\$ 221	\$ 262	\$ 394	\$ 417	\$ 441	\$ 441	\$ 346	\$ 304	\$ 194	\$ 184	\$ 3,569	\$ 297		\$ 0.09	
Proposed (Ph. I)	\$ 230	\$ 219	\$ 265	\$ 310	\$ 376	\$ 474	\$ 500	\$ 500	\$ 399	\$ 298	\$ 237	\$ 221	\$ 4,028	\$ 336	13%	\$ 0.11	\$ 38

kW = Kilowatts

kWh = Kilowatt Hours



# Commercial Bill Impacts-Secondary Voltage $\geq 10\text{kW}$ and $< 50 \text{ kW}$

Medium Sized Church (E01C)																		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr.	\$/kWh	\$ Incr.	
kW	4	3	5	6	9	13	13	12	14	9	5	6	18,230	1,519				
kWh	516	395	807	923	1,570	3,060	3,101	3,062	2,332	1,224	666	576						
Load Factor	20%	21%	23%	20%	23%	32%	32%	36%	22%	18%	20%	13%						
COS	\$ 121	\$ 100	\$ 156	\$ 186	\$ 262	\$ 405	\$ 409	\$ 381	\$ 396	\$ 249	\$ 146	\$ 163	\$ 2,975	\$ 248	59%	\$ 0.16		
Existing	\$ 43	\$ 31	\$ 71	\$ 82	\$ 163	\$ 331	\$ 336	\$ 332	\$ 249	\$ 123	\$ 57	\$ 49	\$ 1,866	\$ 155		\$ 0.10		
Proposed (Ph. I)	\$ 87	\$ 72	\$ 118	\$ 137	\$ 205	\$ 358	\$ 362	\$ 349	\$ 306	\$ 179	\$ 106	\$ 107	\$ 2,386	\$ 199	28%	\$ 0.13		\$ 43

Medium Sized School (E10)																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr.	\$/kWh	\$ Incr.
kW	23	22	33	22	25	23	12	23	23	23	24	22	64,504	5,375			
kWh	5,229	4,952	6,001	5,695	5,974	5,285	5,132	4,983	5,919	5,820	5,126	4,389					
Load Factor	31%	30%	25%	35%	32%	31%	59%	30%	36%	34%	30%	28%					
COS	\$ 639	\$ 614	\$ 837	\$ 644	\$ 708	\$ 680	\$ 472	\$ 665	\$ 700	\$ 665	\$ 644	\$ 581	\$ 7,849	\$ 654	40%	\$ 0.12	
Existing	\$ 435	\$ 414	\$ 538	\$ 456	\$ 549	\$ 491	\$ 389	\$ 472	\$ 523	\$ 522	\$ 432	\$ 378	\$ 5,599	\$ 467		\$ 0.09	
Proposed	\$ 556	\$ 532	\$ 704	\$ 573	\$ 621	\$ 604	\$ 464	\$ 584	\$ 637	\$ 589	\$ 556	\$ 494	\$ 6,913	\$ 576	23%	\$ 0.11	

Medium Sized Retail (E02)																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr.	\$/kWh	\$ Incr.
kW	13	8	12	9	10	10	10	10	9	9	9	15	21,500	1,792			
kWh	1,345	1,046	1,294	1,362	1,889	2,652	2,688	2,722	2,161	1,662	1,126	1,552					
Load Factor	14%	19%	15%	21%	27%	38%	38%	38%	31%	24%	17%	15%					
COS	\$ 319	\$ 212	\$ 293	\$ 245	\$ 277	\$ 326	\$ 328	\$ 331	\$ 303	\$ 265	\$ 237	\$ 348	\$ 3,484	\$ 290	68%	\$ 0.16	
Existing	\$ 116	\$ 91	\$ 111	\$ 117	\$ 194	\$ 270	\$ 273	\$ 277	\$ 221	\$ 171	\$ 98	\$ 132	\$ 2,071	\$ 173		\$ 0.10	
Proposed (Ph. I)	\$ 213	\$ 154	\$ 200	\$ 186	\$ 230	\$ 303	\$ 306	\$ 309	\$ 262	\$ 212	\$ 168	\$ 237	\$ 2,780	\$ 232	34%	\$ 0.13	\$ 59

kW = Kilowatts

kWh = Kilowatt Hours





# Commercial Bill Impacts-Secondary Voltage $\geq 50$ kW

Large Church (E01C)																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr.	\$/kWh	\$ Incr.
kW	50	52	51	82	95	103	114	128	91	81	68	71	222,383	18,532			
kWh	15,106	13,948	12,784	15,456	19,759	25,906	25,417	28,689	19,364	16,507	14,019	15,427					
Load Factor	42%	37%	34%	26%	28%	35%	31%	31%	29%	28%	28%	30%					
COS	\$ 1,669	\$ 1,657	\$ 1,597	\$ 2,253	\$ 2,664	\$ 3,224	\$ 3,406	\$ 3,814	\$ 2,727	\$ 2,272	\$ 1,955	\$ 2,054	\$ 29,290	\$ 2,441	25%	\$ 0.13	
Existing	\$ 1,434	\$ 1,323	\$ 1,212	\$ 1,467	\$ 2,224	\$ 2,921	\$ 2,865	\$ 3,236	\$ 2,179	\$ 1,855	\$ 1,330	\$ 1,464	\$ 23,511	\$ 1,959		\$ 0.11	
Proposed (Ph. I)	\$ 1,590	\$ 1,511	\$ 1,413	\$ 1,829	\$ 2,260	\$ 2,928	\$ 2,958	\$ 3,328	\$ 2,299	\$ 1,904	\$ 1,626	\$ 1,754	\$ 25,401	\$ 2,117	8%	\$ 0.11	\$ 157

Large School (E23)																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr.	\$/kWh	\$ Incr.
kW	370	376	360	401	478	458	415	568	560	438	377	331	1,315,659	109,638			
kWh	117,051	103,715	92,196	111,304	135,764	109,876	80,962	153,459	148,969	95,185	91,693	75,485					
Load Factor	43%	38%	35%	38%	39%	33%	27%	37%	36%	30%	33%	31%					
COS	\$ 11,354	\$ 10,947	\$ 10,208	\$ 11,685	\$ 14,014	\$ 13,454	\$ 11,424	\$ 17,354	\$ 17,020	\$ 11,700	\$ 10,483	\$ 9,028	\$ 148,669	\$ 12,389	33%	\$ 0.11	
Existing	\$ 8,867	\$ 8,152	\$ 7,401	\$ 8,731	\$ 11,640	\$ 10,010	\$ 8,018	\$ 13,383	\$ 13,065	\$ 9,013	\$ 7,473	\$ 6,276	\$ 112,030	\$ 9,336		\$ 0.09	
Proposed	\$ 10,361	\$ 9,805	\$ 9,048	\$ 10,483	\$ 12,634	\$ 12,047	\$ 9,939	\$ 15,826	\$ 15,486	\$ 10,173	\$ 9,234	\$ 7,872	\$ 132,907	\$ 11,076	19%	\$ 0.10	\$ 1,740

Large Grocery (E07S)																	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Average	% Incr.	\$/kWh	\$ Incr.
kW	472	447	514	555	635	668	666	677	643	600	593	545	3,866,954	322,246			
kWh	270,485	238,430	279,158	294,196	342,177	376,911	400,169	403,502	358,531	319,278	295,947	288,170					
Load Factor	79%	73%	74%	73%	74%	77%	82%	82%	76%	73%	68%	72%					
COS	\$ 19,213	\$ 17,515	\$ 20,293	\$ 21,623	\$ 24,930	\$ 28,612	\$ 29,551	\$ 29,909	\$ 27,370	\$ 23,404	\$ 22,353	\$ 21,205	\$ 285,979	\$ 23,832	6%	\$ 0.07	
Existing	\$ 18,692	\$ 16,842	\$ 19,600	\$ 20,819	\$ 24,090	\$ 26,162	\$ 27,275	\$ 27,572	\$ 24,974	\$ 22,564	\$ 21,338	\$ 20,406	\$ 270,335	\$ 22,528		\$ 0.07	
Proposed	\$ 21,142	\$ 19,086	\$ 22,192	\$ 23,580	\$ 27,265	\$ 32,149	\$ 33,479	\$ 33,848	\$ 30,699	\$ 25,548	\$ 24,198	\$ 23,115	\$ 316,301	\$ 26,358	17%	\$ 0.08	\$ 3,830

kW = Kilowatts

kWh = Kilowatt Hours



## Other Optional Rates and Public Schools (ISDs) Proposed Discount

### All Customer Classes

- Time-of-use rates
  - Public schools
  - Worship facilities
- Pilot rates

### Commercial and Industrial Only

- Thermal energy storage continued with new option for on-peak pricing time period

### Public Schools (ISDs) Proposed Discount

- Apply 10% discount to overall monthly electric bill
- Applicable to independent school districts only due to limited funding

Note: Time-of-use rates may be applied in addition to the discount for some school accounts.





## GreenChoice® Program Improvements

- GreenChoice® renewable energy product offered to all customers on same terms
- Customers must purchase 100% GreenChoice per meter
- Offer a long-term contract at a set GreenChoice rate
- Customers receive credit for fuel and energy production costs
- First offer expected when new supply comes on line in early 2013
- Same rate structure as last 10 years, except:
  - Supply to be sourced from a portfolio
  - Price based on average cost
  - Total payment (or credit) on bill will be for GreenChoice quantity NET of system renewable energy percentage (avoids “double sale” of green power)



# Solar Program Improvements

## Residential

- Improves incentives and more fairly rewards solar system operators for their energy
- ***Customer pays*** for total gross energy consumption at residential rates applicable to their consumption level
- ***Austin Energy pays*** customer for total solar production at ***Value of Solar Rate***
  - Value updated annually
  - Reflects value of locally generated solar energy that avoids transmission and distribution losses and fuel costs
  - 2011 is \$0.128 per kWh

## Commercial

- Offered the Performance-Based Incentive (PBI) for qualifying on-site solar systems
- Size of systems increased from 20 kW to 200 kW





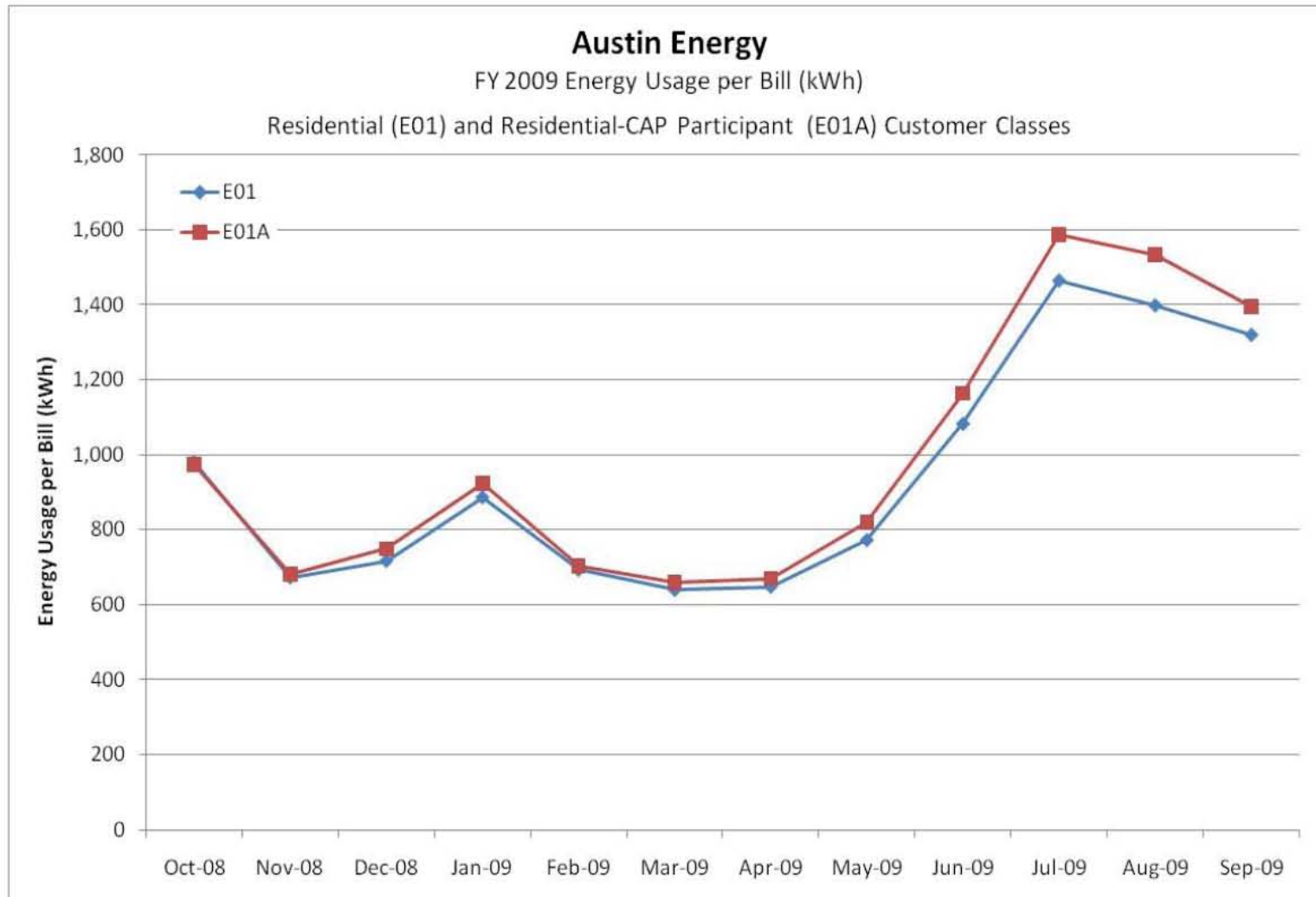
YOUR ELECTRIC RATES

# Customer Assistance Program (CAP) Recommendations





# CAP Participants Have Similar Electricity Usage

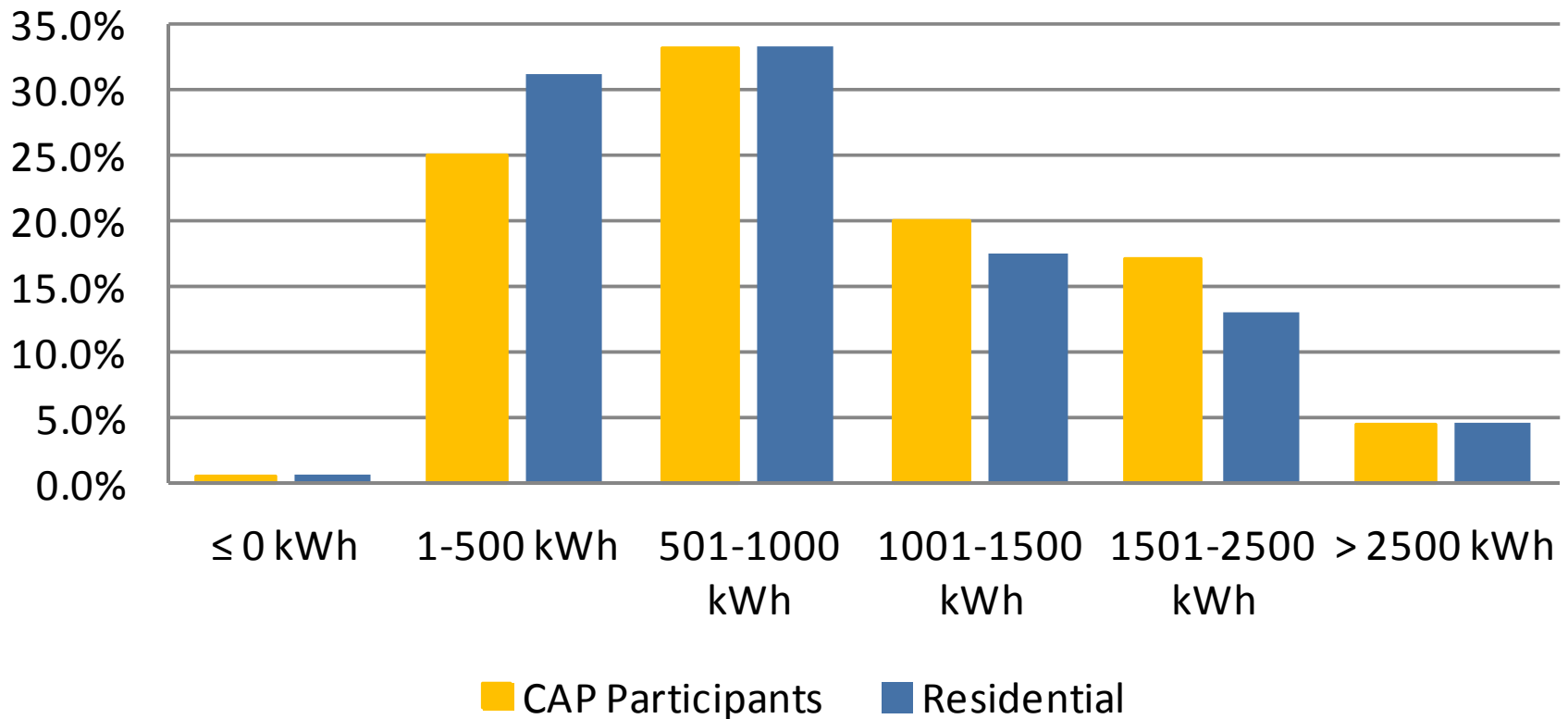


**Data represents Customer Assistance Program (CAP) participants. Average monthly CAP participant (E01A) electricity usage was 1,023 kWh in FY 2009.**



# CAP Customer Profile Similar to Residential Profile

## Residential Bills by kWh Use Level FY 2009





## CAP Discount Structure

Description	Method	Current	Proposed
<b>Electric</b>	Waiver	\$6.00	Design in progress.
<b>Electric - E01A fuel discount rate (per kWh) in lieu of system fuel rate</b> • 1.7 cents compared to 3.105 cents current fuel rate or discount of 1.405 cents	Discount	Amount varies based upon customer consumption.	Discontinued.
<b>Water</b>	Waiver	\$7.10	No change.
<b>Wastewater</b>	Waiver	\$9.25	No change.
<b>Transportation User Fee</b>	Waiver	\$6.56	No change.
<b>Drainage Fee</b>	50% Discount	\$3.88	No change.

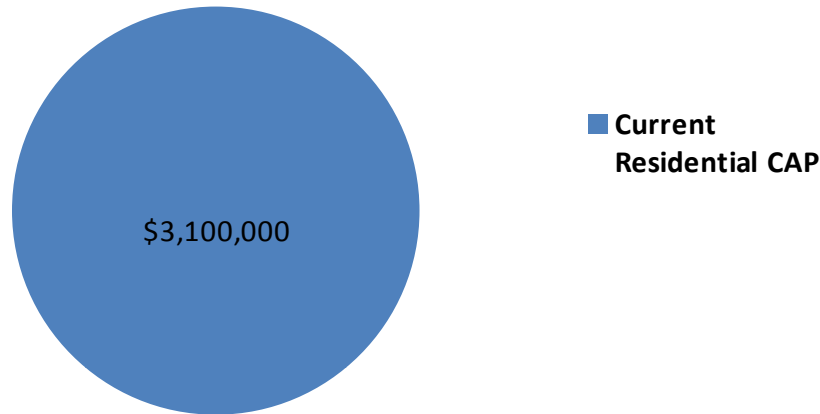
- \$32.79 in City-wide monthly service charge waivers and discounts, excluding electric fuel discount





# Customer Assistance Program Recommendations

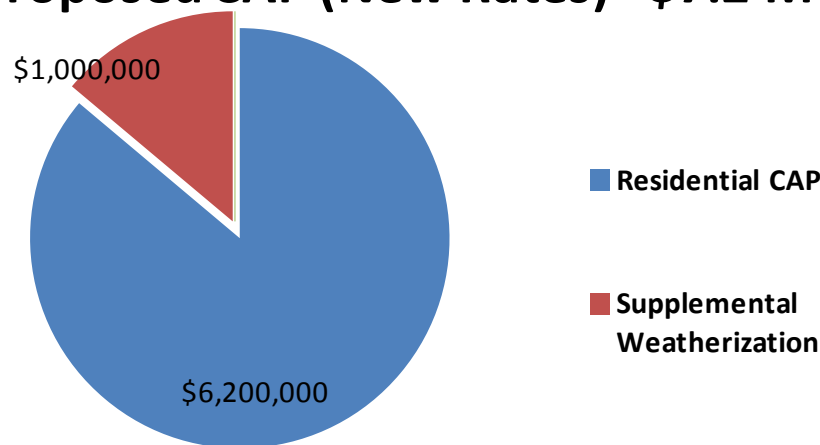
**Current CAP (2009) - \$3.1 M**



Customer Assistance Program design in progress

- Enrollment process
- Benefit levels

**Proposed CAP (New Rates) - \$7.2 M**







## Programs to Assist Low Income Customers

Customer Assistance Program (CAP) charge provides funding for:

- Customer Assistance Discount
- Free Weatherization

### Other Programs

- Financial Support Program (Plus 1)
- Medically Vulnerable Population (MVP)
- Deferred Payment Arrangement (DPA)
- Budget Bill Program



## CAP Redesign Objectives

---

- Adopt a case management approach for CAP customers to manage electricity usage
  - Discounts to mitigate bill impacts
  - Conservation programs
  - Education
- Increased funding level to allow ramp up of enrollment over time
- Target high usage CAP customers for weatherization
- Final program design following rate approval



YOUR ELECTRIC RATES

# Rate Benchmarking and Affordability





## Industry Trends for Public Power Utilities

- Increasing fixed charges to recover distribution system impacts and minimum cost of service
- Use of power cost adjustment (fuel charge) mechanisms
- Tiered rate structures to recover demand (kW) impacts and promote energy efficiency
- Adjust fees to recover cost of service for new growth
- Offer customers time-of-use rates
- Increased transparency of charges and rate increases
  - Regulatory Charges
  - Community or Public Benefit Charges
    - Customer Assistance Program, Street Lighting and Energy Efficiency programs
  - Forecast of rate increases



## AE Proposed Structure vs. Retail Electric Provider Offers

### Austin Energy

- Vertically integrated utility
  - Service territory
  - Wires, Generation & Retail in one entity
  - Generation ownership to provide pricing certainty in Nodal market
- Customers in service territory
  - Energy efficiency goals & incentives
- Retail rates
  - Set in tariffs
  - Must remain competitive
- Austin Climate Protection Program
- Renewable goals

### Retail Electric Providers

- Deregulated market model
  - Open competitive retail market
  - Wires separate from Generation & Retail
  - Generation sold into Nodal market
- Manage a portfolio in open market
  - Focus on increasing sales
- Offers
  - Teaser Offers to increase volume and new customers



## YOUR ELECTRIC RATES

### 2008 Rate Comparisons - Higher Natural Gas Prices

- Bill comparison using retail electric provider offers and public power rates when natural gas prices were high in 2008
- Deregulated market is more volatile
- AE's power supply managed to minimize volatility



Provided for informational purposes only. Average usage will vary by city. Prices may vary by season and usage.  
**Source: Public Utility Commission of Texas.** Additional information on Texas providers can be found at [puc.state.tx.us](http://puc.state.tx.us).  
 June 2008 average residential customer usage in Austin was 1,233 kWh.



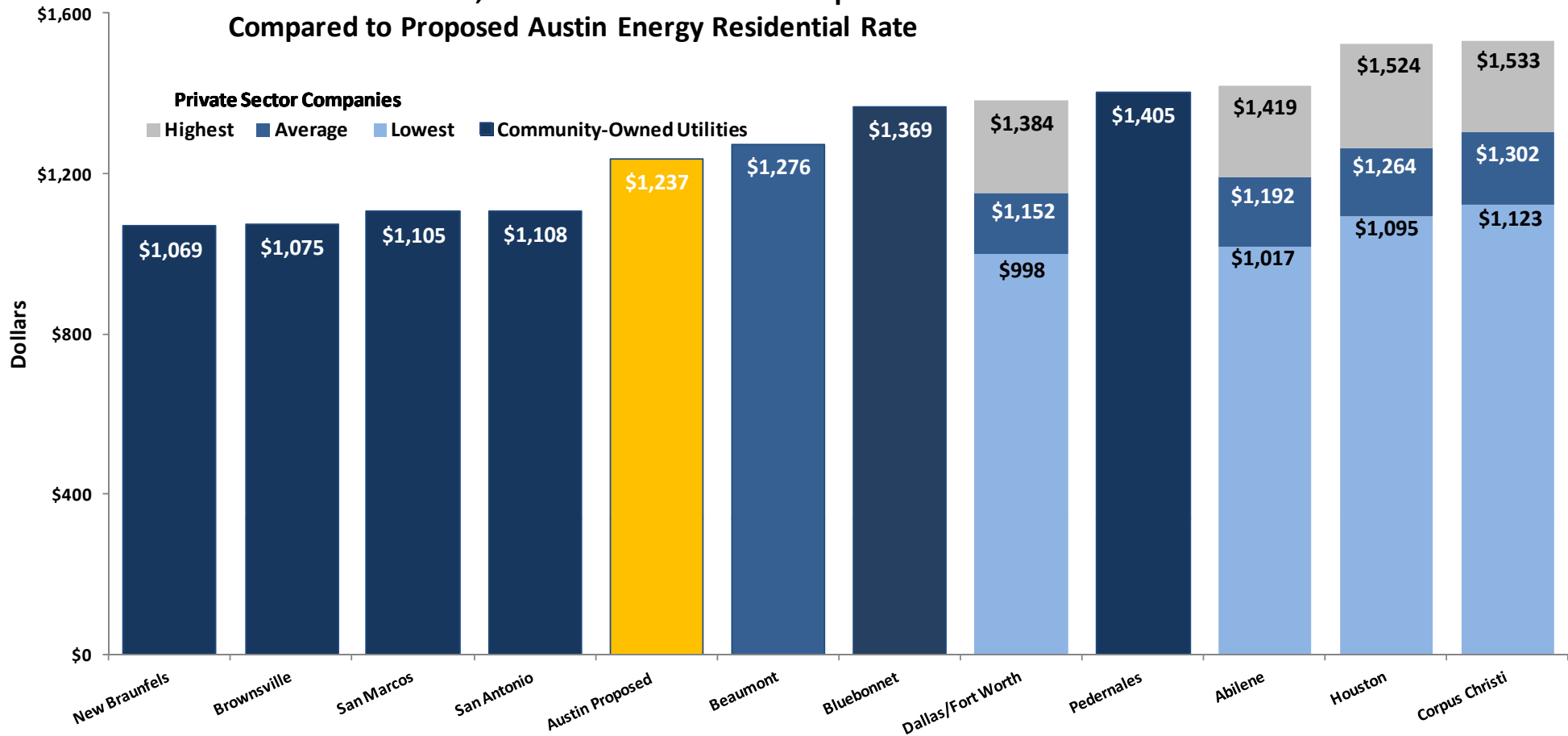
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 June 2008 average residential customer usage in Austin was 1,233 kWh.



## YOUR ELECTRIC RATES

# Annual Residential Electric Bill Comparison

**Residential Electric Bill at 1,000 kWh - October 2010-September 2011  
Compared to Proposed Austin Energy Residential Rate**



No additional projected rate increases are included for any utility listed.

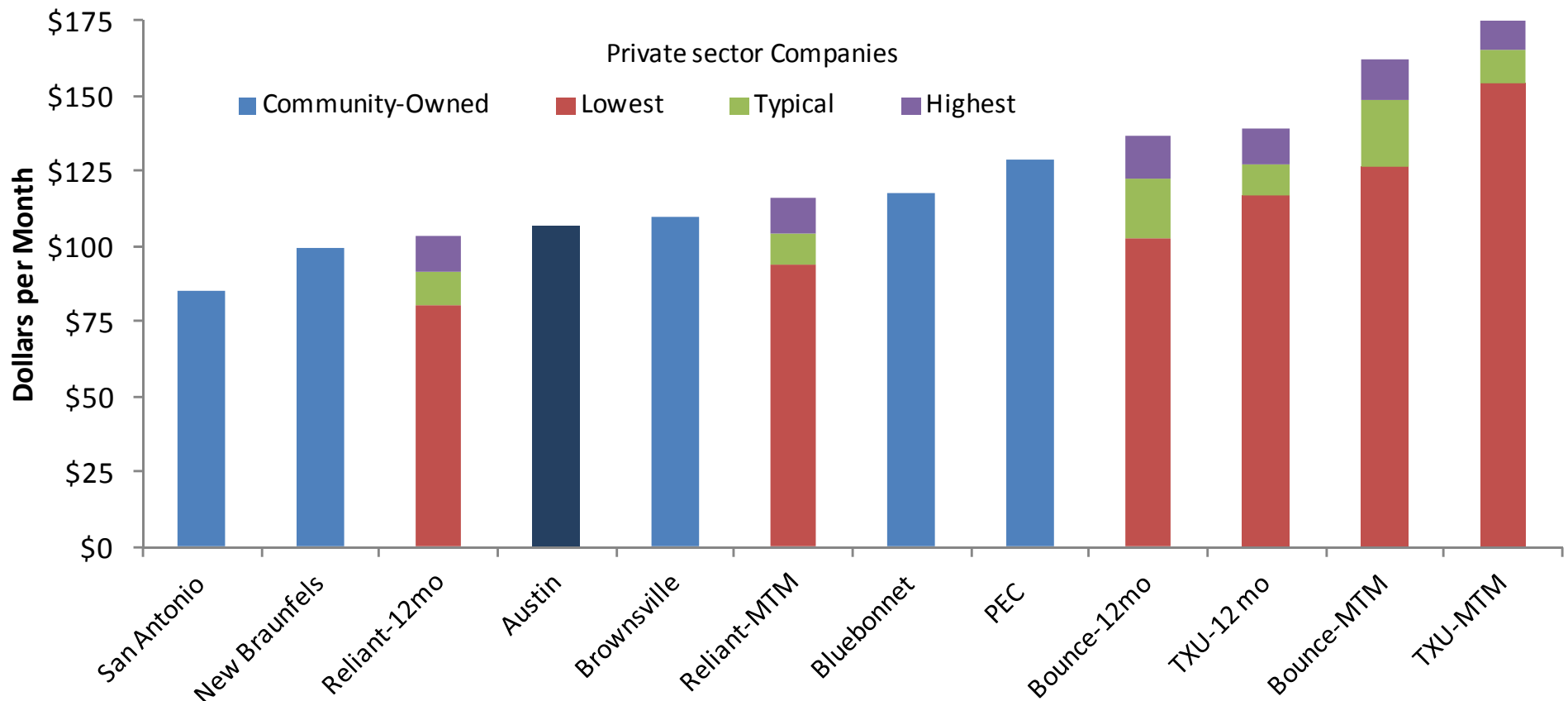




## YOUR ELECTRIC RATES

# Commercial Rate Comparison - Secondary Voltage <10 kW

### Commercial Monthly Bill Snapshot of Rates Available as of November, 2011 3KW with 40%LF



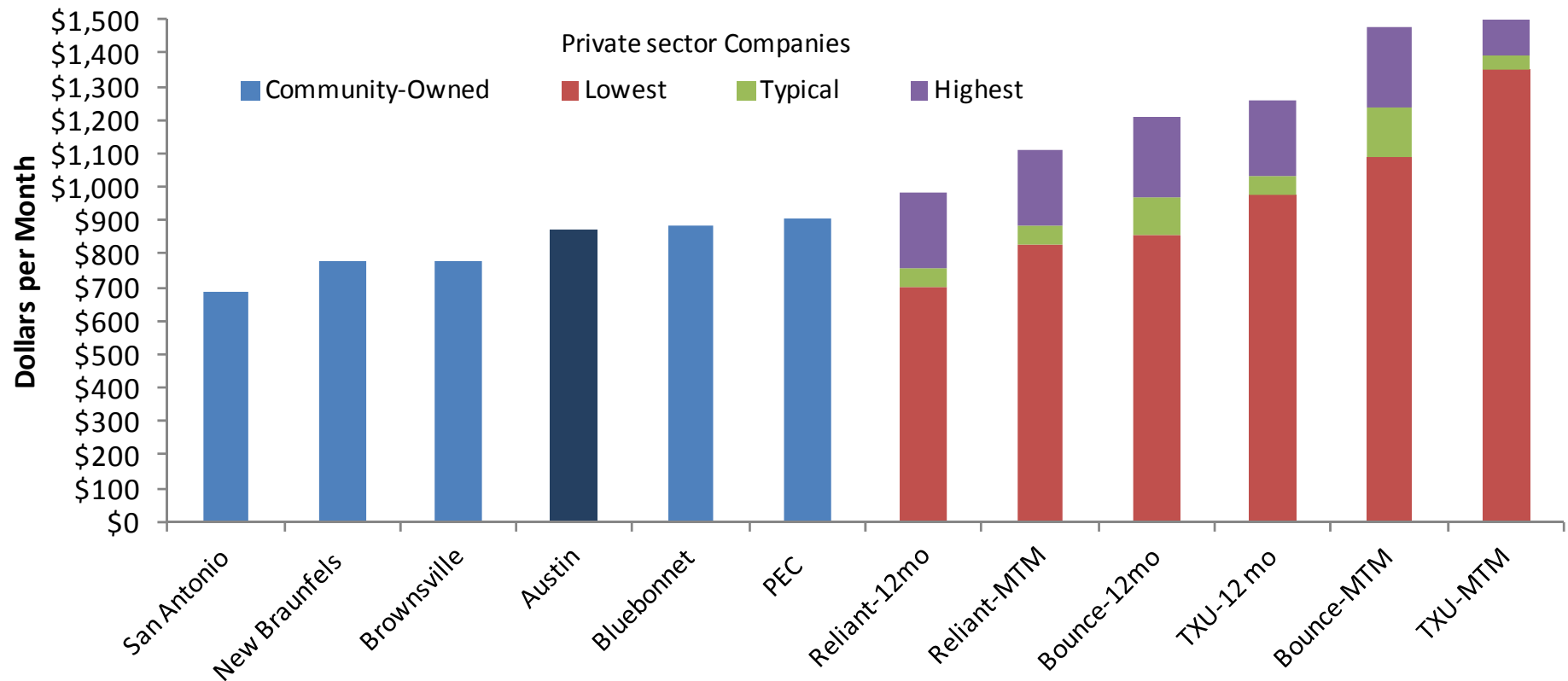
No additional projected rate increases are included for any utility listed.



# YOUR ELECTRIC RATES

## Commercial Rate Comparison - Secondary Voltage >10 kW - <50 kW

Commercial Monthly Bill Snapshot of Rates Available as of November, 2011  
**25KW with 45%LF**



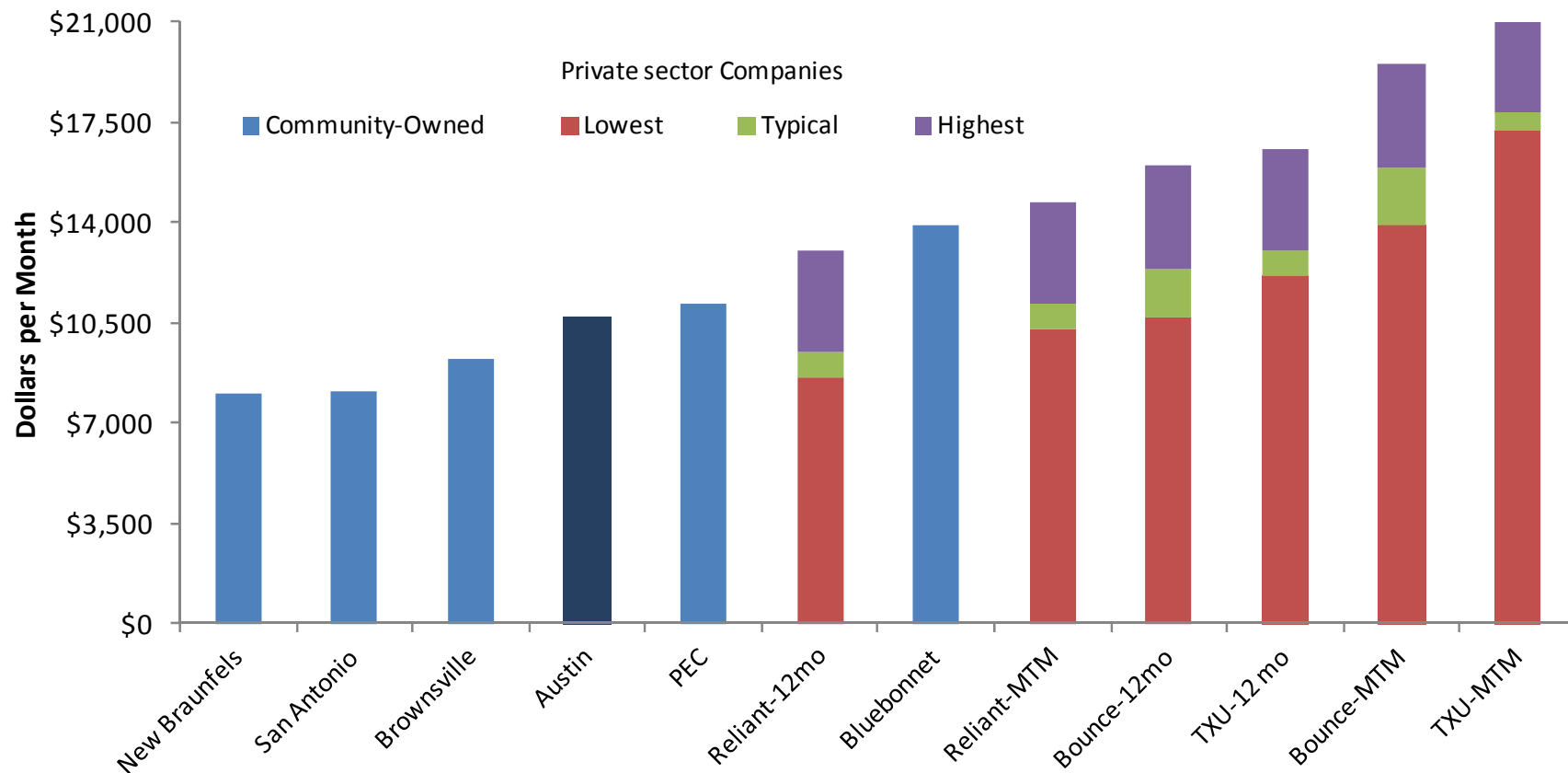
No additional projected rate increases are included for any utility listed.



# YOUR ELECTRIC RATES

## Commercial Rate Comparison - Secondary Voltage >50 kW

Commercial Monthly Bill Snapshot of Rates Available as of November, 2011  
**275KW with 55%LF**

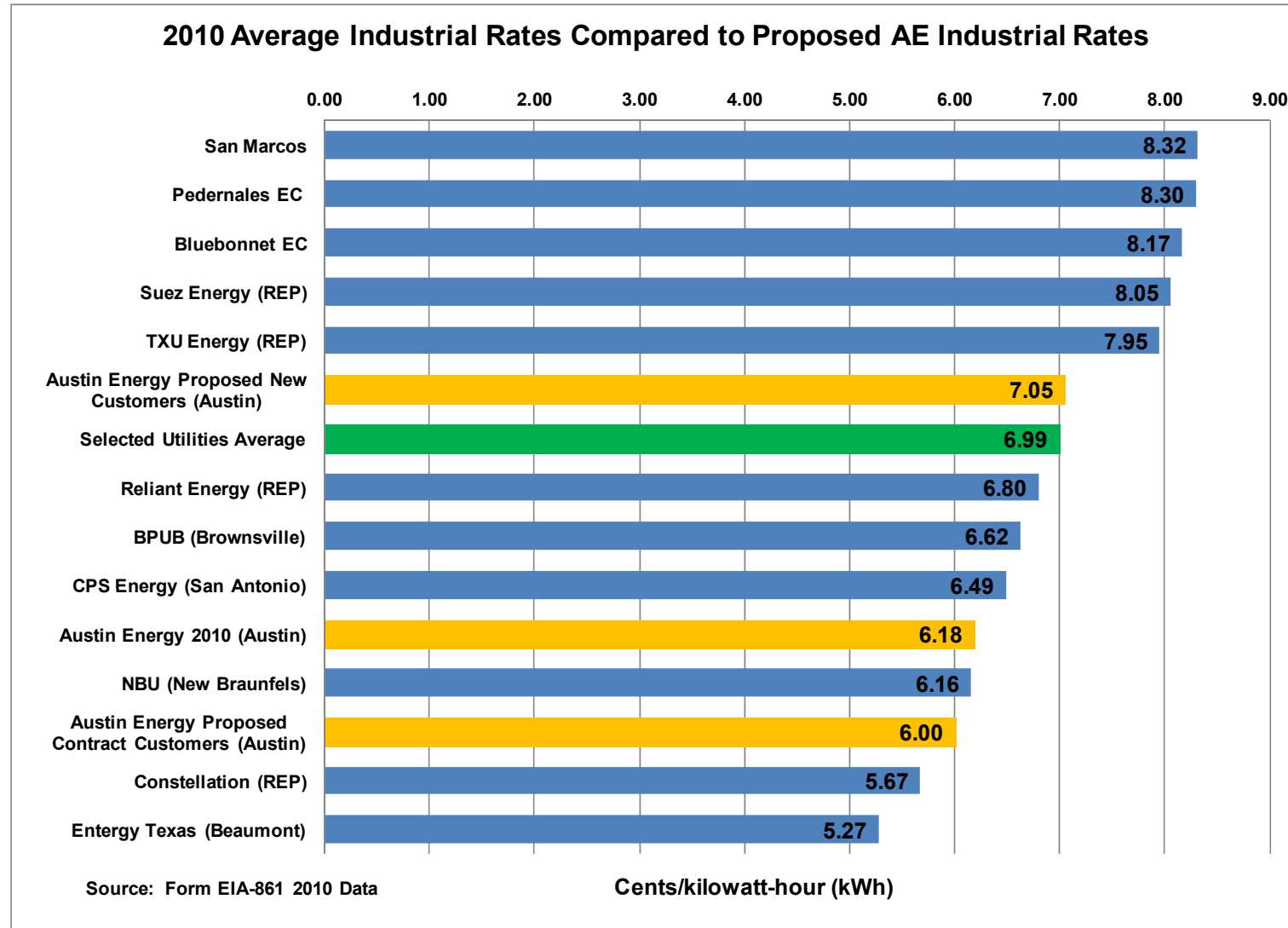


No additional projected rate increases are included for any utility listed.



## YOUR ELECTRIC RATES

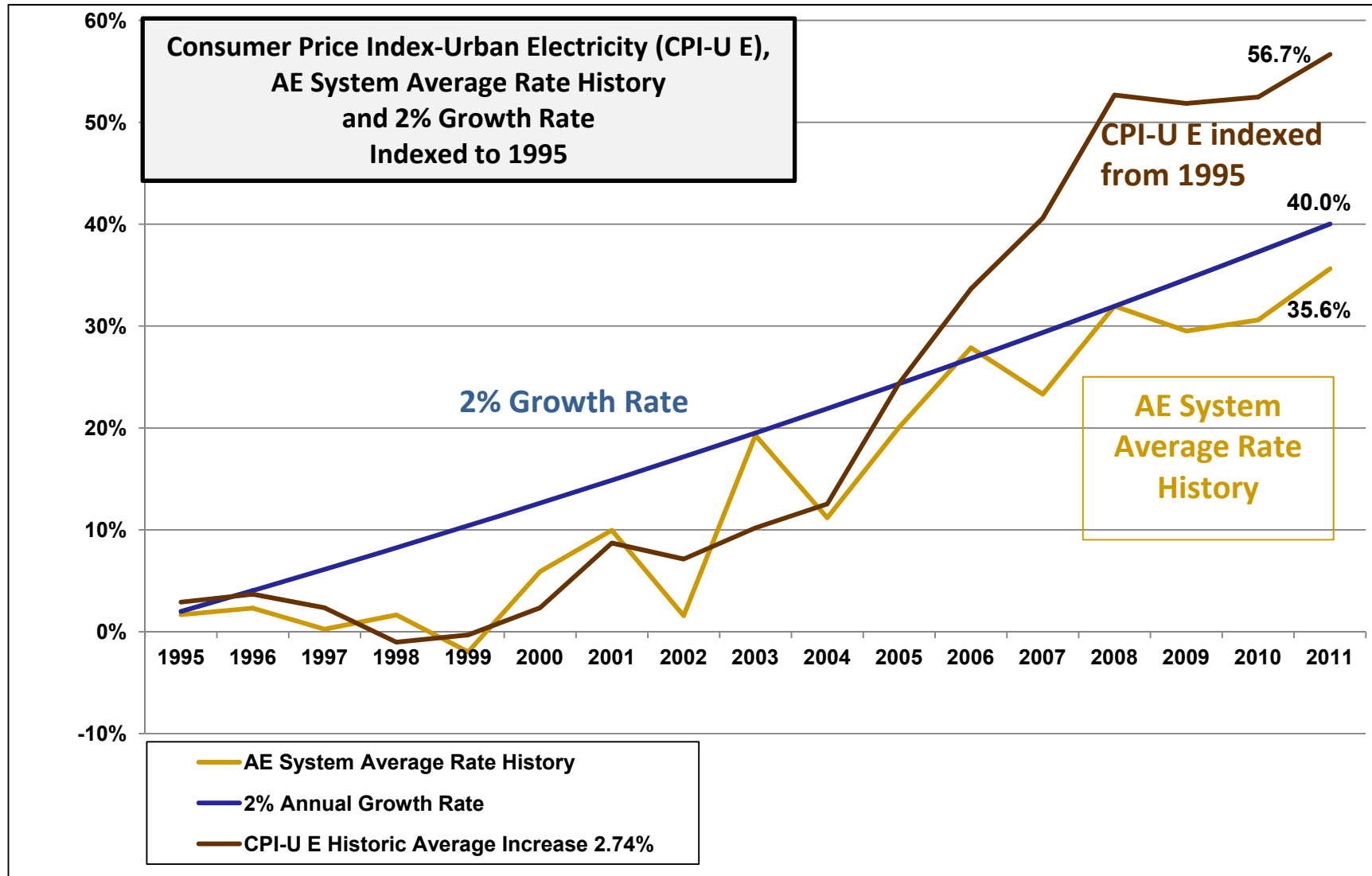
# Industrial Rates



Source: EIA Form 861 – 2010, [www.eia.doe.gov/cneaf/electricity/page/eia861.html](http://www.eia.doe.gov/cneaf/electricity/page/eia861.html), except for Austin Energy Proposed.

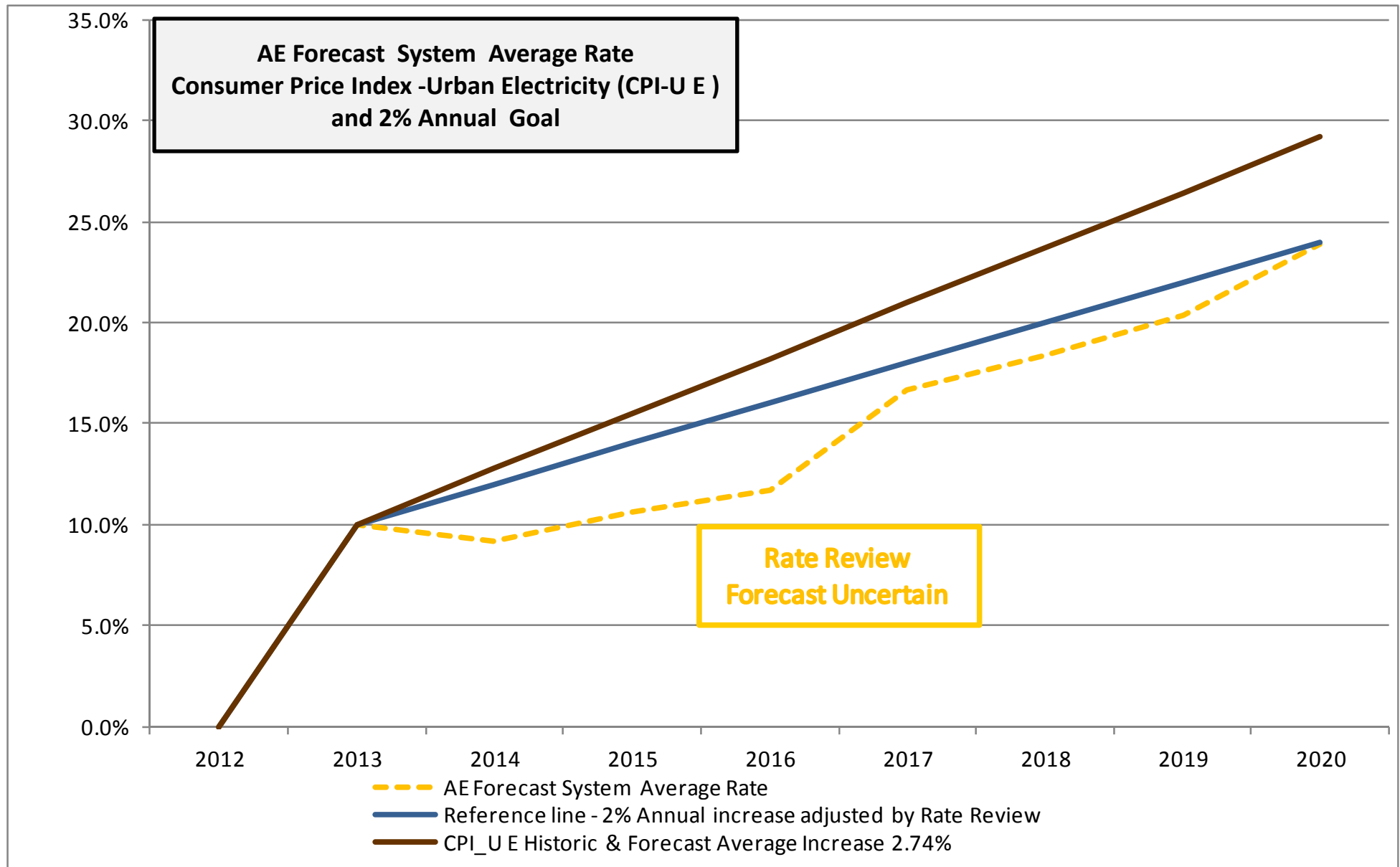


# AE System Average Rate





# Affordability Forecast





YOUR ELECTRIC RATES

# Summary







## Summary

---

- Requesting Council action to move AE rates forward to public hearing
  - Move rates as close to cost of service as possible
  - Restore the utility's financial health
  - Modernize rate designs
  - Provide incentives for solar and energy efficiency
  - Increase transparency of rates and forecasts
- Requests for Information Process
- Review by Office of the City Auditor



## Council Rate Review – Proposed Timeline

Date	Task
<b>2011</b>	
<b>December 15</b>	<b>Council Action</b> <ul style="list-style-type: none"> <li>Set a public hearing on electric rates for January 12, 2012 at 4:00 p.m.</li> </ul>
<b>2012</b>	
<b>January 3-17</b>	Time period for accepting Requests for Information (RFIs)
<b>January 12</b>	<b>Council Meeting</b> <ul style="list-style-type: none"> <li>Conduct a public hearing on electric rates</li> <li>Set a public hearing on electric rates for January 26</li> </ul>
<b>January 26</b>	<b>AE Quarterly Briefing for Council</b> <b>Council Meeting</b> <ul style="list-style-type: none"> <li>Conduct a public hearing on electric rates</li> <li>Approve new electric rates and related budget amendment to amend FY2012 Operating Budget and Fee Schedule</li> </ul>
	<b>New rates effective with first billing cycle 60 days after Council approval</b>

Rate Review website [www.rates.austinenergy.com](http://www.rates.austinenergy.com)



YOUR ELECTRIC RATES

**Thank you.**



# Community Solar Program Design: Three Options

6/30/14

Under the forthcoming Community Solar program, Austin Energy will purchase power from the Kingsbery solar project developer under a 20 year PPA, at a rate to be determined through the ongoing RFP process. AE will provide that power to participating customers under an opt-in, subscription based program. Three community solar program design options have been identified, as follows:

Please note that anything in [brackets] is a placeholder value, and open to discussion and refinement once PPA costs are known.

## 1. Capacity Based

- a. Participants subscribe for [X] kW of capacity (similar to owning own rooftop system)
  - i. e.g. in half kW increments, with a cap of 10 kW or whatever their onsite use justifies, similar to residential solar rebate rules
- b. Subscription cost based on a price per kW (e.g. \$3.25/W, or as determined by AE) amortized over [10-20] years
  - i. A short amortization increases customer's "skin in the game", and could make initial payments greater than initial credits
  - ii. A longer amortization (e.g. 20 yrs, in line with the PPA) could bring the cost of the subscription below the value of the credits for the system; may not be able to meet demand for the program in that case (or justify not rate-basing it in the first place)
  - iii. An "incentive" could be worked into the subscription cost to mimic residential rebate.
- c. Participants receive monthly credit for pro rata share of energy from the community solar system at prevailing VoS (or similar residential solar rate)
  - i. Alternately, could receive credit at a fixed rate, tbd (such as the rate described in option 3, below)
- d. Some upfront cost to participants (if <20 yr amortization), aka "skin in the game," but would receive long-term benefits from VoS credits
- e. Very long program horizon/commitment, both for AE (to given rate structure) and participants (in order to realize savings)
- f. Transferability desired by customers to feel assured that they can realize long-term savings if they move out of territory.

## 2. Community Solar Adjustment Lock

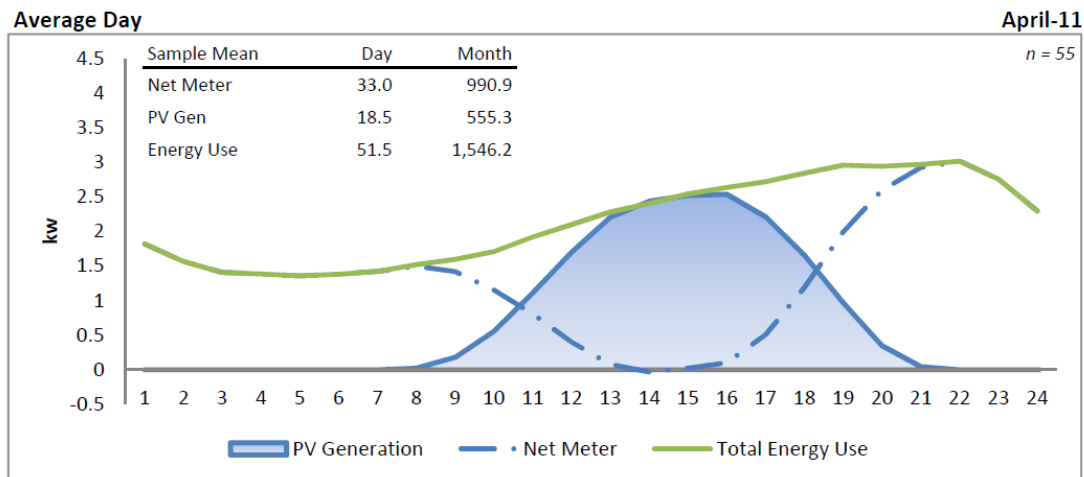
- a. Community Solar Adjustment (CSA) replaces PSA on the bill for participating customer
  - i. CSA = Cost of Solar PPA [REDACTED]; could also include land/engineering value provided by AE] – non-fuel benefits assessed under VoS study [REDACTED]  
[REDACTED]
    - PSA comparison for past 3 years: [REDACTED]  
[REDACTED]
- b. Fixed price lock for 20 years (length of community solar project PPA)
- c. Readjust CSA every [5] years based on current and planned community solar project portfolio. Give existing participants first right of refusal to continue (possibly at previous lock rate), then open to new participants
  - i. Base initial offering on the PPA price for Kingsbery + expected portfolio build out

- ii. Set price for next CSA lock rate based on existing projects plus new build-out plans, and prevailing local solar cost/benefit assessment at that time
- iii. Set the lock and lock length such that the participant has a reasonable expectation of savings by the end of the lock (i.e. the PSA will be higher than the Solar Choice Charge), preferably enough to outweigh initial premium. May need a longer lock (10-20 years) to achieve this, particularly for early participants.
- iv. Lock provides some price stability for customers; may also want to add a floor for early participants
- d. Cap participation at ~30% of customer's usage to align with how solar output matches residential consumption patterns (see chart below).
  - i. Enforces message that solar is not available 24/7 (without storage), other 70% of the time, e.g. during cloudy weather and nighttime, grid power is required.
  - ii. Could co-market with GreenChoice to provide remainder of participants' power from wind resources.

Sample residential demand profile with onsite PV generation:

Austin Energy Load Research

Confidential and Proprietary



- 3. Floating Premium
  - a. Similar to current GreenChoice
  - b. [REDACTED] premium over the PSA, floats above the PSA when/if PSA changes
  - c. Customers may enter and leave program at will – no customer commitment
  - d. No rate stabilization for participants, tied to cost of “brown power” (both are unpopular aspects among surveyed stakeholders)
- 4. Tier 1 credits
  - a. Participants pay [REDACTED] for 1 kW of capacity [REDACTED]
  - b. Participants are credited for the generation from their kW at [REDACTED], with an end-of-year true up based on actual, prorated output from Kingsbery.
  - c. Bill credit is in kWh, and applies to first tier, then second tier, etc.

## CSA Sample Calculation

### Costs (Kingsbery):

Expected PPA rate [REDACTED]

(Land [REDACTED] \$?/kWh)

(Engineering by AE [REDACTED] \$?/kWh)

### Benefits (2015):

Guaranteed fuel value [REDACTED]

Plant O&M value [REDACTED]

Capacity value [REDACTED] (Babu says shouldn't apply with Community Solar)

Transmission value [REDACTED]

Enviro value [REDACTED] (or is the enviro value is whatever premium participants are willing to pay)

**NET COST:** [REDACTED] (+ TBD land and engineering costs?)

2015 VoS totals 10.7 cents; Community Solar benefits are somewhat lower

Est. value for community solar (w/out capacity value, loss savings, or fuel value): [REDACTED]

CSA = [REDACTED] - [REDACTED] + [2015 PSA of 4.3 cents] = [REDACTED]

[REDACTED] premium over PSA of 4.3 cents/kWh (= [REDACTED]; [REDACTED] vs average resi retail rate; since participation capped at 30%, [REDACTED] increase in overall electric bill)

**-or-**

Should CSA just be the PPA rate – the Guaranteed Fuel Value??? = [REDACTED] (in place of 4.3 cent PSA)



**Request for Proposals**  
for customer-sited community solar projects  
sized between 200kW and 1MW (AC)

Issued: December 10, 2015  
Responses due: February 1, 2016



## **1. INTRODUCTION**

Austin Energy, the municipally-owned electric utility of the City of Austin, Texas, is engaged in the generation, transmission, and distribution of electricity to over 420,000 residential, commercial, and industrial customers. Austin Energy has approximately 3,500 MW of generation capacity, including nuclear, coal, natural gas, biomass, wind, and solar resources. Austin Energy participates in all aspects of the Electric Reliability Council of Texas (ERCOT) wholesale power market for purposes of serving its load and maximizing the value of its resources.

In 2014, the Austin City Council adopted the Austin Energy Resource, Generation and Climate Protection Plan to 2025 that includes goals for local solar energy. One strategy to meet local solar generation goals is through the growth of a community solar program. Austin Energy's community solar program will allow customers who are unable to install solar panels on their own dwellings to receive the benefits of solar power.

## **2. PURPOSE**

Austin Energy issues this Request for Proposals ("RFP") to solicit proposals from qualified vendors (each a "Proposer") experienced in the development and operation of renewable solar energy resources. Austin Energy desires to purchase solar power under a power purchase agreement ("PPA") from solar generation projects (each a "Project") located within Austin Energy's service territory, sized from 200 kW to less than 1MW (AC), for a term of up to 25 years. Austin Energy seeks to purchase the energy, along with all associated environmental attributes, such as renewable energy credits, of the Project.

A Proposer may submit more than one proposal or more than one Project per proposal, but may only submit one proposal per site; however, a Proposer may submit pricing for different construction completion dates. Only qualified solar photovoltaic technologies, as judged in Austin Energy's sole discretion, will be considered under this RFP.

Selected Projects will be incorporated into Austin Energy's community solar program. Austin Energy reserves the right to award a contract in order to satisfy its requirements, or to make no contract award at all.

## **3. SCHEDULE**

The following schedule and deadlines apply to this RFP. Austin Energy reserves the right to revise the schedule at its sole discretion.

December 10, 2015: RFP issued

January 15, 2016, 5:00 PM CT: Deadline to submit questions regarding RFP.

February 1, 2016, 5:00 PM CT: Deadline for receiving proposals.

## 4. PROJECT CONCEPT AND OPERATION

**A. Power Purchase Agreement.** Under a PPA structure, Austin Energy will purchase the energy and environmental attributes of selected solar Project(s). The PPA will include the option for Austin Energy to purchase the Project and the right for Austin Energy to resell all or part of the energy and environmental attributes acquired.

**B. Term, commercial operation date.** Austin Energy seeks a PPA term of up to 25 years and a commercial operation date prior to January 1, 2017. A proposal may provide two different prices for commercial operation dates before and after January 1, 2017.

### **C. Size and location.**

1. Project capacity may be sized from 200 kW to less than 1 MW (AC).
2. Projects must be located within Austin Energy's service territory, at the site of an existing Austin Energy customer with an energy consumption meter ("Customer Meter"), account, and electric load. Projects may not be located on Austin Energy's downtown network.
3. Proposer is responsible for negotiating the use of the site, if the property owner (site host) is not the Proposer. Proposer must provide a Letter of Intent from the site host indicating its commitment to host the Project for the length of the PPA. An agreement between the Proposer and site host for the use of the site (e.g., lease) will be necessary for PPA execution.
4. Proposer should consider public visibility and public engagement factors when identifying the location. Public visibility is a measure of the location and prominence of the project to encourage public awareness of solar energy in the Austin community. Projects prominently located in heavily populated or high-traffic locations (including locations with high numbers of visitors, residents, employees, community members, or passersby) will receive a higher score than Projects located in remote areas or with minimal visibility.
5. A Project location with a community partnership or benefit component is preferred. Proposer should consider a Project that supports community partnerships with entities such as non-profits including schools and governmental agencies, affordable housing developments, and "green" master communities.

**D. Proposer.** Proposer must have at least five years of experience in solar photovoltaic (PV) project development and must have been involved in the construction of at least three commercial or utility-scale PV facilities of at least 150kW in size in the last two years.

**E. Project details.** Proposer must provide a detailed description of the Project and the solar technology that will be used to provide the renewable energy and capacity to Austin Energy. Proposer must provide sufficient information to provide assurance to Austin Energy that the generating facility will be able to meet its projected production estimates for the duration of the PPA. All facilities must meet applicable regulatory and industry safety, environmental, and operational standards, including but not limited to standards and requirements of the Public Utility Commission of Texas, ERCOT, Texas Reliability Entity (TRE), and North American Electric Reliability Corporation (NERC). At a minimum, Proposer must provide the following:

1. Name and location of site host with a letter of intent from the site host indicating its commitment to host the project for the length of the PPA, if selected.

2. Technical information for the facility, including:

a. proposed make and model numbers for inverters and solar panels, including manufacturer and vendor warranties,

b. description of interconnection and metering arrangement, including how the Project is situated on the site with the Customer Meter and Revenue Meter, and sufficient to show that the Project meets the requirements of section 4.F.4 below,

c. the Distributed Generation Planning Application<sup>1</sup> and the Electric Service Planning Application<sup>2</sup> approved by Austin Energy, with Austin Energy's rough estimate of the costs payable by the Proposer for interconnection at the site (for rough estimate contact [David.Tomczyszyn@austinenergy.com](mailto:David.Tomczyszyn@austinenergy.com)).

d. one-line diagram, including the interconnection, configuration, and general building and site layout diagrams, and

e. projected commercial operation date, expected annual hourly output profile (8760 hours) for first year of operation. Include summary of net AC output rating, capacity factors, forced outage rate, de-rating assumptions, expected annual production degradation, and expected reasons for and timing of maintenance. Solar irradiation data used must be the National Renewable Energy Laboratory (NREL) National Solar Radiation Data Base (NSRDB) 1961-1990: Typical Meteorological Year version 2 (TMY2).

3. Estimate of project development and construction duration (in days) and project development timeline from contract signature to commercial operation.

4. Description of how project meets or exemplifies public visibility and community partnership criteria outlined in sections C.4 and C.5 above.

#### **F. Metering and point of delivery.**

1. Austin Energy will install, own, and maintain a revenue meter ("Revenue Meter") which will be dedicated solely to the measurement of energy sold and purchased under the PPA. The meter may not be behind the existing Customer Meter. Austin Energy will not consider proposals containing split or allocated meter arrangements.

2. Austin Energy will install, own and maintain the data collection and related communications/telemetry for the metering facilities and related services necessary to meet the mandatory 15-minute Interval Data Recorder (IDR) Meter requirements.

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<sup>1</sup> The current Distributed Generation Planning Application is available online at [austinenergy.com](http://austinenergy.com). Select "Contractors" tab, then select Electric Service Design & Planning.

<sup>2</sup> The current Electric Service Planning Application is available online at [austinenergy.com](http://austinenergy.com). Select "Contractors" tab, then select Electric Service Design & Planning.

3. With the exception of equipment specifically mentioned in 4.F.1 and 4.F.2, the Proposer will install, own, and maintain all other metering equipment and metering facilities.

4. Austin Energy will take delivery of energy at the Revenue Meter. Projects must comply with the **Austin Energy Design Criteria Manual**<sup>3</sup> and the **Distribution Interconnection Guide for Customer Owned Power Production Facilities less than 10 MW**<sup>4</sup>, with the exception of metering requirements covered under the terms of this RFP.

## 5. PROPOSAL

**A. Submittal format.** Proposer must submit proposals with all supporting documentation and required information, in portable document format (PDF), to [EnergySupply@austinenergy.com](mailto:EnergySupply@austinenergy.com) by the deadline. If the proposal and supporting documentation contains more than 20 MB of data, it must be divided up and submitted in multiple emails in order to stay below a 20 MB data limit. Proposer will receive an automatic email reply that the Energy Supply mailbox received the proposal. If no response is received, contact Stephanie Ritter at [Stephanie.Ritter@austinenergy.com](mailto:Stephanie.Ritter@austinenergy.com) immediately.

**B. Information required in proposal.** In addition to details regarding the Project concept and operation required above, the following information must be included in the proposal.

1. 90-day validity. Proposals must include a statement that they are valid for at least 90 days subsequent to the RFP response deadline.

2. Term sheet. A summary of the principal features of the Proposal must be included, with the Proposer's name, site host name, Project location, Project capacity in STDC and AC, offered pricing, PPA term, commercial operation date (year), financing structure, and any critical development and operational aspects of the proposal.

3. Cost. Proposer must identify all pricing elements that are included and determine the cost of supplying the renewable energy to Austin Energy. Austin Energy prefers a fixed, non-escalating price for the term of the agreement for all energy and associated capacity delivered. Proposer should state a fixed price in U.S. dollars per megawatt-hour (\$/MWh) for renewable energy including all environmental attributes.

4. Proposer's financial strength and structure. Proposer must present sufficient documentation fully supporting financing and development of the proposed solar facility to assure its successful construction, commissioning and long-term operation, including:

a. the full name and address of the Proposer's organization and identity of parent company, if Proposer is a subsidiary;

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<sup>3</sup> The current Austin Energy Design Criteria manual is available online at [austinenergy.com](http://austinenergy.com). Select "Contractors" tab, then select Electric Service Design & Planning.

<sup>4</sup> The current Distribution Interconnection Guide is available online at [austinenergy.com](http://austinenergy.com). Select "Contractors" tab, then select Electric Service Design & Planning.

b. primary contact information for individuals responsible for the proposal and authorized to manage contract negotiations;

c. form of organization (corporation, joint venture, limited partnership, limited liability company, sole proprietor, etc.), ownership structure, and names of principal officers and general partner, if any;

d. description of the of the financial structure of the Proposer's company and its financial capability to meet its obligations in the proposal, including relevant information on the Proposer, any parent company, and any partners involved in the proposal;

e. evidence of ability to obtain and secure financing for the project, sources of equity and long-term debt, bank/financial institution references (including, if applicable, letters of interest from investment banking firms, private investors or other financial or lending institutions); and

f. profile of qualifications to do business in the State of Texas.

5. Corporate and professional experience. The amount of corporate and professional experience in the design, development, construction and maintenance of solar generation projects will be a determining factor in the evaluation process. Information provided in the proposal must, at minimum, include:

a. description of previous experience with solar generation, including the development, management, operation, and maintenance of at least three solar projects at least 150 KW in size, including any third-party vendors' and sub-contractors' qualifications and experience;

b. description of the solar generation projects, including nameplate, gross and net capacities, that have been constructed, owned, or operated by Proposer or parent company that are in service or projected to be constructed and placed into commercial operation;

c. qualifications of permitting, engineering, construction, operation, and maintenance team that will be assigned to the Project and an organization chart detailing key personnel involved with the administration and day-to-day management; and

d. list of key personnel that would be involved in the project with their names, qualifications and experience.

6. Project documentation. Proposer must present supporting documentation and references describing the reliability of the proposed solar technology, its commercial application, its operational viability, speed of implementation, and expected production. Proposer must also provide:

a. staffing and maintenance plan to support long-term operations and letters of intent from proposed vendors providing major equipment; and

b. confirmation of Proposer's ability to secure options to purchase the principal equipment needed to meet the commercial operation date.

**C. Confidential information.** As a governmental entity, all information submitted to Austin Energy is subject to the Texas Public Information Act. Proposer must conspicuously identify in its proposal pages that contain confidential or proprietary information. This will allow Austin Energy, in the case of a public information request, to identify information the Proposer wishes to protect. Austin Energy will then notify Proposer, allowing it to seek to protect the information. The final decision as to what information must be disclosed rests with the Office of the Attorney General of Texas. Failure to identify proprietary information may result in it being available to the public upon request.

## **6. EVALUATION FACTORS, AWARD, AND NEGOTIATION**

**A. Competitive selection.** The evaluation factors outlined below will be applied to all responsive proposals. Qualifying proposals will be assessed in order to identify the best proposal, in Austin Energy's discretion. Austin Energy will review proposals and arrive at a short list to consider for further evaluation. Austin Energy reserves the right to consider any other factors it deems relevant and to request additional information, documentation, or supplemental materials from Proposer.

Austin Energy may choose to award a contract under this solicitation, multiple contracts, or may choose to not award any contract. Each Project is subject to interconnection review and approval. If multiple projects are proposed on the same feeder, higher scoring projects will receive priority in interconnection review and project approval.

**B. Evaluation factors.** 100 point scoring basis.

Price: 60 points

Public visibility: 10 points

Community partnership value: 10 points

Financial strength of Proposer: 10 points

Experience: 10 points

**C. Proposal recommendation.** Austin City Council approval may be required to execute an agreement. Austin Energy will evaluate all proposals and, if necessary, make a recommendation for approval to the Council, which may reject or re-evaluate the proposals.

**D. Contract negotiation.** Proposer is expected to agree to Austin Energy's standard PPA terms, which will be distributed to short-listed Proposers after evaluation. PPA documents will be prepared by Austin Energy, incorporating all applicable provisions of the selected proposal(s). Proposer must agree to minimum performance thresholds and will be required to post sufficient performance security for the term of the PPA and maintain adequate property insurance coverage

for the value of the Project. An executed PPA may not be assigned without Austin Energy's approval.

## **7. QUESTIONS, NON-CONFLICT OF INTEREST, ANTI-LOBBYING, AND MBE/WBE**

**A. Questions.** During the RFP process, all questions regarding the RFP must be submitted to [EnergySupply@austinenenergy.com](mailto:EnergySupply@austinenenergy.com). Any questions submitted after the deadline for questions will not be reviewed or answered.

**B. Anti-Lobbying.** Chapter 2-7, Article 6 of the Austin City Code (Anti-Lobbying and Procurement) applies to this solicitation and restricts Proposer's contacts with City of Austin officials or employees. During the No-Contact Period, a Proposer or potential Proposer is prohibited from making a representation (as that word is defined in City Code § 2-7-101) to anyone other than an Authorized Contact Person for the Solicitation.

**C. Authorized Contact Person.** THERE ARE TWO AUTHORIZED CONTACT PERSONS FOR THIS SOLICITATION. THE PRIMARY CONTACT REGARDING ALL ASPECTS OF THE SOLICITATION IS STEPHANIE RITTER. THE ADDITIONAL CONTACT FOR OBTAINING AND SUBMITTING ELECTRIC SERVICE DISTRIBUTION MATERIALS REQUIRED UNDER 4.E.2.c OF THIS SOLICITATION IS DAVID TOMCZYSZYN. **IF, DURING THE NO-CONTACT PERIOD, PROPOSER MAKES A REPRESENTATION TO ANYONE OTHER THAN AN AUTHORIZED CONTACT PERSON FOR THE SOLICITATION (EVEN IF THE CONTACT WAS INITIATED BY A CITY OFFICIAL), THE PROPOSER IS DISQUALIFIED FROM FURTHER CONSIDERATION EXCEPT AS PERMITTED UNDER CITY CODE.**

**D. Affidavit.** Proposer must complete the Non-Collusion, Non-Conflict of Interest, and Anti-Lobbying Affidavit provided in Attachment 1 and submit the Affidavit with its proposal.

**E. MBE/WBE Procurement Program.** Proposer must comply with the City of Austin's Minority-Owned and Women-Owned Business Enterprise (MBE/WBE) Procurement Program (City Code Chapters 2-9A, 2-9B, 2-9C and 2-9D), Rules, and Third Party Resolution (20120112-058) for the purchase, design and construction costs associated with the award and completion of the project. (See attachment 2a- SMBR requirements and 2b- Availability List for Professional Services). The requirements, standards and principles of the MBE/WBE Program will become a part of the contract agreement. The successful Proposer will be required to meet the annual design and construction goals specified in the agreement or in the City Code, or demonstrate a good faith effort to meet the goals as defined by the MBE/WBE Program.



Currently, City Code specifies the goals as follows, but they may vary depending on the scope of work subject to the MBE/WBE Program:

	<b>Professional Services Participation Goals Chapter 2-9B</b>	<b>Construction Participation Goals Chapter 2-9A</b>
African American	1.9%	1.7%
Hispanic	9.0%	9.7%
Asian/Native American	4.9%	2.3%
WBE	15.8%	13.8%

Proposer should contact the Small & Minority Business Resources Department (SMBR) at 512-974-7600 to discuss MBE/WBE Program requirements, request availability lists, forms, and submission deadlines prior to commencing any work subject to the MBE/WBE Program.

**From:** [Murray, Danielle](#)  
**To:** [Poff, Karen](#)  
**Subject:** Community solar subscription options  
**Date:** Thursday, February 18, 2016 10:57:54 AM

---

Hi Karen,

Here are the community solar subscription options That I've been thinking about Would be happy to hear if you have others. Do you have time to talk today before 3 p.m.?

Community solar options:

- 1) Capacity (kW) based subscription - pay up front at a discount or pay overtime on bill.  
Receive value of solar for production as credit on bill
- 2) Community solar rate replaces PSA and fuel charges on your bill. Premium today, hedge against future increases.
- 3) Penny plus premium on PSA (like green choice)

D

Danielle Murray  
Manager, Solar Energy Services  
Austin Energy  
512-322-6055

# Expanding Solar Access Through Utility-led Community Solar

## PARTICIPATION AND DESIGN TRENDS FROM LEADING U.S. PROGRAMS

SEPTEMBER 2014

### *Authors:*

*Becky Campbell, Senior Manager of Research*

*Daisy Chung, Research Analyst*

*Reane Venegas, Research Intern (Spring 2014)*

### *Editor:*

*K Kaufmann, Communications Manager*

The average community solar program has 213 participants purchasing power from a 1 megawatt system which is 71% subscribed.



**SEPA**

solar electric power association

# Expanding Solar Access Through Utility-led Community Solar



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## Acknowledgements

The authors would like to send special thanks to all of the utility program managers that took the time to participate in SEPA's survey, sharing program performance data as well as personal insights.



# Expanding Solar Access Through Utility-led Community Solar



## INTRODUCTION

To build on existing research and gain greater insight into individual programs, the Solar Electric Power Association (SEPA) recently conducted a survey covering community solar programs that utilities have developed and made available to their customers. Over a 6-week period in spring of 2014, SEPA queried program managers on actual customer participation rates and top design considerations. The survey was circulated to all 37 utilities with community solar programs that were in operation at that time, resulting in a 46-percent response rate. This report will summarize SEPA's community solar tracking efforts as well as the results of its most recent research on program and participation trends and critical program design considerations.

A note on terminology -- for this report, community solar programs will be identified as either active or planned. An active program is one that is currently accepting applications or is fully subscribed; a planned or proposed program is one that has been publicly announced but is not yet accepting applications.

The term program itself will be used to differentiate community solar offerings that may contain more than one individual installation from such individual projects.

## BACKGROUND

Community solar projects provide a compelling and increasingly popular way to increase the amount of solar power on the grid, appealing especially to consumers who, for a variety of reasons, may not be able to install rooftop arrays.

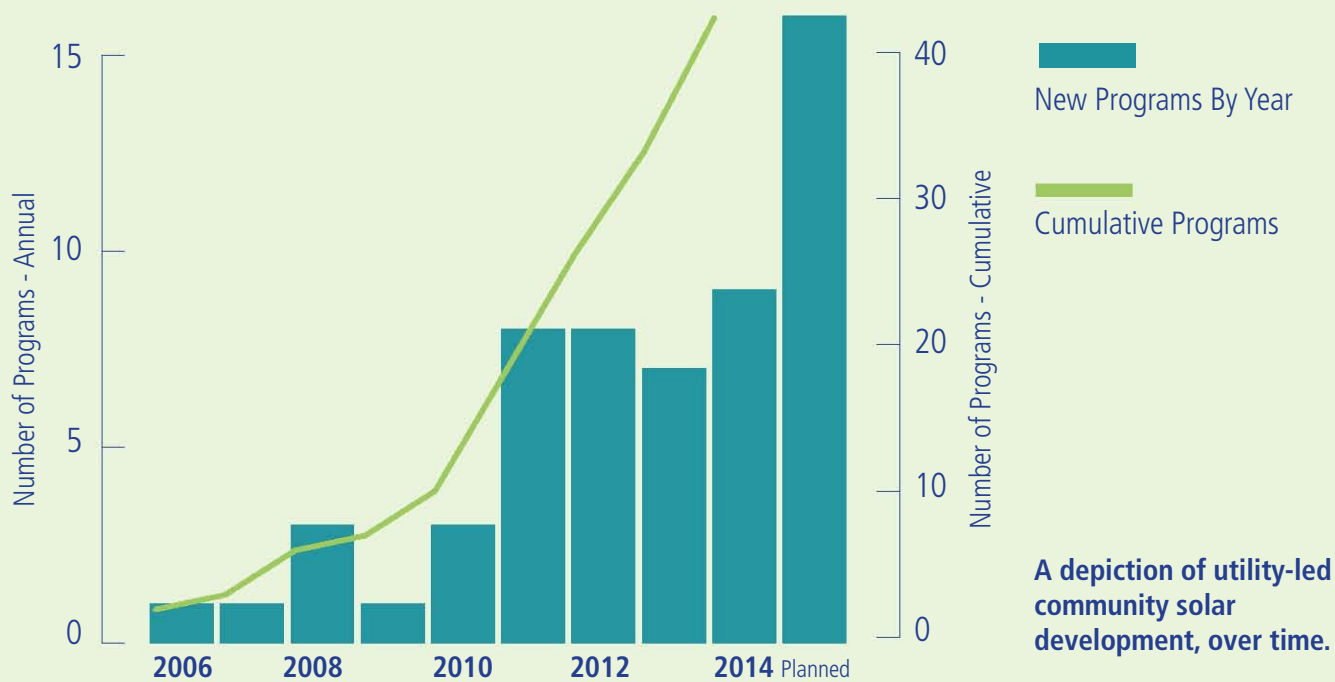
SEPA has been tracking the spread of these projects across the United States since early 2012, documenting a 64 percent increase in newly active community solar offerings in the past 18 months alone.

Utility programs represent 87 percent of all community solar programs now online, 60 percent of active and planned community solar systems, and 96 percent of all active and planned community solar capacity in the United States.

<sup>1</sup> The number of active programs has grown since the time of survey.



# Expanding Solar Access Through Utility-led Community Solar

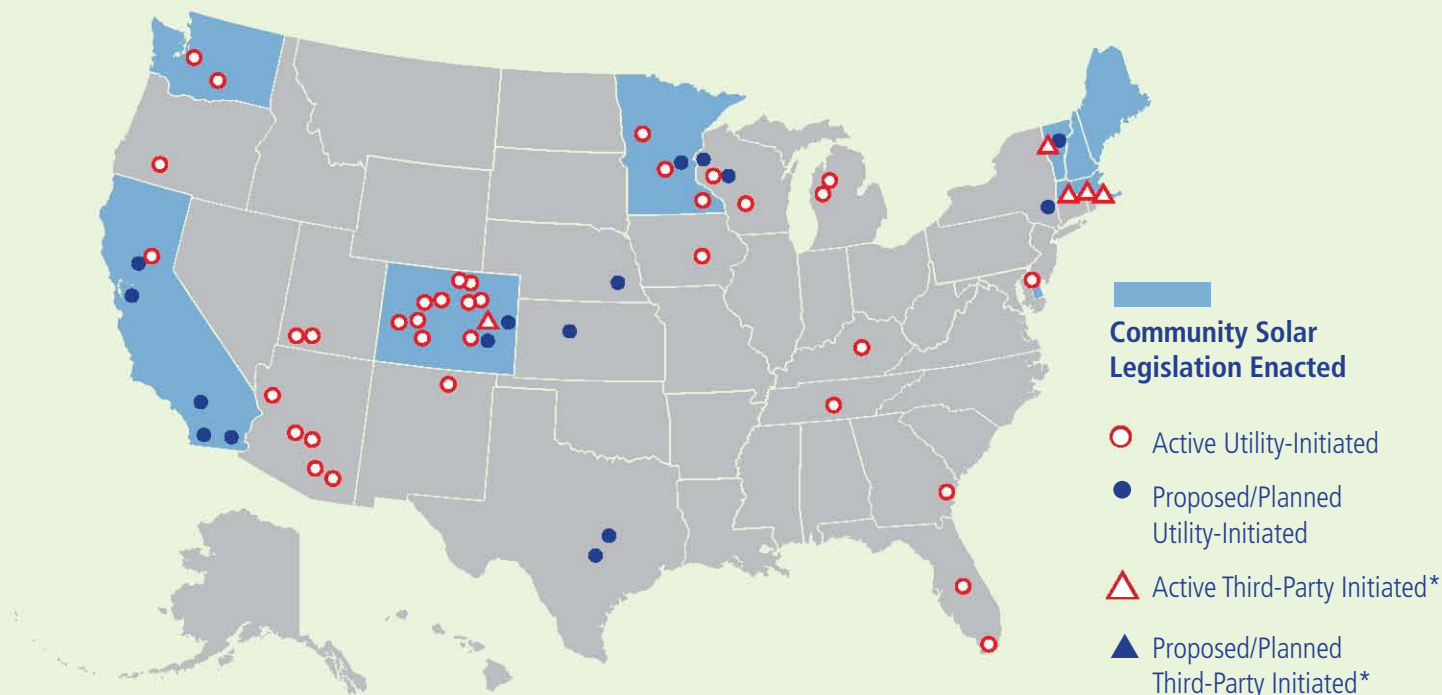


SEPA defines community solar as a program through which individual members of a community have the opportunity to “buy in” to a nearby solar installation. As part of the buy-in, customers typically receive a proportional share of the financial or energy output of the system. Community solar programs may be offered by electric utilities or through third-parties or community groups, in which case, some form of enabling legislation may be required. This report focuses on community solar programs initiated through utilities or through third-parties in partnership with a utility.

While often included within the definition of community solar, SEPA considers bulk purchasing or green pricing programs to be separate and distinct offerings with different pricing, participation and program design characteristics.

In some cases, utilities initiate community solar programs voluntarily, typically in response to customer demand for solar options. In other instances, utilities offer programs in response to regulatory mandates. Utilities also sometimes play a “pass-through” role in third-party or community-managed programs, taking responsibility for the virtual net metering of customers’ participation but otherwise not playing an active role in offering the community solar program.

Regardless of motivation, utilities can use community solar programs to proactively help customers overcome the obstacles to on-site solar adoption. Community solar may particularly appeal to customers who rent or lease property, have heavily shaded or north-facing roofs, or simply do not want to make the high up-front financial investment in a rooftop system. These programs allow utilities to offer a solar option to a broader portion of their customers, compared to other utility-led customer solar programs.



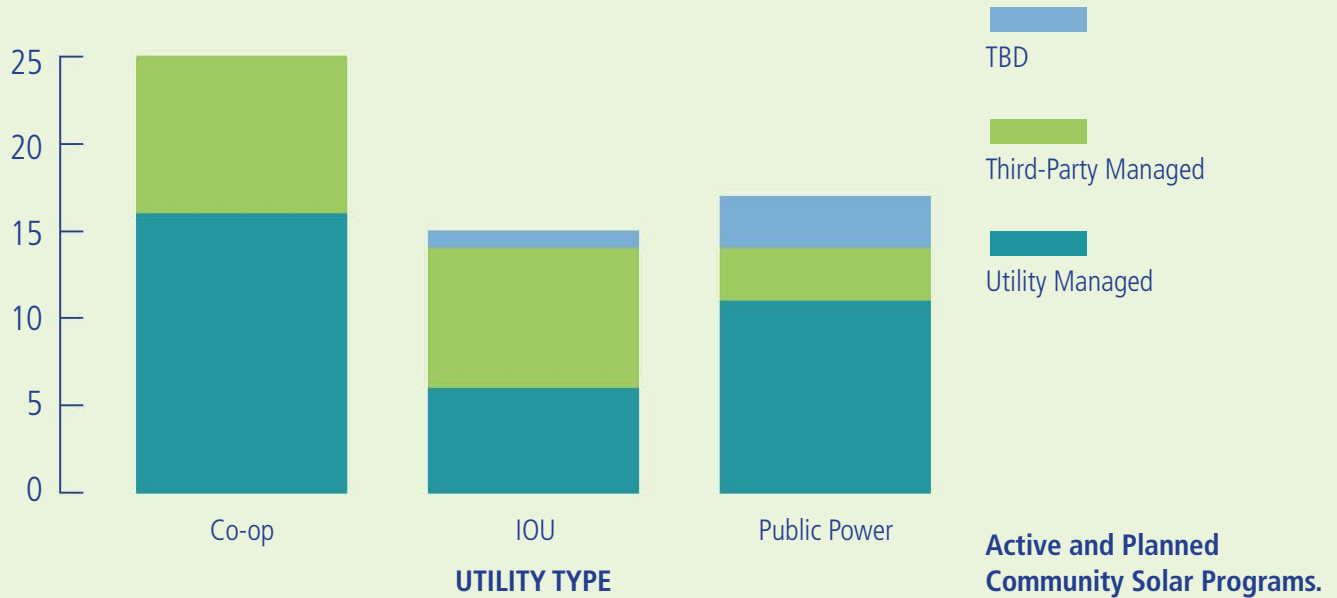
\* Third-party initiated programs indicate that the utility is an active partner, but the program was not proposed or initiated by the utility.

## Where are Utility-Led Community Solar Programs Located?

- As of August 2014, SEPA is tracking 57 utility-offered community solar programs, spanning 22 states.
- Of these programs, 41 are active, while 16 are in the planning or proposal stages.
- Utilities originated 52 of these programs -- although not always on a voluntary basis -- while third parties created five programs in response to community solar legislation.
- More than half of the programs, 31, are located in states that have community solar legislation.

<sup>2</sup> These five programs represent multiple projects initiated by multiple third-party community solar program administrators, typically in partnership with the utility.



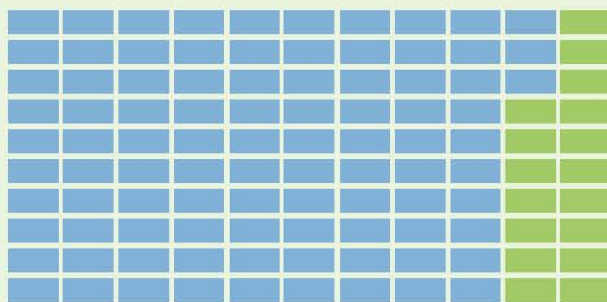


## How are Community Solar Programs Distributed Among Different Type of Utilities?

- Electric cooperatives (co-ops) have initiated 44 percent, or 25, of the country's utility-led community solar programs. The National Renewable Electric Cooperative's (NRECA) sCoop program and the National Rural Electric Cooperative Association's (NRECA) SUNDA program are driving this trend, with both organizations offering procurement assistance and standardization of project financing options and program designs.
- Public power utilities have 17 programs, or 30 percent of the total. Of those, 71 percent, or 11 programs, are currently active, and the rest are in the planning stages.
- Investor-owned utilities (IOUs) have announced 15 community solar programs, with eight now online and seven in the planning or proposal stages.



# Expanding Solar Access Through Utility-led Community Solar



Capacity Offering **74%**

Rate Offering **17%**

**A breakdown of active and planned community solar program structures.**

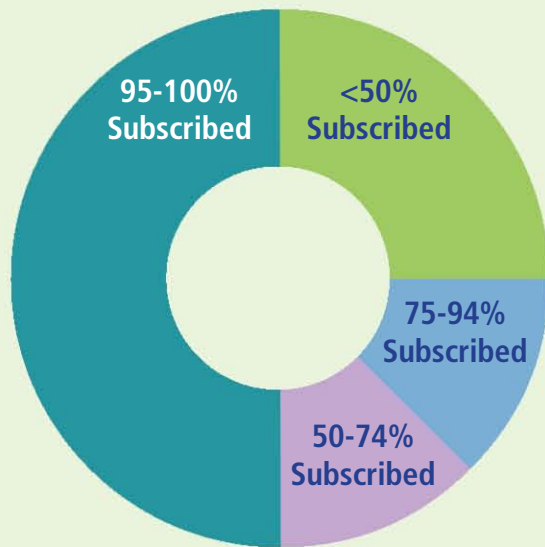
## What do customers purchase?

- Customers buying into a community solar project generally have two options.
  - They can purchase or lease blocks of capacity -- often in panel increments -- and in some cases, receive a virtual or simulated net metering rate.
  - They may also purchase blocks of energy output, measured in kilowatt-hours (kWh), at a predetermined, sometimes fixed, community solar rate, potentially offering them a rate hedge against both current rates and higher future rates.
- Customer options are not yet established for approximately 9 percent of the community solar programs SEPA is tracking, because the utilities involved are still in the early phases of program decision-making.
- In an effort to keep programs competitive with other solar options -- including third-party leasing -- 50 percent of the programs that sell or lease capacity also offer some form of customer financing to assist with up-front buy-in costs. These financing options typically take the form of low-interest loans, but some utilities also offer on-bill financing.
- The utilities providing financing options also report high program participation rates. SEPA found that 70 percent of survey participants offering a financing option for capacity-based programs have participation rates exceeding 75 percent of the available capacity.

*Who says you can't break the mold?*



Tennessee-based Duck River Electric Membership Corporation (DREMC) began offering a different style of community solar program in August 2012. Instead of offering a program based on participating through a capacity or rate offer, DREMC gave its customers the opportunity to invest in the project as part of a limited partnership. DREMC registered the project with the Tennessee Valley Authority's (TVA) Generation Partners Program, which provides a 20-year feed-in tariff for the project's output. Program participants receive a prorated share of all revenue from the project, including the retail value of energy production in addition to the feed-in-tariff payments from TVA.

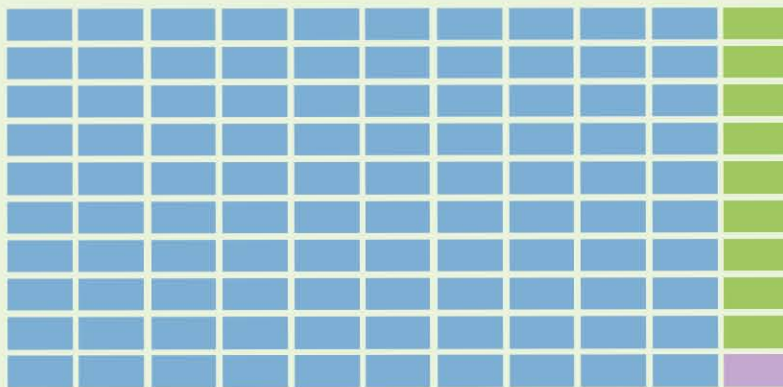


Community solar program performance based on program subscription rates at the time of SEPA survey.

## What kind of participation rates have utility-led community solar programs achieved?

- On average, community solar programs are subscribed at 70 percent of available capacity.
- Of those with less than 50 percent subscription rates, three utilities have indicated that participation is below expectations. In response, two are implementing program modifications, while one utility said that, even with the lower subscription rate, its program is meeting expectations, and no revisions are planned.
- Utilities with less than satisfactory program performance agreed that pricing is the most likely factor impeding program goals. They have a range of program revisions under consideration, including overall program structure and pricing changes, financing options and billing credits.
- Utilities with successful programs noted plans to expand offerings in order to keep pace with growing demand. Almost half of the surveyed utilities, 47 percent, are planning program expansions.





Average number of participants by customer segment

- Residential: 281
- Commercial: 24
- Industrial: 1

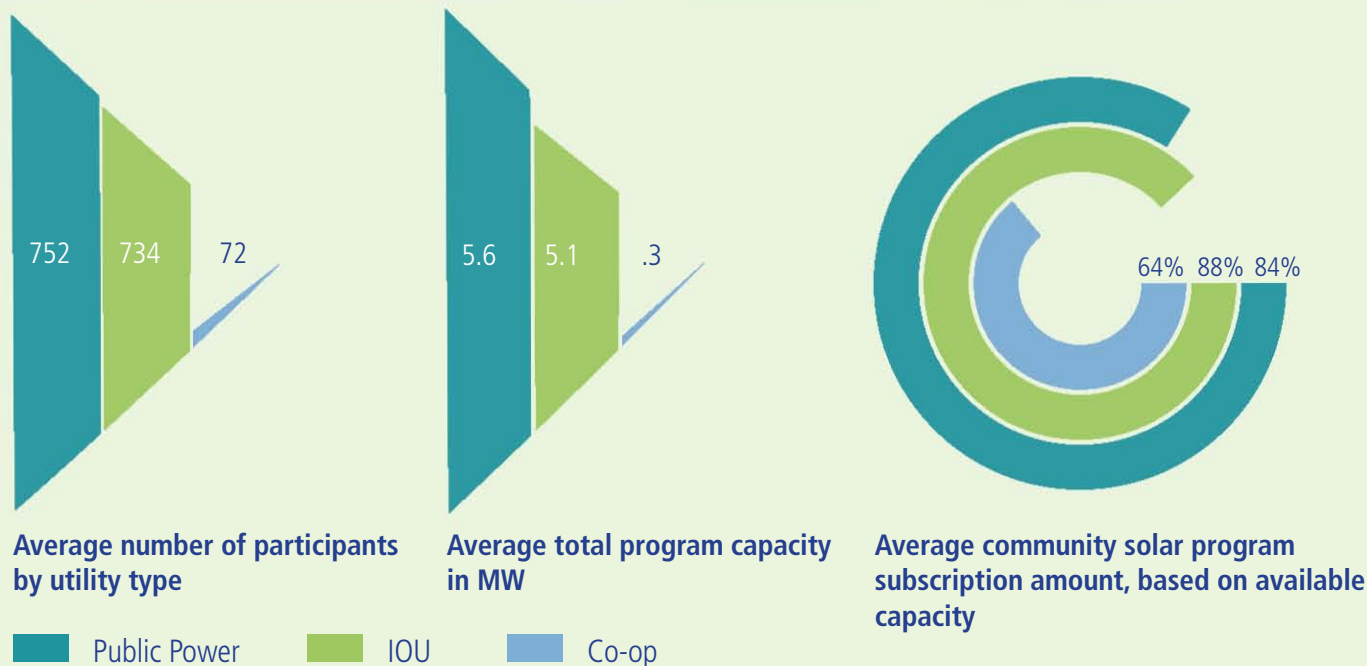
## What types of customers participate in community solar programs?

- While 82 percent of active utility-led community solar programs are available to all utility customers, some utilities limit participation to specific customer types or implement participation carve-outs for customer segments.
  - In spite of this, on average, residential customers account for approximately 90 percent of participants in utility-led community solar programs.
- Utilities may need to consider a change in marketing approach to capture a broader audience for community solar programs, if that is a specific program goal.

*The average community solar program has 213 participants purchasing power from a 1 megawatt system which is 71% subscribed.*



# Expanding Solar Access Through Utility-led Community Solar



## How do participation rates vary among different types of utilities?

- Community solar programs at co-ops tend to make use of smaller solar projects, and thus have a lower number of participants than IOUs and public power utilities. These lower program metrics coincide with the smaller number of customers that are often served by electric cooperatives.
- Interestingly, community solar programs at IOUs and public power utilities show close similarities in number of participants, project capacity, and subscription levels. However, SEPA expects this trend to change dramatically if the California IOUs receive commission approval to proceed with proposed community solar programs, which are collectively slated to include more than 500 MW of solar capacity.

### *Flexibility is a key to success*

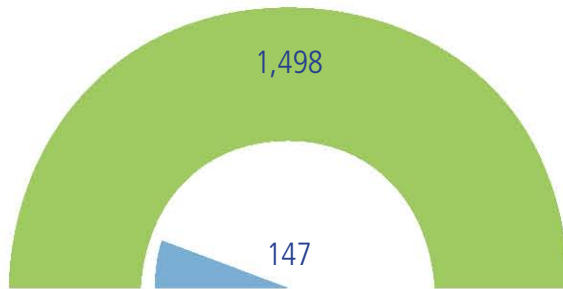


A Touchstone Energy® Cooperative

After observing lower customer participation than planned in its community solar program -- a capacity-based program -- Grand Valley Power decided to take action. First, the Colorado co-op lowered the up-front buy-in cost by \$50 per panel. When that approach didn't meet with the hoped-for success, the utility offered a financial installment option with no down payment or credit check. Under the new payment plan, participants agree to a fixed payment of \$15 a month for five years. After the payment period, participants will no longer have the fixed payment on their bills, but will continue to receive bill credits for the power produced from their panels for an additional 18 years. This strategy doubled program subscriptions within six months. Grand Valley Power is now developing a short-term lease option of six months or less. Based on the program's ongoing performance, the utility will continue to adjust its customer offering options.

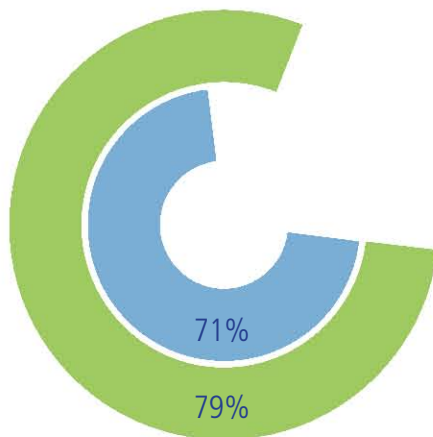
## Expanding Solar Access Through Utility-led Community Solar

### How do community solar program participation rates vary based on the type of customer offering?



Average number of participants per customer offer type

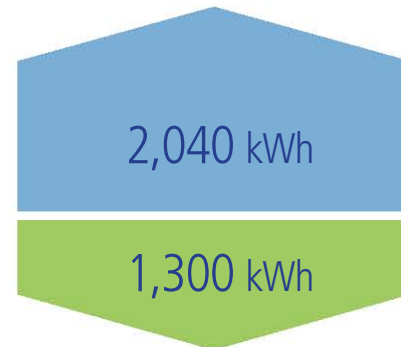
Rate offer Capacity offer



Average subscription amounts: Capacity vs. Rate

Rate offer Capacity offer

### How much energy does the typical community solar participant purchase?



Average residential participant subscription amounts: Capacity vs. Rate

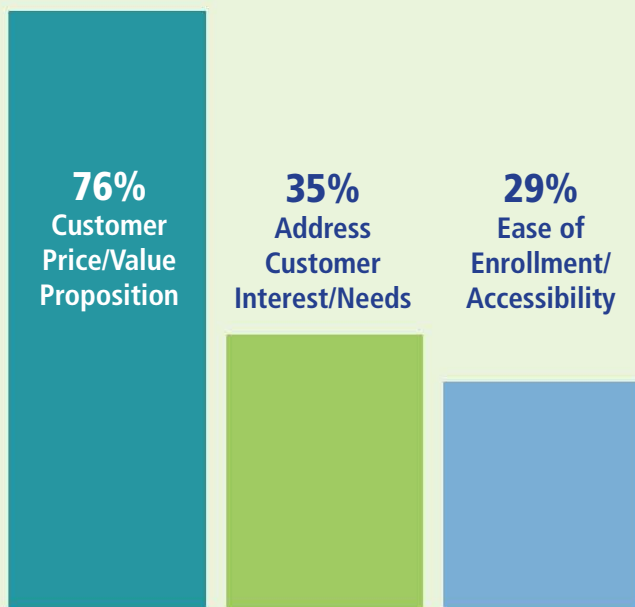
Capacity offer Rate offer

Note: Capacity was converted to energy by assuming a conservative 1,200 kWh of annual production per kW of capacity.

- Rate programs tend to draw a larger number of subscribers, possibly because they often allow customers to invest in smaller portions of a project.
- However, programs with capacity offerings tend to see participants purchasing larger shares of the project. An underlying driver here may be that 67 percent of survey respondents offer financing options to assist with up-front program costs, making it possible for customers to take on larger program commitments.



# Expanding Solar Access Through Utility-led Community Solar



A summary of the most critical community solar design considerations, as noted by program managers when asked for their top 3 selections.

## What do utility program managers regard as the top three considerations for creating a successful community solar program?

- Utility program managers were asked to describe their top three community solar program design considerations, and responses were grouped into three themes:
  - Price setting and value proposition to customer - 76 percent
  - Adequacy in addressing customer interests and needs - 35 percent
  - Ease of enrollment and accessibility of program - 29 percent
- Clearly, the utilities in the SEPA survey see customer concerns as driving community solar success, with price and value proposition the most critical factor.
- Other less commonly noted considerations included clear customer outreach strategies, balanced utility program costs, management or regulator buy-in, and transparency, both in program goals and performance measurements.

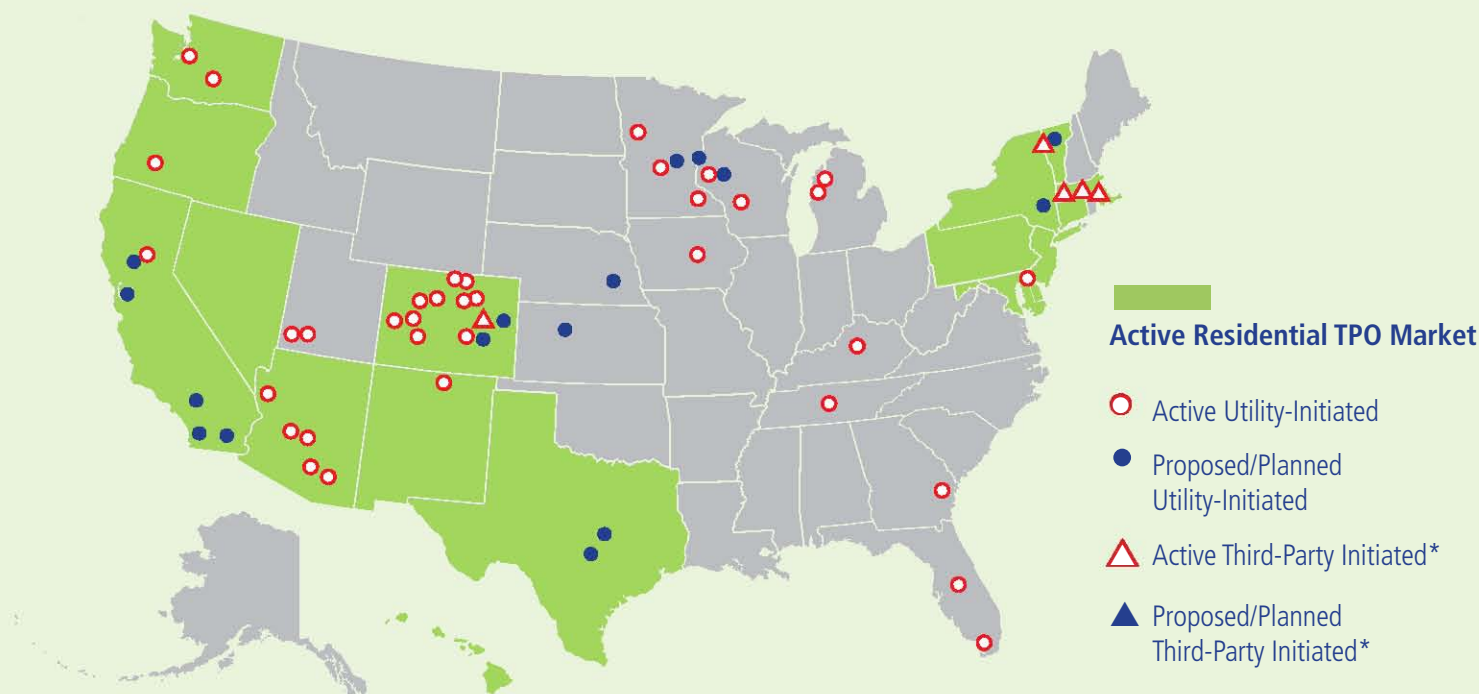
### *Understanding your customers' financial constraints can pay off!*



Holy Cross Energy, a Colorado-based rural electric cooperative first launched its community solar program in 2010. The co-op

elected to partner with third-party program administrator, Clean Energy Collective (CEC), in offering its program. The program has two active phases, totaling nearly 1 MW of capacity, and utilizes a capacity-based offer. In an effort to offset the up-front investment associated with participation, CEC has built relationships with financial institutions that offer its customers low-interest financing options with a variety of loan terms, with payback periods ranging from three to 20 years. As a result, both phases of Holy Cross Energy's program are fully subscribed, and the partners are planning a third phase to meet continued customer demand.





\* Third-party initiated programs indicate that the utility is an active partner, but the program was not proposed or initiated by the utility.

A depiction of active and planned community solar programs in relation to active third-party ownership markets.

## How does the third-party ownership market affect the success of community solar programs?

- About two-thirds of the community solar programs tracked by SEPA are offered in states that have active residential third-party leasing options. Consequently, market competition should be a key program design consideration to ensure expected performance outcomes.
- In several cases, survey respondents noted that competing third-party ownership offerings were adversely impacting the performance of community solar programs.
- Utility community solar program managers noted that for utility programs where participation is offered on a capacity basis, including financing options allows the community solar programs to more effectively compete with "no money down" third-party ownership options.



## CONCLUSION: Weighing options for community solar programs

A utility has many considerations to weigh before committing to offer a community solar program.

- If a green pricing or similar program is already being offered, a utility may need to consider whether to replace the legacy program with community solar or whether the programs will complement or compete with each other. Community solar programs have a high potential to adversely impact participation in green pricing programs and vice versa.
- If third-party ownership companies are active in a utility's service territory, then a community solar program that requires a significant up-front investment may prove to be a weak option when customers compare it against no-money-down solar leasing options. An alternative might be to offer financing options to make the up-front investment more palatable.
- If community solar programs are currently being offered through third-parties or community groups, a utility will have to consider how to market its program as a more attractive option. A utility's history, and reputation for providing reliable power, far exceeds that of the companies offering competing programs, which might be an important benefit for customers considering a 5-20 year program investment.

For a more detailed list of program design considerations, please read [\*\*SEPA's Utility Community Solar Handbook\*\*](#).



## ADVISORY SERVICES

SEPA also provides one-on-one advisory services for utilities looking at community solar or other solar program offerings. Our team can assist in assessing program demand, surveying customers to prioritize needs/interests, or designing your utility's program.

### Please feel free to contact us!

For more information, contact John Sterling at 202-559-2022 or by email at [jsterling@solarelectricpower.org](mailto:jsterling@solarelectricpower.org).



**\$895**

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# Community Solar Update

Solar Committee Meeting  
October 21, 2015





# Overview of Community Solar Initiatives

## **Phase 1: Kingsbery Community Solar Project (~3 MW)**

- Utility-owned land at Kingsbery Substation
- Completion: Fall of 2016.
- Capacity based subscription

## **Phase 2a: Palmer Auditorium Solar Project (185 kW)**

- Customer Owned
- Roof lease with Palmer

## **Phase 2b: Customer-hosted PPA projects**

- RFP for Solar Developers to develop customer-hosted PPA projects
- 25 year PPA
- Solar developer negotiates use of host site.

# Phase 1: Kingsbery Solar Project

## Project Design:

- Participants subscribe in 1 kW increments of solar capacity
- Pay a flat fee per kW each month on their electric bill
- Receive VoCS credit for kWh generated by their subscribed kW each month on their electric bill

## Action Items:

- EMO support to calculate VoCS
- Solar team develop subscription rate, program fine print
  - Should we increase initial deposit in order to reduce monthly subscription fee, enable customers to see net positive on monthly bill?
  - Is there an end date on the program? Can customers transfer subscription?
- Solar to work with billing on integration into CC&B
- Decide on using third party to help with program management

# Clean Energy Collective (CEC)

## *Community Solar Platform: Provide utilities with service and software tools to support community solar initiatives*

### **Services:**

- Project Management/O&M/Land Acquisition/Project Design
- Community Solar Financial Services
- Customer acquisition

### **Software Tools:**

- RemoteMeter Foundation: Production crediting, on-bill crediting, customer portal *MyOwnCleanEnergy* – *Can integrate with CC&B, credit actual solar production (not modeled; no annual true up)*
- RemoteMeter Engagement – online customer engagement including marketing, enrollment – *Can manage opt in/outs, ensure capacity available, provide right-sizing calculator for choosing enrolment level)*





# Phase 2a: Palmer Auditorium Solar Project

## Background

- [REDACTED]
- Couldn't connect behind Palmer meter due to Downtown Network constraint; connected via line tap on distribution feeder on Barton Springs instead (May '15)
- Finalizing "infrastructure rental" agreement to pay Palmer for use of roof

## Community Solar potential

- Customers pay upfront for purchase of Palmer solar panels
- Customers can receive federal solar tax credit (30%) on their panels
- 50 participants at ~5 kW-dc per subscription
- Assume Roof Rental Rate [REDACTED]
- All in cost: [REDACTED] (includes installed cost, interconnection costs, inverter replacement, roof rental; doesn't include program admin)
- Participants' simple payback: [REDACTED]

- Should we pursue as community solar project?
- Should we attempt to recover all costs, or simply improve on current situation?
- Should customers be able to transfer/sell ownership?
- Is it too confusing to have different offerings, or are we meeting customers' desires for choice?



# Phase 2b- RFP for Solar Developers to Develop Customer-Hosted PPA Projects

## Process:

- RFP for solar developers to develop customer-hosted PPA projects
- PPA: 25 year contract [w/option for AE buy-out?]
- Projects between 200 kW and <1 MW
  - Do we want to consider larger projects? Reduces local value...
- Solar developer must negotiate the use of project site, contract with host (AE not a party to agreement)
- AE may facilitate relationships between developers and interested hosts (e.g., “solar speed dating” event)



# Phase 2b- RFP for Solar Developers to develop customer-hosted PPA projects

## Benefits:

- PPA-based projects take advantage of federal tax credit & MACRS
- Market-driven solution = minimal work for Austin Energy
- Developer takes all development risk
- Achieves lowest prices
- Flexible procurement – can decide if and how many PPAs to pursue
- Agility and ability to execute in a timely manner.
- Standard, turn-key documents will make multiple projects possible to execute quickly.
- Customer-sited projects better integrated into the “community”
- Several large customers have voiced interest in hosting; positive customer relationship opportunity



# Phase 2b- RFP for Solar Developers to develop customer-hosted PPA projects

## RFP/Executed PPA Timeline (DRAFT):

<u>Oct 21-Nov 14:</u>	RFP & standard PPA development
<u>Nov 15, 2015:</u>	Issue RFP
<u>Nov 22, 2015:</u>	Pre-proposal Meeting & Solar Speed
<u>Dating</u>	
<u>Dec 15, 2015:</u>	Proposals Due
<u>Dec 16-31, 2015:</u>	Evaluation of proposals
<u>Jan 4-8, 2016:</u>	Clarifications / mtgs w/vendors
<u>January 15, 2015:</u>	Winners selected, PPAs ready to sign
<u>January 18-19, 2016:</u>	RCA at EUC and RMC
<u>March XX, 2015:</u>	RCA at Council, Approved
<u>March 31, 2016:</u>	PPAs signed
<u>Summer 2016:</u>	Project Development & Customer





# Phase 2b- RFP for Solar Developers to develop customer-hosted PPA projects

## RFP Evaluation Criteria (for discussion):

- PPA Price - 25 year, no escalator [REDACTED]
- Public Visibility [REDACTED]
  - *How exactly to define? Literal visibility of panels, or highly “visible” host?*
- Community Partnership Value – Key Account, Non-Profit Host (e.g., schools), Affordable Housing, MF properties, “green” master planned community, commercial REITs [REDACTED]
  - *Thoughts on how/if to assign partnership value (e.g., school better than Key Account?)*
- Financial strength of respondent [REDACTED]
- Local installer [REDACTED]
  - *Small bonus for local installer, or developer/other partner?*
- Project subject to interconnection review [go/no go criteria]

## Action Items:

- Develop PPA Template
  - *Does EMO have a PPA that would be a good starting point to use as template?*
- Development of RFP
  - Plan to issue through EMO, not purchasing
  - Will include Standard PPA language w/RFP
- Identify interested host sites
- Schedule/facilitate solar developer/site host introductions (e.g. “speed dating” event)

# Consumers Energy Solar Park Program

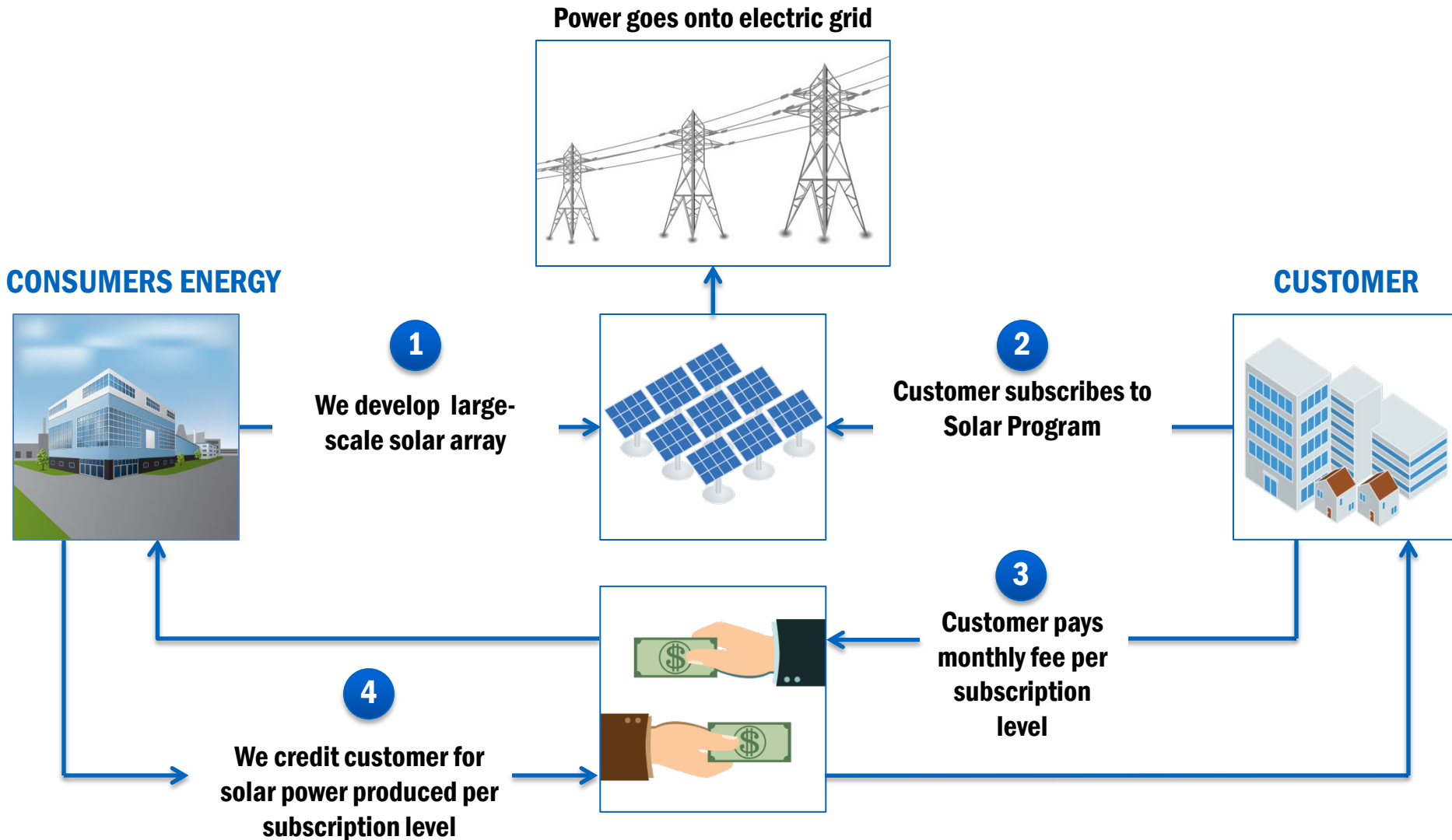
*January 2015*



**Consumers Energy**  
*Count on Us*



# What is a Solar Park?



# Benefits of a Solar Park Program

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- Cost-effective solar energy for interested customers
- Roofs not required
- Leave being an energy expert to Consumers Energy
- Flexibility to meet your needs

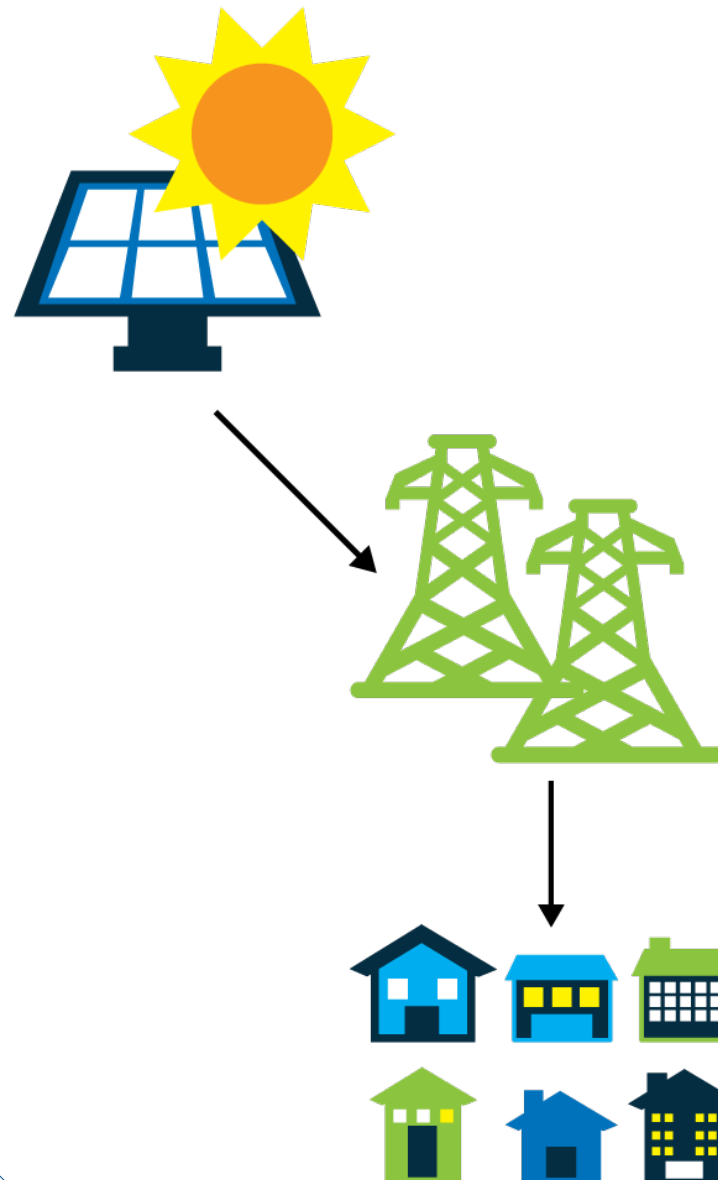


Customer receives all the benefits of solar energy without the need to become an expert.

102

# How it will work

1. Consumers Energy will select sites for the Solar Park
2. Interested customers enroll prior to construction, ensuring fully-committed Solar Park
3. Flexible payment plans offered to subscribers at time of enrollment
4. Once fully subscribed, Solar Park built within one year
5. Once Solar Park is operational, subscription charges and Solar Energy credits applied to monthly bill



# Timeline

5

- **Solar Park Program Proposal Timeline**

- Jan. 23 – MPSC filing
- April – Projected MPSC approval
- Mid-2015 – Online application available to customers
- 2016 – Solar Parks operational
  
- Solar Park Website coming soon





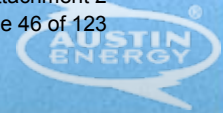


# Value of Solar Update



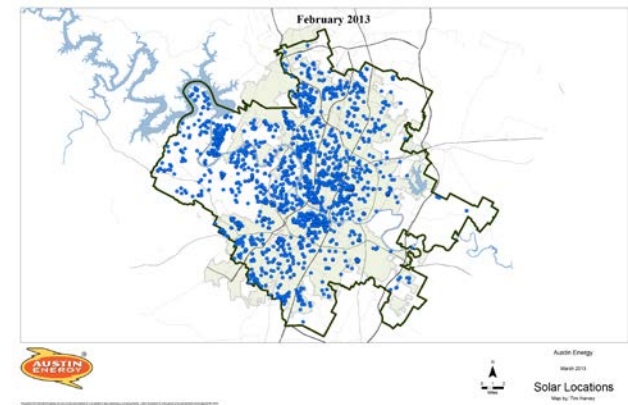
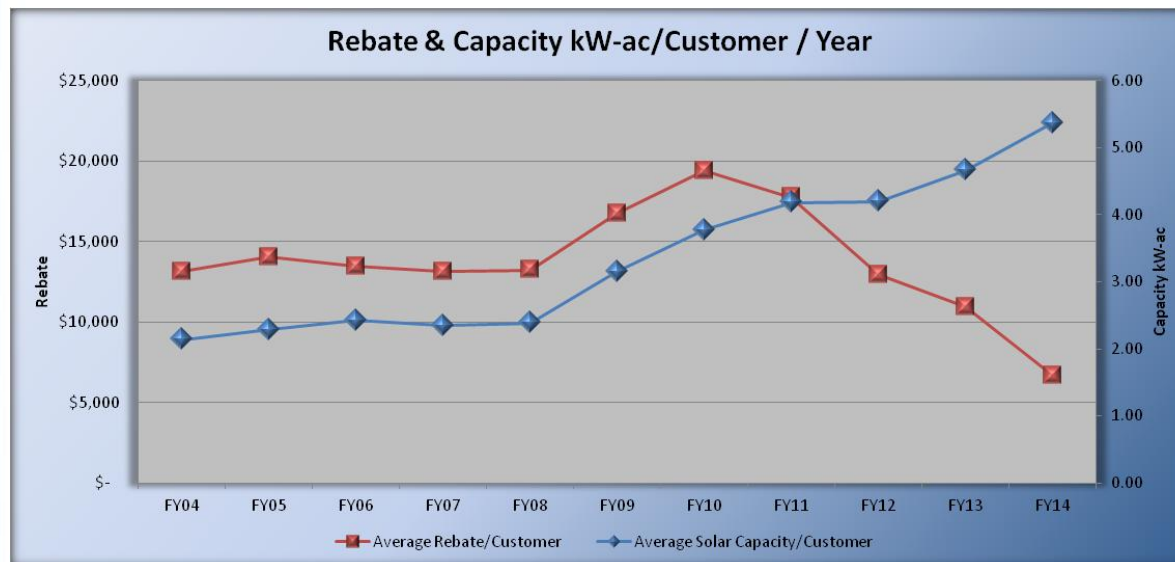
Emerging Technology and Telecommunications (ETT) Committee January 15, 2014  
Debbie Kimberly, Vice President, Customer Energy Solutions





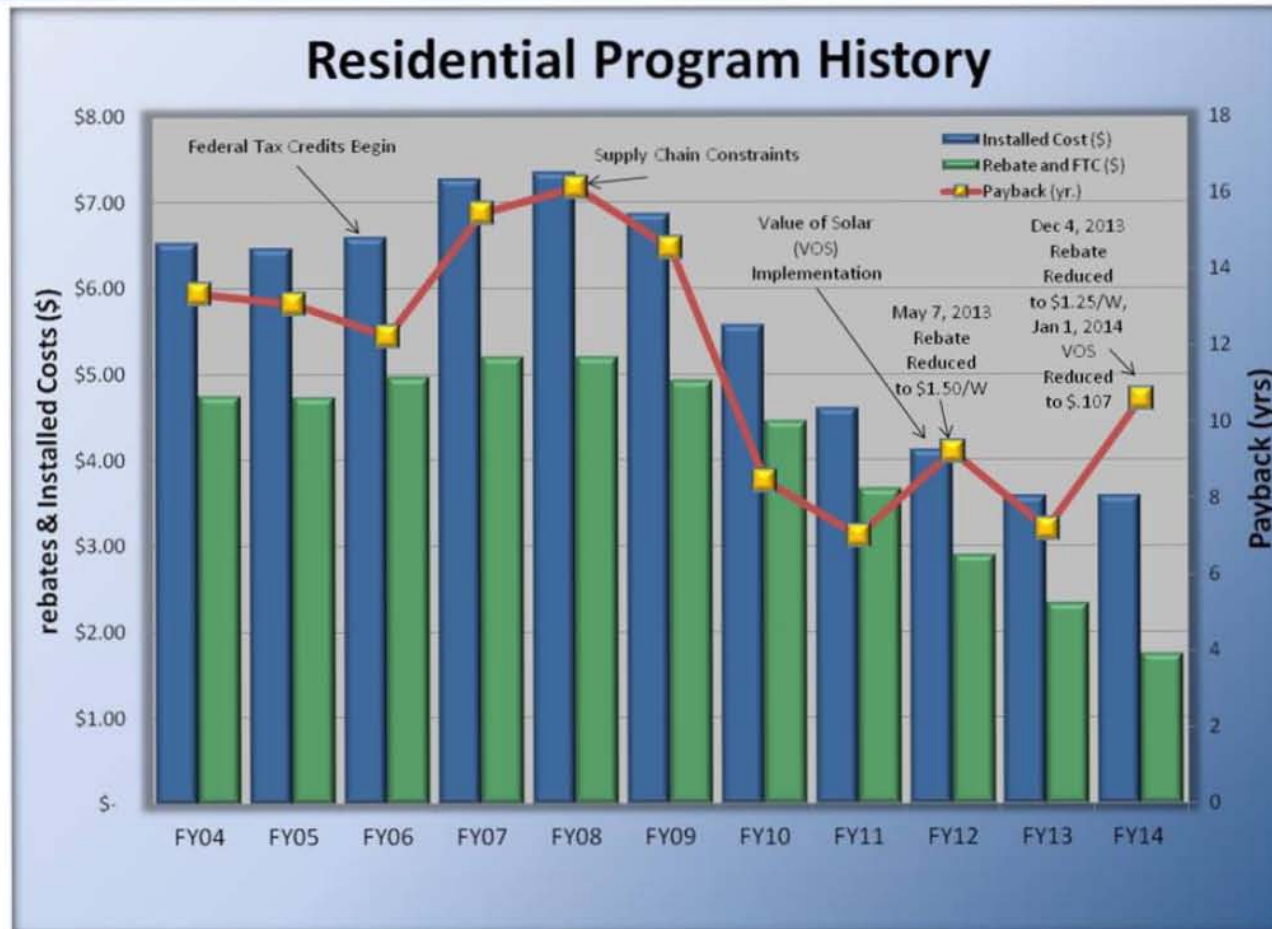
# AE Solar Customers

- The average “whole house” consumption for an Austin Energy solar customer is 16,900 kWh per year (average AE customer is 12,000 kWh annually)
- The average AE solar array is approx. 4 kW-ac
- Average annual PV system production is 6,182 kWh
- Average upfront incentive is \$13,600 (see graph) but trending downward while system size is trending up



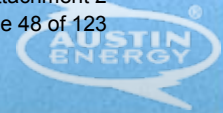


# Installed Costs, Rebates and Payback



- Payback with \$1.25/watt rebate and VoS @ 10.7¢ is ~10 years
- Average payback over program history is ~12 years





# VoS Overview – Rate and Sweep

- AE developed the Residential Solar rider as alternative to net metering
- VoS reflects current market conditions and is reset annually

#1

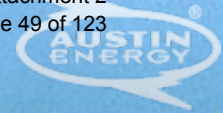
*'The Value of Solar Factor shall initially be \$0.128 per kWh and shall be administratively adjusted annually, beginning with each year's January billing month, based upon the marginal cost of displaced energy, avoided capital costs, line loss savings and environmental benefits.'*

- **Staff believes formula valid, will review enhancements**

#2

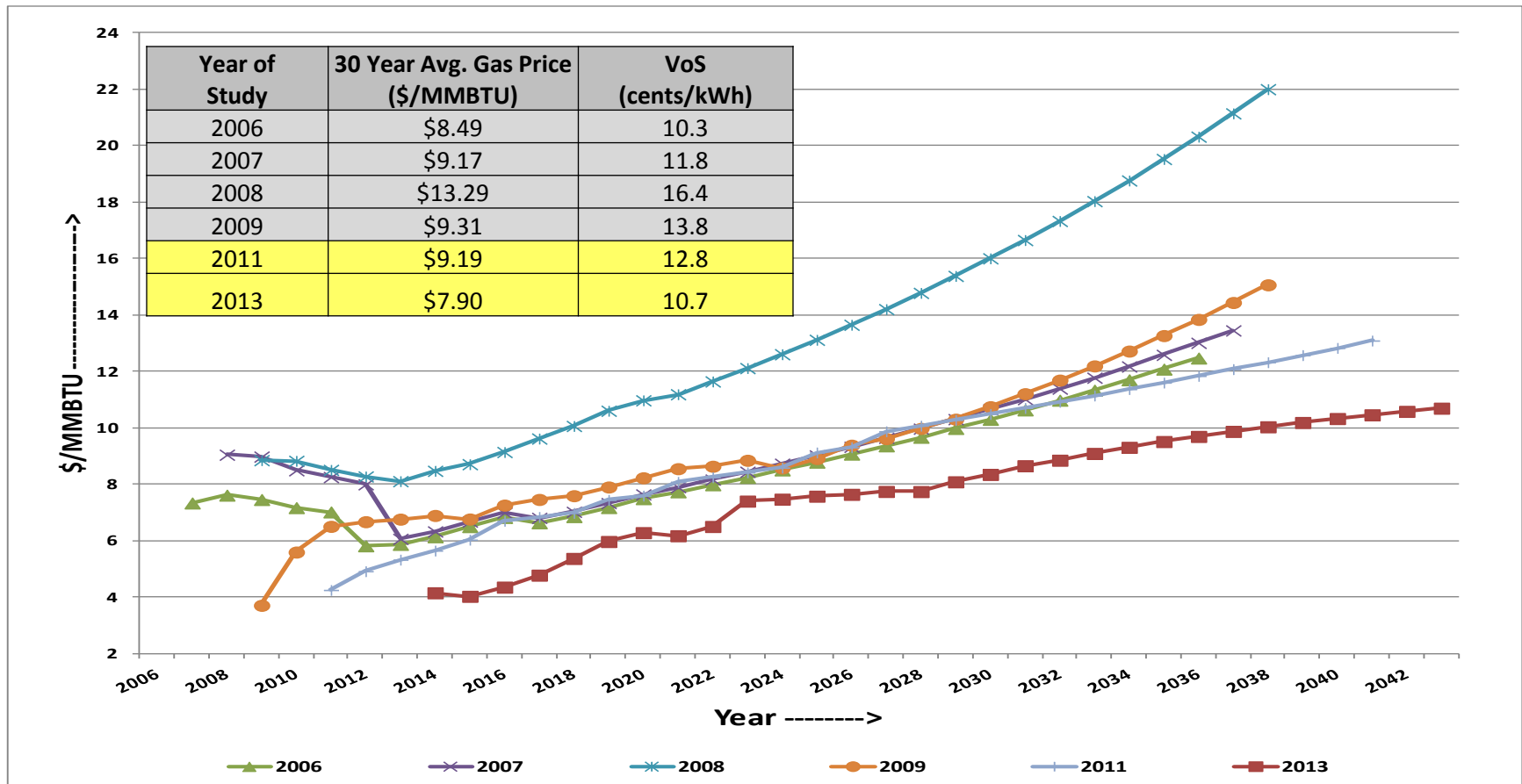
*... the customer's carry-over credit, if any, shall be reset to zero in the first billing month of each calendar year.'*

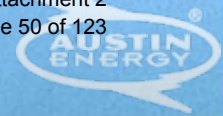
- **Staff believes this should be changed**



# Issue #1: Solar Value

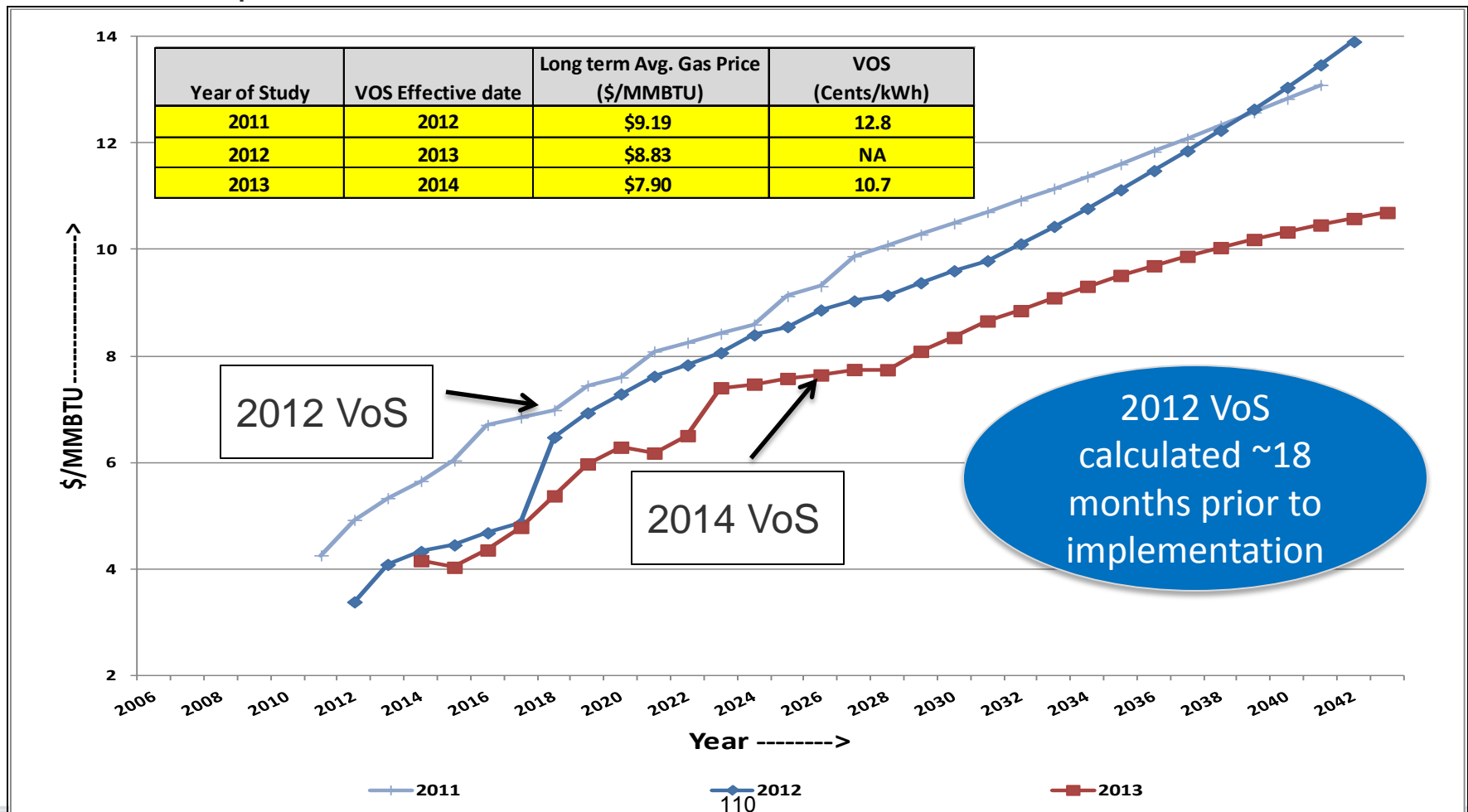
- The VoS and the future price of natural gas trend with one another
- Other components also influence the result

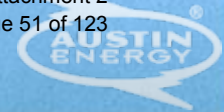




# Future Natural Gas Prices and the VoS

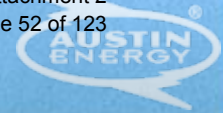
- The VoS and the future price of natural gas generally trend with one another
- Other components also influence the result





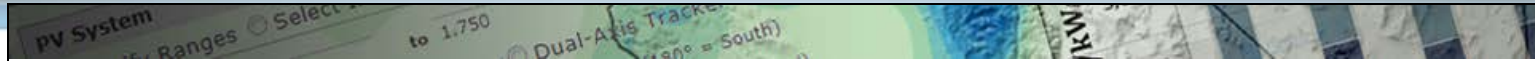
# 2013 VoS Review

7/23	Contract with CPR/Dr. Tom Hoff – performed original study
9/26	Hoff presentation to AE staff on preliminary results
10/1	VoS update included in CC&B rate work to be completed by Jan. 1
10/16	AE Meeting with LSAC – Discussed VoS results being finalized, would be presented to Joint EUC/RMC meeting
10/17	Solar contractor meeting - AE informed contractors VoS would be lower, and would be presented at the joint EUC/RMC meeting
10/21	Hoff presentation of results to AE Executive Team
10/21	Hoff presentation on VoS to joint EUC/RMC meeting
10/22	G.M. memo to Council and Commissions announcing VoS change
11/21	New VoS announced to contractors at monthly meeting
12/6	Press Release & January PowerPlus article
12/6	Letters to Customers
12/13	Executive summary from Hoff completed and distributed to Council and Commissions
12/16	Presentation to EUC
12/18	COA Legal memo to Council re: conformance to legal requirements



# Value of Solar Update

*Excerpted from CPR Summary as of October 16, 2013*

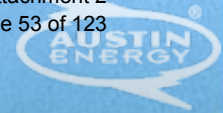


## Objective

- Calculate long-term value of solar to Austin Energy
- This information will be used by Austin Energy as input for the basis of a rate offered to customers
- Rebates are not included in the analysis
- Societal benefits are not included in the analysis

Prepared by Clean Power Research for Austin Energy

2



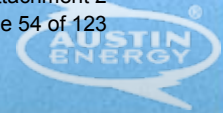
# Value of Solar Update

*Excerpted from CPR Summary as of October 16, 2013*

## Value of Solar Components

Value Component	Basis
Guaranteed Fuel Value	Cost of fuel to meet electric loads and T&D losses inferred from nodal price data & guaranteed future NG prices
Plant O&M Value	Costs associated with operations and maintenance
Generation Capacity Value	Capital cost of generation to meet peak load inferred from nodal price data
Avoided T&D Capacity Cost	Cost of money savings resulting from deferring T&D capacity additions.
Avoided Environmental Compliance Cost	Cost to comply with environmental regulations and policy objectives.

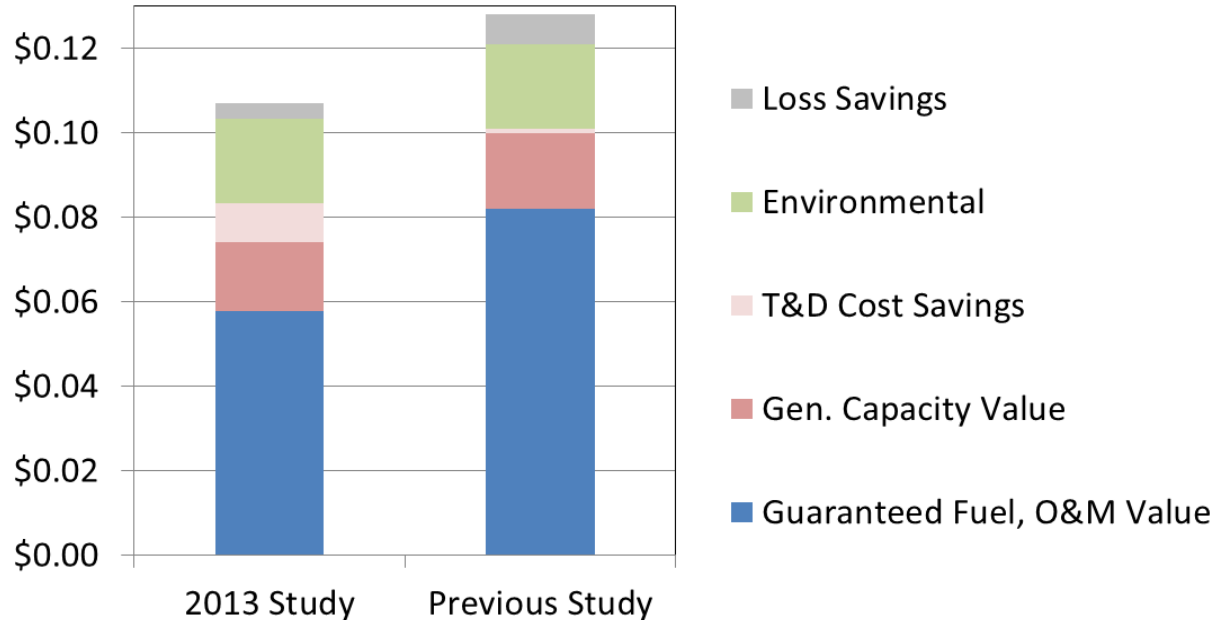




# Value of Solar Update

*Excerpted from CPR Summary as of October 16, 2013*

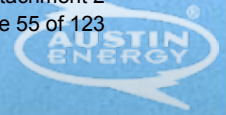
## How Do Results Compare to Previous Study?



Prepared by Clean Power Research for Austin Energy

4





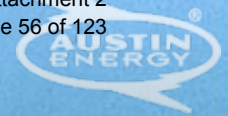
# Value of Solar Update

*Excerpted from CPR Summary as of October 16, 2013*

## Why Have Results Changed?

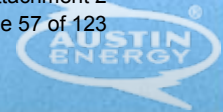
- Natural gas prices have declined
- Assumed system life aligned to warranty period (25 vs. 30 years)
- Loss savings are slightly lower
- Transmission savings results have increased
- Methodology has been refined for ERCOT market

# VoS Methodology – Avoided Cost Model



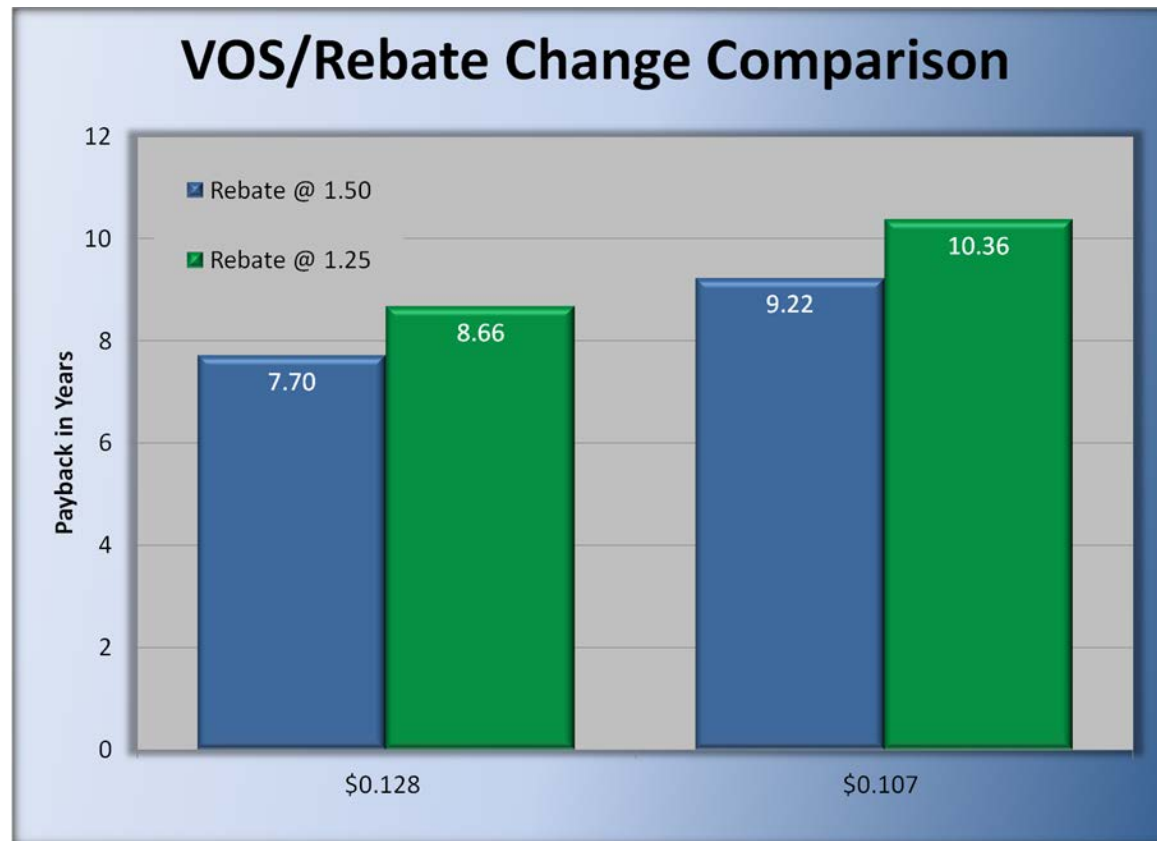
- Methodology has remained consistent
  - PV fleet data from AE's actual fleet rather than modeled representation
  - Refinements to reflect current nodal market structure
  - “Energy Value” renamed “Guaranteed Fuel Value” because this clarified fact that it includes protection from fuel price uncertainty
  - Increased transmission savings
  - Reduced discount rate to account for changed in interest rates
  - Assumed system life changed from 30 to 25 years
    - 20 - 25 yr panel warranty, 10 yr inverter warranty – industry standard
  - Retained 2006 value for environmental (did not use REC values)

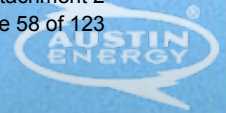
*“Several methodological advancements were made” - Dr. Tom Hoff*



# Impact on Payback

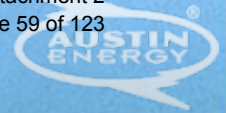
- Payback a function of VoS, Rebates, FTC
- Payback for new AE solar customers impacted similarly by change in rebate and VoS
- Change in VoS results in average customer receiving \$130 less per year





# VoS Benefits vs. Net Metering

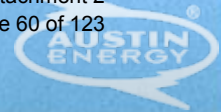
- Austin Energy charges for full cost of service
  - Solar residential customer subject to same billing structure for consumption and applicable charges and adders as other residential customers
  - Solar customer can easily assess their total energy consumption
  - Five tier rate encourages energy efficiency
- Customer compensation tied to objective “Value of Solar” formula
  - Solar customer is compensated for energy production based on algorithm that is adjusted yearly as market values change
  - Solar energy production value does not decrease if customer saves energy
  - Low and high energy users compensated for solar energy production the same



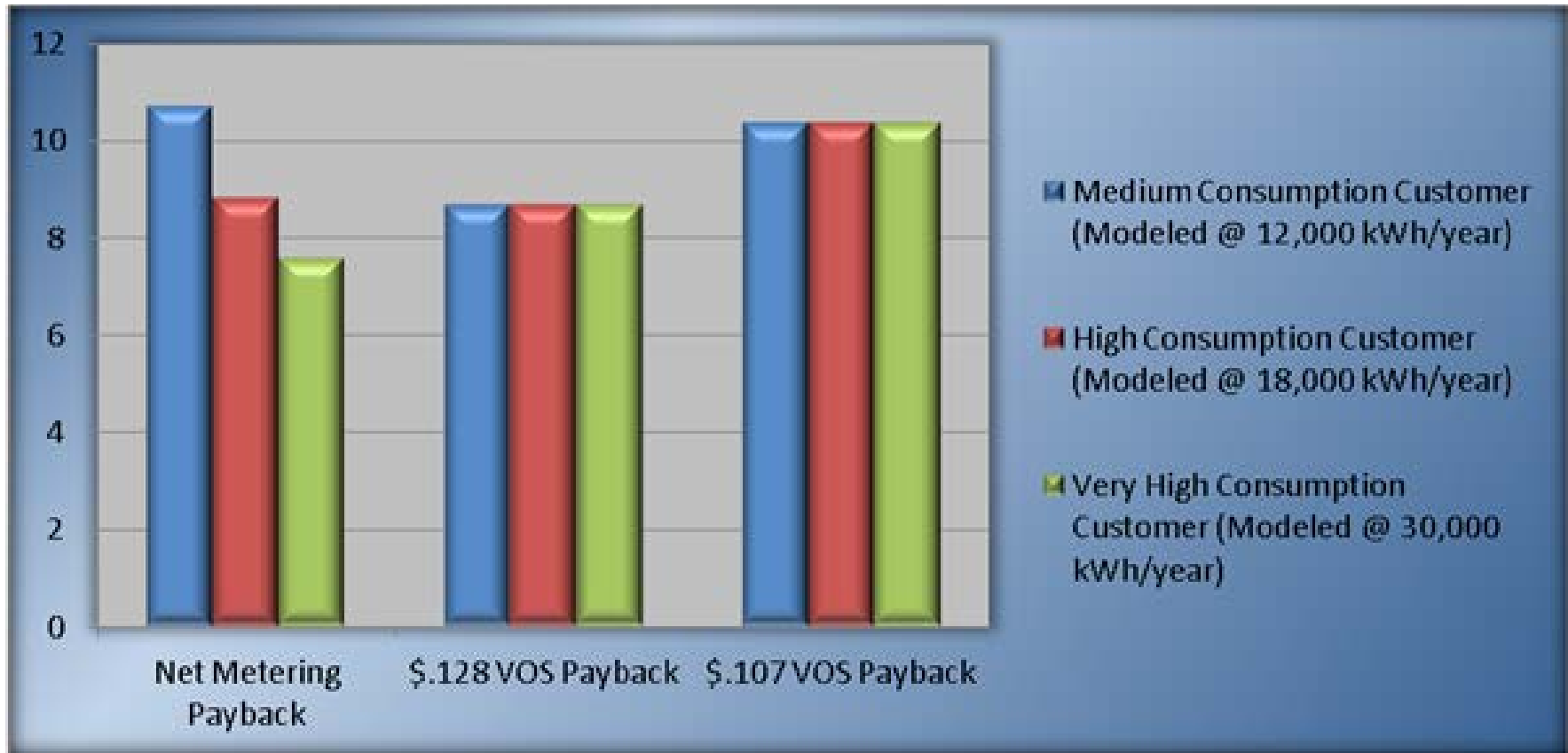
# Net Metering In a Tiered Rate Structure

## Under net metering:

- Customers with higher consumption are compensated at a higher value per kWh than customers in lower tiers
- Customers with lower levels of consumption are compensated at a level below the value of the energy to the system
- Customers with higher levels of consumption are compensated at a level above the value of the energy to the system
- The utility under-recovers the cost of service, having to spread that cost across all customer
- Under a tiered rate structure, the signal sent to customers is that production offsetting higher tiers of consumption is more valuable to the utility



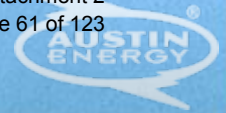
# Customer Payback- VoS and Net Metering



Payback is shorter for high consumption customers under net energy metering than VoS at 10.7¢, payback is longer for “average” customers

\*Projected net metering payback for customers inside City of Austin under current retail rate



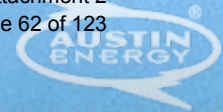


## Issue #2: Credit Carryover Potential Tax Implications of VoS

Payments from utility to a customer for electric output could be construed as taxable income under the federal tax code

- IRS : a “non-refundable credit” is a credit that can reduce or eliminate liability but cannot result in a net gain to the taxpayer
- AE’s VoS designed so benefit to customer is a nonrefundable credit.
  - Limit VOS “payment” to the customer to a credit against the customer’s bill, and
  - Ensure credit never exceeds 100% of the customer’s billed consumption
- Any utility program that appears to generate net financial gain to the customer increases possibility that the customer could lose benefit of the 30% federal tax credit or be construed as taxable gross income



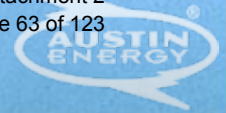


# Impact of VoS Credit Sweep

Approx. 15% of solar customers had excess credits

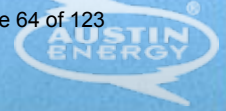
- Total # of solar customers- 2,587
- Customers with balance swept- 391
- Total swept ~ \$67,000, deposit to CAP
- Average amount swept \$170



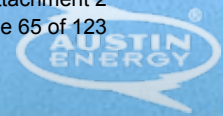


# FY14 Solar Program Review

- FY13 excess credits applied to Customer Assistance Program
- Amend rider to allow for non-refundable rollover
- Develop multi-year analysis of requirements to achieve goal(s)
- Provide information to customers to assist in proper system sizing
- Consider removing/revising VoS & program caps to ensure incentive program aligns with Residential Solar Rider
- Provide Customer more surety on return on investment – e.g. possible floor on VoS, fixed term of 5-10 years
- VoS to be included in budget review process
- Augment with other solar program enhancements
  - Community solar- RFP this January
  - Solar leasing?
  - Solar tariff?

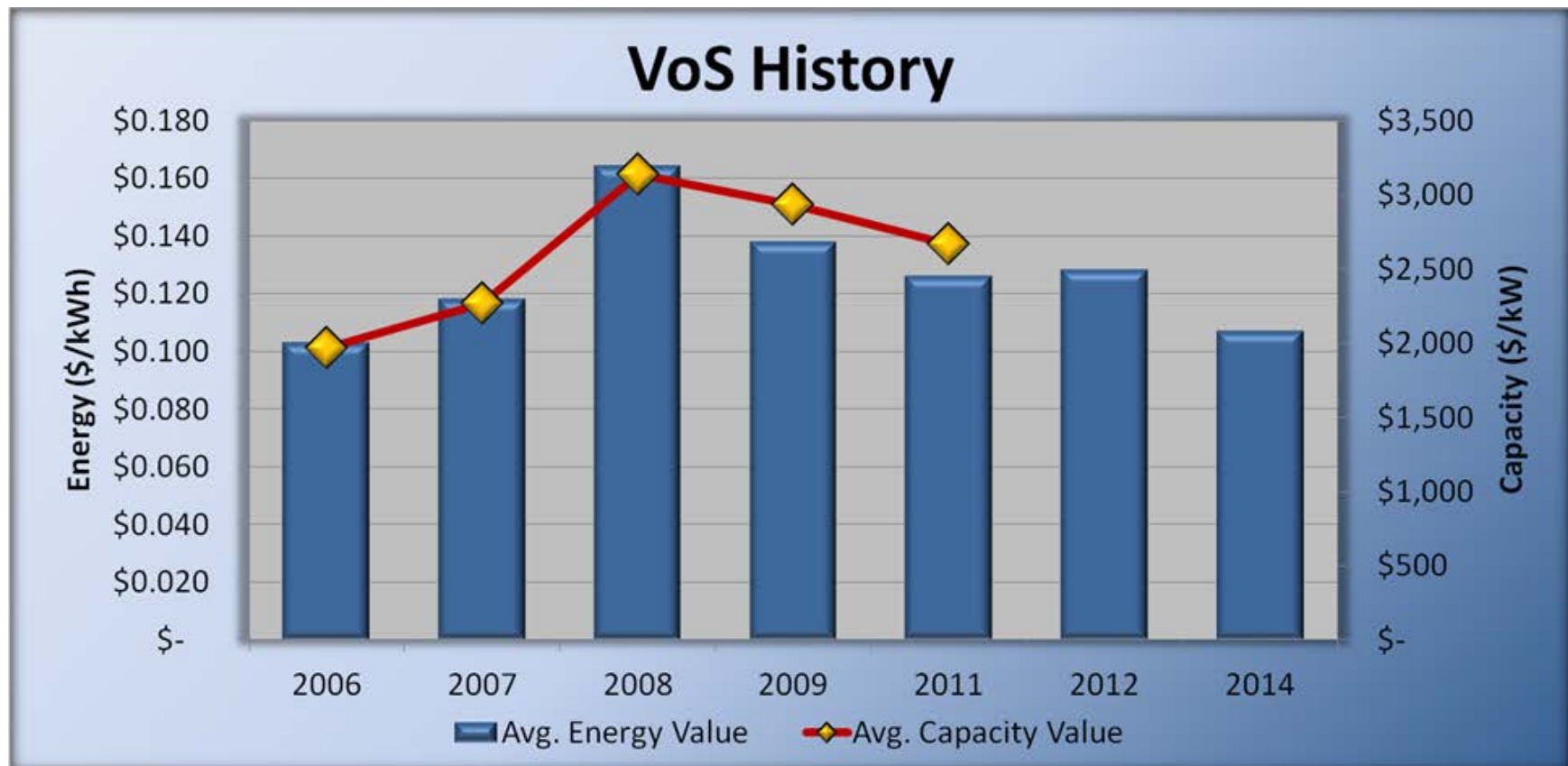


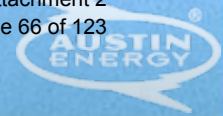
# Questions?



# Issue 1: Solar Value

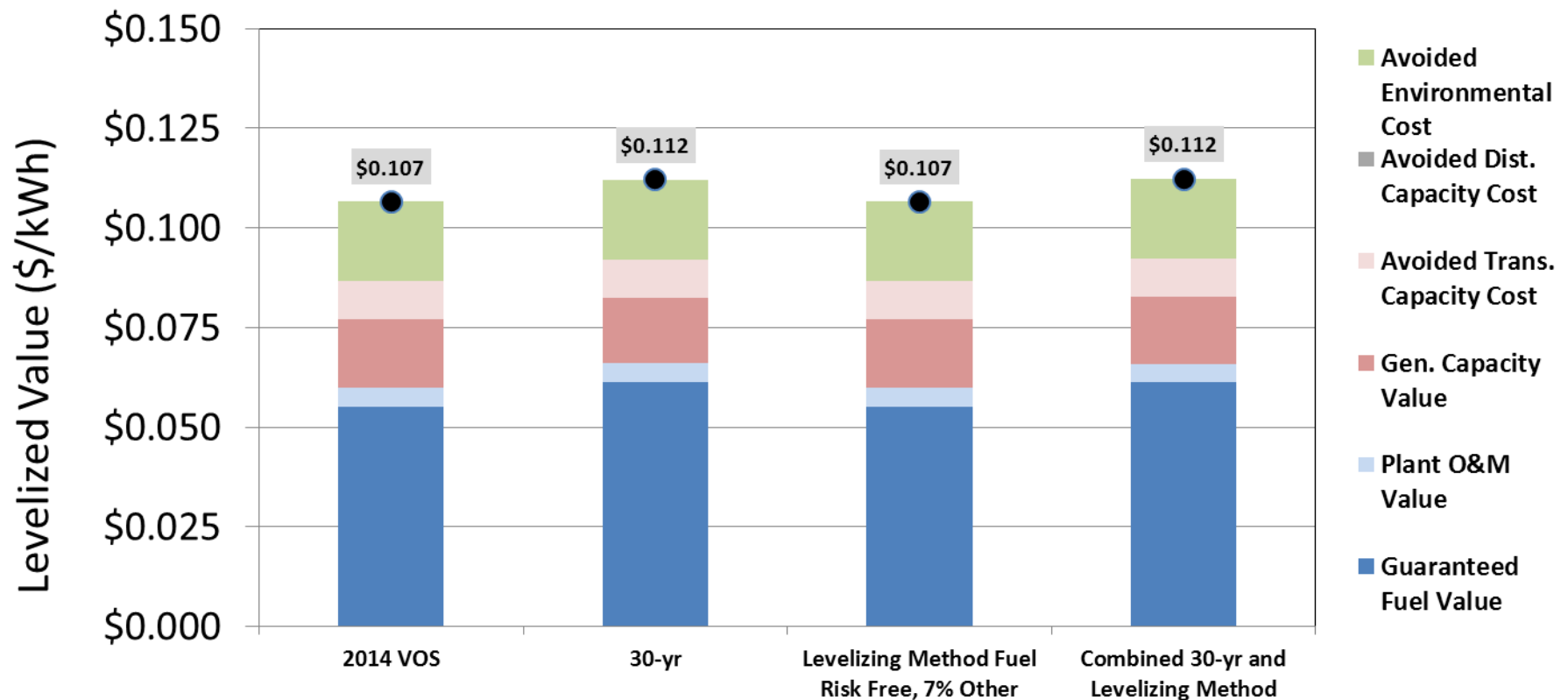
## VoS values for energy and capacity

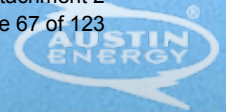




# VoS Assumptions

- Levelizing Method has negligible impact due to equivalent denominator (KWh) discount
- Extending from 25 to 30 years increases VOS primarily due to fuel escalation value increasing faster than risk free discount rate over the addition 5 years

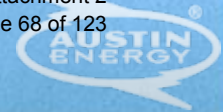




# Background

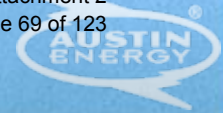
- AE retained Clean Power Research (CPR) to assist with the VoS methodology resulting in a VoS of \$0.128 per kWh
- Residential Solar Rate designed as a non-refundable credit with annual zeroing out of credits so as not to create taxable income for customers
- No change in VoS and no credit sweep in January 2013
- Summer of 2013 CPR is awarded a contract to update the VoS for 2014
- The CPR scope of work includes a comprehensive overview of VoS components and methodology to ensure the VoS is reasonable and accurately reflects current ERCOT nodal market conditions
- Detailed overview provided by CPR to a joint EUC/RMC meeting on October 21, 2013 and memo to Council, EUC and RMC on October 22, 2013





# Residential Solar Rider

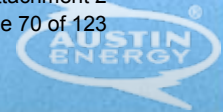
- The Residential Solar Rider was developed for the following reasons:
  - Net Energy Metering (NEM) does not reflect the true cost of serving solar customers
  - NEM in combination with tiered rate structures provides variable valuation of solar generated electricity (higher consumers offset higher tiered rates)
- Customers would begin paying a electric bill reflecting their “whole house consumption” and then credited for solar production at VoS
- The VoS methodology used a preliminary analysis reflecting the nodal ERCOT market
- The VoS would leave AE cost neutral whether energy was provided through the ERCOT nodal market or the residential solar customer
- VoS was developed as a “non-refundable credit”
- ALL residential solar customers migrated from DG from Renewable Sources Rider to the Residential Solar Rider on October 1, 2012



# VoS Methodological Changes

“Several methodological advancements were made”- Dr. Tom Hoff

1. Analysis using PV fleet data from AE’s actual fleet rather than a hypothetical single-location PV system
2. Rather than use historic (only 2 years data) ERCOT nodal pricing, use implied hourly forecasted heat rates for 2014- 2022 to determine weighted heat rate for ERCOT nodal prices, compare to solar and baseload plants to determine the solar weighted heat rate, effective capacity and capacity cost
3. The value component *Energy Value* from the previous studies was renamed Guaranteed Fuel Value because this clarified the fact that it included protection from fuel price uncertainty.
  - a. Use risk free discount rate and guaranteed future natural gas prices
4. The value component *Plant O&M Value* was listed separately.
5. Previous studies identified *Loss Savings* as a separate value component. Since loss savings magnify the other value components, this study presents loss savings as a multiplier of other value components rather than as a separate value component.

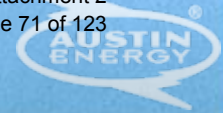


# VoS Methodology

- City Legal asserts that State law and the City Charter were followed, as administrative adjustments to the VoS were consistent with administrative adjustments to other fees and charges outside the budget process for other City departments
- Specific to the VoS methodology-
  - The calculation of the Guaranteed Fuel Value\* is analytically consistent with other VoS calculations done by AE since 2006
  - The assumed life was changed from 30 to 25 years
  - Changes to make the methodology more applicable to Nodal market
  - Loss savings now a multiplier as part of other value components rather than being listed as separate value component
  - Analysis using PV fleet data from AE's actual fleet rather than a hypothetical single-location PV system

\*

Referred to as the "Energy Value" in previous VoS studies

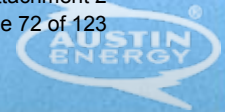


# VoS Assumptions

- Levelizing Method has negligible impact due to equivalent denominator (KWh) discount
- Extending from 25 to 30 years increases VOS primarily due to fuel escalation value increasing faster than risk free discount rate over the addition 5 years

## 2014 Value of Solar Results and Key Sensitivities

	2014 VOS	30-yr	Levelizing Method Fuel Risk Free, 7% Other	Combined 30-yr and Levelizing Method
	(\$/kWh)	(\$/kWh)	(\$/kWh)	(\$/kWh)
Guaranteed Fuel Value	\$0.055	\$0.061	\$0.055	\$0.061
Plant O&M Value	\$0.005	\$0.005	\$0.005	\$0.005
Gen. Capacity Value	\$0.017	\$0.016	\$0.017	\$0.017
Avoided Trans. Capacity Cost	\$0.010	\$0.010	\$0.010	\$0.010
Avoided Dist. Capacity Cost	\$0.000	\$0.000	\$0.000	\$0.000
Avoided Environmental Cost	\$0.020	\$0.020	\$0.020	\$0.020
Fuel Price Guarantee Value	\$0.000	\$0.000	\$0.000	\$0.000
	\$0.107	\$0.112	\$0.107	\$0.112



## Value of Solar Update Comparison

VOS Components	2011 Update	2013 Update	% Change
Guaranteed Fuel Value	0.085	0.0550	-23%
Generation Capacity Value	0.015	0.0220	5%
Avoided T & D Cost	0.001	0.0100	7%
Avoided Environmental Cost	0.027	0.0200	-5%
<b>Total</b>	<b>0.128</b>	<b>0.107</b>	<b>-16%</b>



## Corporate Communications

### Kingsbery Community Solar Project Communications/Public Outreach Plan

#### Background

In October 2014, the Austin City Council approved an up to 3.2 megawatt community solar project adjacent to the Kingsbery substation northeast of Springdale Road and Airport Boulevard in East Austin. The purchase power agreement with local solar company [PowerFin Partners](#) is for 25 years.

The project helps fulfill requests by many members of the community who want to participate in a solar program but are not able to install solar panels on their roofs. Regardless if residents live in apartments, downtown condominium hi-rises or homes shaded by trees, they will be able to subscribe to clean, renewable energy from the sun.

The project will be one of more than 50 in 17 states often referred to as shared renewables or community solar, according to the [Solar Energy Industries Association](#). Community solar in this country includes programs offered by electric cooperatives, investor-owned and municipally owned utilities. Public power utilities similar to Austin Energy with community solar offerings include Salt River Project, Sacramento Municipal Utility District, Orlando Utilities Commission, and Seattle City Light.

The project site will be near the former 52-acre tank farm that produced outrage in East Austin. Six oil companies stored millions of gallons of gasoline in more than 30 above-ground tanks. Spills and odors prompted residents – some living just a few hundred feet from the tanks – to demand that the site be closed as a threat to public health. PODER, led by Suzanna Almanza, and the East Austin Strategy Team, led by Ron Davis, spearheaded a successful community-based effort to remove the tank farm facilities, to clean the land to residential standards, and to rezone many East Austin properties to prevent future heavy-industrial uses.

In 2012, partners Richard deVarga and Robert Summers purchased the cleaned site and began the process to rezone the property to allow the mixed-use vision of [thinkEAST](#). thinkEAST's mission is to use sustainable, modern architecture to foster engagement and to stimulate growth and diversity in East Austin's economy, culture and community.

#### Challenges/Opportunities (Key Issues)

- Little to no outreach was done in the community before approval of the solar project. Current public sentiment for the project in the area is unknown.
- No public opposition to the project has surfaced to date. Initial interactions with community have been positive.
- Transmission lines, the substation, railroad tracks, a drainage easement and a gas line running through the property make it largely undevelopable for residential and commercial use.
- The site is the subject of a documentary ["La Loma"](#) that chronicles how students cross the property to school.
- The 78721 ZIP Code is 53% Hispanic, 32% African-American and 13% White. 71% of the residents live in single-family homes with 50% living in own homes and 49% in rental homes. 33% of residents live below poverty level.
- Schools are an important part of the neighborhood's identity including Eastside Memorial High School and its eight elementary and one middle feeder schools. Ortega Elementary is located one block north of the site, Govalle Elementary about a mile west of the site, and Eastside Memorial HS is a half mile SE of the site, separated by railroad tracks and the East Boggy Creek Greenbelt.
- City departments and other agencies such as the Economic Development Department's Cultural Arts Division, PARC, Library, Public Works, and Capital Metro are potential partners.



- There may be a distrust of government projects in an area that received an inordinate amount of industrial uses compared to other areas of the city. Because of the tank farm, residents in the area are skilled at organizing.
- The community solar project will be a quiet, clean neighbor in an area that once included the toxic tank farm.
- Battery storage for project will make the community unique for progressiveness in new, clean technology.

### Goals (What we want)

- To enlist the neighborhood and its schools and organizations as partners in the project and for the project to reflect their input and identity.
- To create a project that responds to community needs.
- To gather support from our partners to ensure there are no delays in the planning and permitting process nor at Boards and Commissions or by elected officials.
- To complete the project on schedule after groundbreaking with no delays due to issues not addressed in the neighborhood or with appointed or elected officials.
- To create a process for continuous communication with the community before, during and after construction.
- To develop the project as the model for community solar in the Austin area.

### Audiences (Who can get it for us or keep it from us)

<p><b>Government</b>  Austin City Council  Councilman Pio Renteria  City Manager  Austin Independent School District  Capital Metro  Public Works  Travis County Health &amp; Human Services  Travis County Commission</p> <p><b>Boards &amp; Commissions</b>  Planning Commission</p> <p><b>Schools/Education</b>  Eastside Memorial High School  Martin Middle School  Ortega Elementary  Govalle Elementary  Allison Elementary  Brooke Elementary  Metz Elementary  Zavala Elementary  Huston-Tillotson University  Austin Community College</p>	<p><b>Neighborhood Associations</b>  Springdale-Airport Neighborhood Association  MLK Neighborhood Association  East MLK Contact Team</p> <p><b>Organizations</b>  thinkEast  Fusebox  Forklift Danceworks  Eastside Community School Alliance  Austin Voices for Education &amp; Youth  Austin Partners in Education  Communities in Schools  Goodwill Central Texas  LifeWorks  Any Baby Can  Texas AgriLife Extension Service (Nutrition)  Seedling Foundation  Sylvan Learning Centers  YWCA of Greater Austin</p> <p><b>Environmental Organizations</b>  PODER  ATX Environmental Justice  Solar Austin  Sierra Club  Public Citizen  EDF</p>
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### Messages (What we will say repeatedly)

- The community solar project is a quiet, clean and green neighbor – no pollution and no noise.
- The project will bring clean, green energy, rather than the dirty industry of the past.

- Battery storage will differentiate the area as the innovator in clean technology, while providing better power quality to the neighborhood.
- Community solar promotes equity because it makes solar available to everyone.
- Community solar will not affect rates although residents can pay a little extra to subscribe to the program.
- Community solar helps provide solar in all areas of the community not just in areas that can afford private, rooftop installations on their homes.
- Community solar projects will be built throughout the Austin metropolitan area.
- The project will increase safety, improve access to schools and trails, and reflect the culture of the community.
- The community solar project will promote STEM education and other educational initiatives in the community.

### Channels (How we will reach the audiences)

Date	Channel	Audience	Owner
Fall 2014	Program design survey	AE customers; potential participants	Murray/Baise
Fall 2014	Program design survey by Solar Austin	Solar Austin members; potential participants	Solar Austin
April 10-12, 2015	Booth at ThinkEAST; community survey	Neighborhood residents	Murray/Cullick/Cordova
May 27, 2015	Meeting with PODER	PODER organizers/members	Cullick/Murray/Rivas
June-July 2015	Meetings with developer of community solar	Internal	Cordova/Murray
July-Aug 2015	Meetings with thinkEAST developers	Internal	Cordova/Murray
July-Aug 2015	Meetings with A.I.S.D. Trustee	Internal	Cordova/Murray/Vice
July-Aug 2015	Meetings with Council Members	Internal	Cordova/Murray/Vice
July-Aug 2015 (monthly)	Meetings with Eastside Alliance	Stakeholders	Cordova/Murray/Wisner
July-Aug 2015 (monthly)	Coordination meetings with City Departments	Internal	Cordova/Murray/Wisner
July-Aug 2015	Create Executive champion team	Dreyfus, Kimberly, Smith	AE Executive Team
July 2015	Letters of support from partners	Planning Commission	Cordova/Murray/Vice
Summer 2015	Organizational meetings with thinkEAST/Fusebox	Stakeholders	Cordova/Murray/Wisner

August 2015	Host charrette with thinkEAST	Springdale-Airport neighborhood	Cordova/Murray/Wisner/DiLeo/Schooler
September 2015	Host 2 <sup>nd</sup> charrette	Springdale-Airport	Cordova/Murray/Wisner/DiLeo/Schooler
October 2015	Meetings with minority media	Minority Media	Cordova/Rivas
November 2015	Memo to Council on results of charrette	Austin City Council	Murray/Kimberly/Weis/Vice
November 2015	Harvest Fest community event	Eastside Memorial (1,000 attendance)	Cordova/Wisner/DiLeo/Rivas/Rios
Feb. 2016	SXSWedu community outreach	Austin Voices	Wisner/Cowan/Rios
April 2016	STEM Fest community event	Eastside Memorial H.S.	Cordova/Wisner/Cowan
April 2016	thinkEAST/Fusebox Festival	Springdale-Airport/Govalle	Cordova/Wisner/DiLeo/Rivas/Rios
Summer 2016	Targeted marketing to neighborhood for early sign-up	Kingsbery substation service area	Cordova/Murray/ Wisner
July 2016	Tours of construction site	Neighborhood/Council District Member	Cordova/Murray
Sept-Oct 2016	Site Visits with local schools	Ortega, Govalle, Eastside Memorial	Cordova/Murray/Rivas/Rios/Ornelas
Oct. 2016	SXSWeco community outreach	Austin Voices	Wisner/Cowan/Rios
June-July 2017	Create summer solar camp for students	Ortega Elementary School	Cordova/Murray/Rivas/Rios/Ornelas

## Products

Date	Channel	Audience	Owner
July 2015	Create informational Web page for project	Public/Stakeholders	Cordova/Wisner/Web Team
July 2015	Create one-page bilingual information sheets about project	Public/Stakeholders	Cordova/Wisner
August 2015	Create calendar of Social Media posts	Public	Cordova/Wisner
September 2015	Establish bilingual hotline	Neighborhood/Stakeholders	Cordova/Rivas/Contractor
November 2015	Create bilingual neighborhood newsletter	Neighborhood/Stakeholders	Cordova/Rivas/Contractor
January 2016	Create project display boards for public	Public/Stakeholders	Wisner/DiLeo
May 2016	Create calendar of construction tours	Neighborhood/Stakeholders	Wisner
July 2016	Plan groundbreaking ceremony	Stakeholders/Austin City Council/A.I.S.D.	Corporate Communications/Marketing Communications
January – May 2017	Create Solar Camp curriculum	Ortega Elementary	Murray/Cowan/Rios



# Kingsbery Community Solar Project

Karen Poff, Project Manager, Solar Energy Services  
March 9, 2016



# Community Solar Overview

- Community Solar will provide access to solar energy for customers unable to install solar panels on their own homes or dwellings.
  - Renters and homeowners/condo dwellers with shaded roofs
  - Customers unable to make the upfront investment in rooftop systems
- Allows participants to receive the benefits of solar power without actually owning/hosting the solar panels on-site



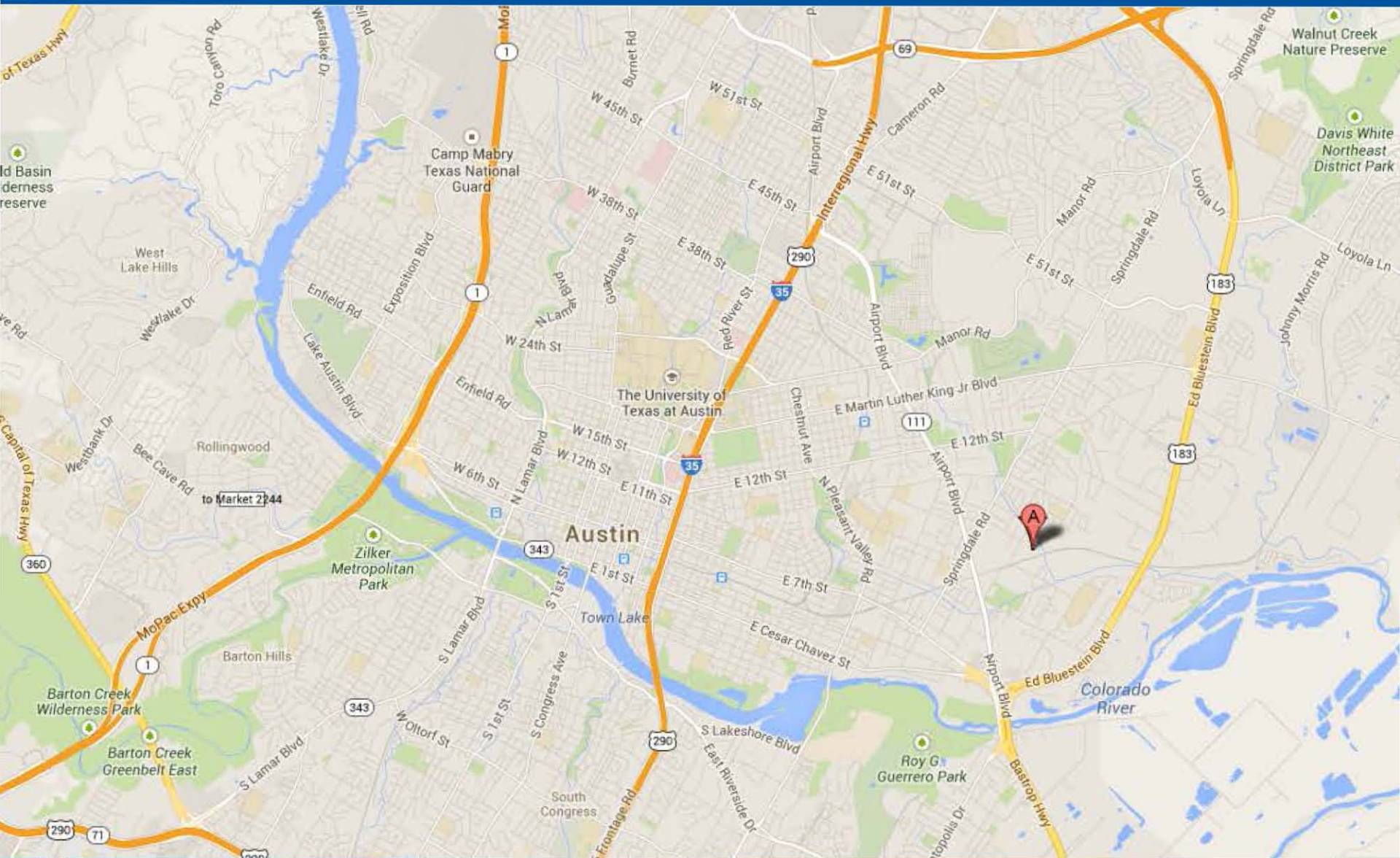
# Community Solar Overview

- Participants subscribe in 1kW increments of solar capacity from the community solar project
- Capacity Model Option: Participants pay a flat fee per kW each month and receive kWh/mo/kW subscribed
- Subscribers receive modified “Value of Community Solar” credit for their production from the system





# Kingsbery Site





# Kingsbery Site





# Kingsbery Renderings

- **2.0 MW-AC project**
- **Project Developer: Power Fin**
- **25 year PPA**
- **Currently in Site Plan Development Phase**
- **Completion: QTR 4 2016/QTR 1 2017**





# Kingsbery Renderings



**A decorative fence is proposed between the Community Solar Project and its nearest residential neighbors. The image also demonstrates what the view would have been with a chain-link fence in place.**



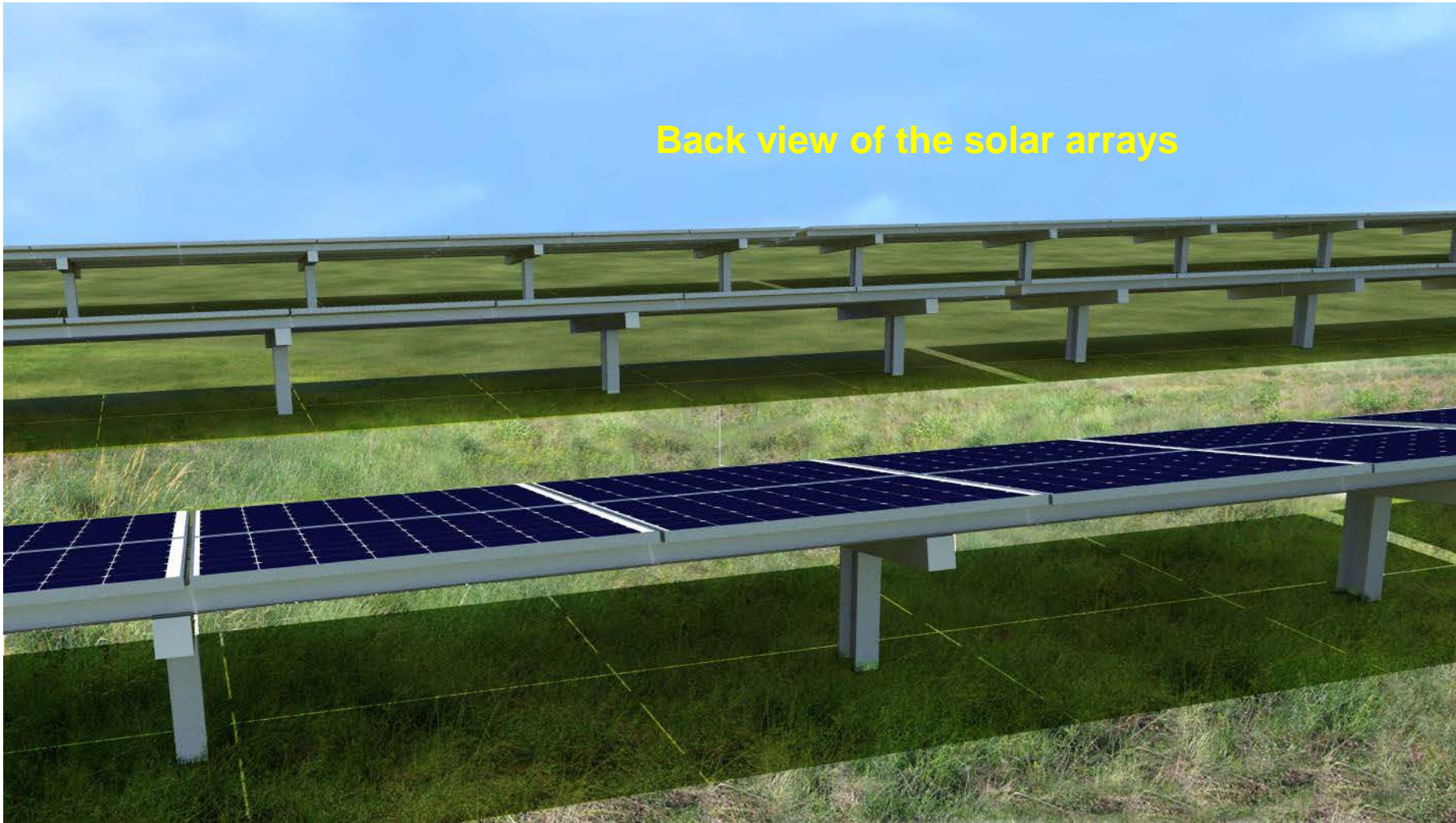
# Kingsbery Renderings



The Educational Area will bring new learning opportunities to site visitors. Placement of the Educational Area will be made with careful consideration of community feedback.



Back view of the solar arrays







# Community Benefits

- Supports City of Austin aggressive climate protection goals
- Renewable energy and Austin Energy's support for clean energy technology have helped diversify the economy in Austin.
- The Austin Technology Incubator estimates that the clean tech energy sector contributes \$2.5 billion to the region's economy and employs 20,000 people.
- The Kingsbery and Mueller battery storage projects are closely tied to each other (Austin Energy received a \$4.3 M SHINES grant).
- The Airport/Springdale area is being transformed from a former home to the Tank Farm to being a leader for clean energy innovation.

# Community Benefits

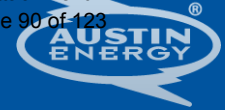
- Currently parcel has low visibility and is home to garbage dumping and homeless camps
- Working with the Austin Independent School District, Capital Metro, Public Works and others to find ways to resolve pedestrian access issues for students attending Eastside Memorial High School. This issue was highlighted in the documentary “La Loma.”
- Educational opportunities for community and local schools.



# Approvals to Date

- Plan amendment and rezoning from the East MLK Neighborhood Contact Team in District 1.
- Plan amendment and rezoning from the Austin Planning Commission.
- Plan amendment and rezoning from the Austin City Council.
- Purchase Power Agreement with PowerFin from the Austin City Council.
- Purchase of a utility-scale battery storage unit from the Austin City Council.

- Work with the City arborist to develop tree mitigation plan
- Develop site plan
- Present site plan to planning commission
- Begin construction
- Project Completion: QTR 4 2016/QTR 1 2017



**City of Austin - Austin Energy  
Customer Energy Solutions**

**Karen Poff**

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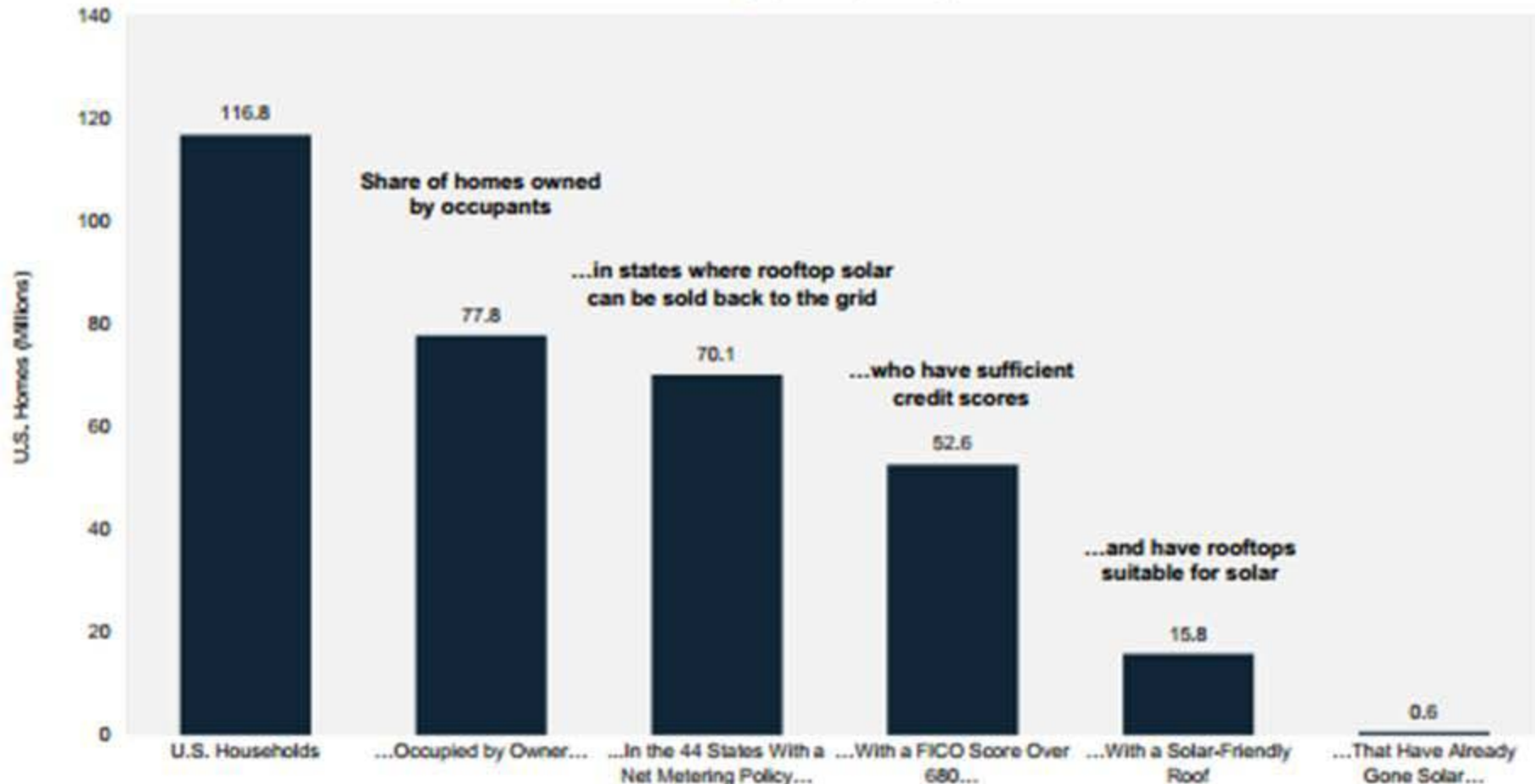


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# Thank You!

# Community Solar Taps Into Segments Underserved by Rooftop Solar

2015 Residential Customer Demographics by Rooftop Solar Constraints







# Leveraging Community Solar to Meet Utility Needs

# Agenda & Goals

- ✦ Background on Community Solar
- ✦ The SunShare Experience
- ✦ Program Design
- ✦ Program Implementation
- ✦ Case Studies



# About Us



# Our Story

4

Founded in 2011, SunShare is one of the nation's first Community Solar companies with a mission to make solar accessible to all.

- We partner with utilities to bring choice to consumers
- We develop, own, and operate Community Solar Gardens
- Serve all customer classes
- Offices in Denver and Minneapolis
  - ~32 people





# SunShare Experience



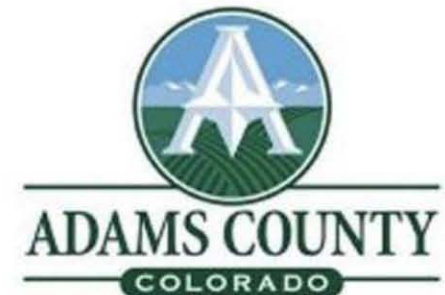
University of Colorado  
Colorado Springs



Green Mountain  
Water & Sanitation District



WESTMINSTER



# Employee and Student Engagement





# History of Community Solar

7

CO State  
Legislature  
passes the Solar  
Gardens Act



*400-person  
Groundbreaking  
Ceremony at the  
Venetucci Solar  
Garden*

12 Colorado  
Community Solar  
programs approved  
or under  
development

22 states with  
Community Solar  
programs online or  
under development

2010

2011

2012

2013

2014

**Several co-op,  
municipal-run  
community solar  
systems in the  
US**

SunShare and  
Colorado Springs  
Utilities first  
competitive Solar  
Gardens Program in  
nation (2MW)

**SunShare's first  
Solar Garden sells  
out in 10 weeks with  
350 participants**

Xcel Energy creates  
Solar\*Rewards  
Community  
Program

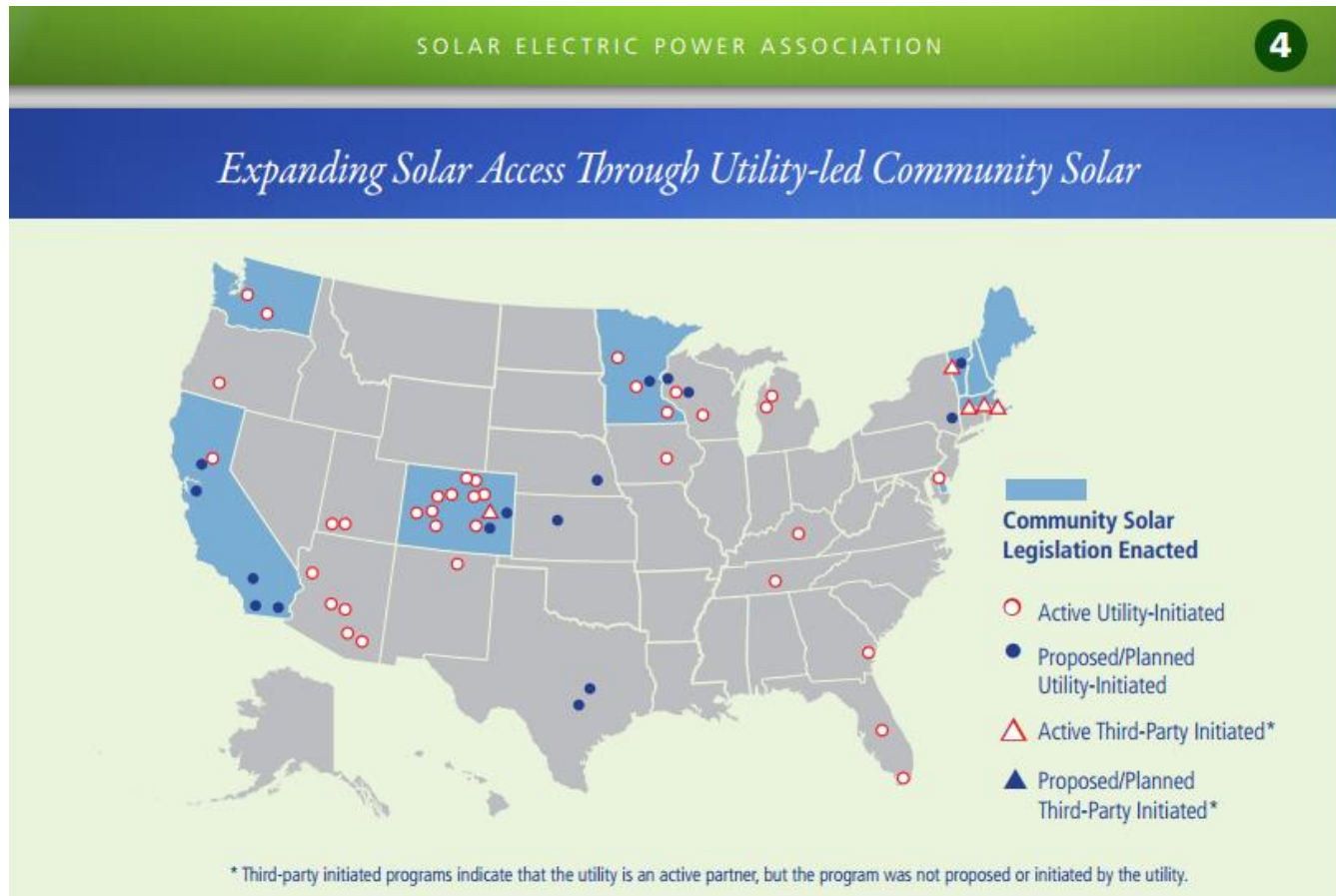
Xcel Energy implements  
9 MW of Community  
Solar Projects  
in CO

**CA: 600MW Pilot  
Program**

MN: Uncapped  
program

# National Community Solar Adoption

8



- 57 Community Solar programs in 22 states
- 41 active and 16 in planning stage

Source: Campbel, B., et. al. *Expanding Solar Access to Utility-led Community Solar: Participation and Design Trends from Leading US Programs*, Solar Electric Power Association, September 2014

159  
Confidential

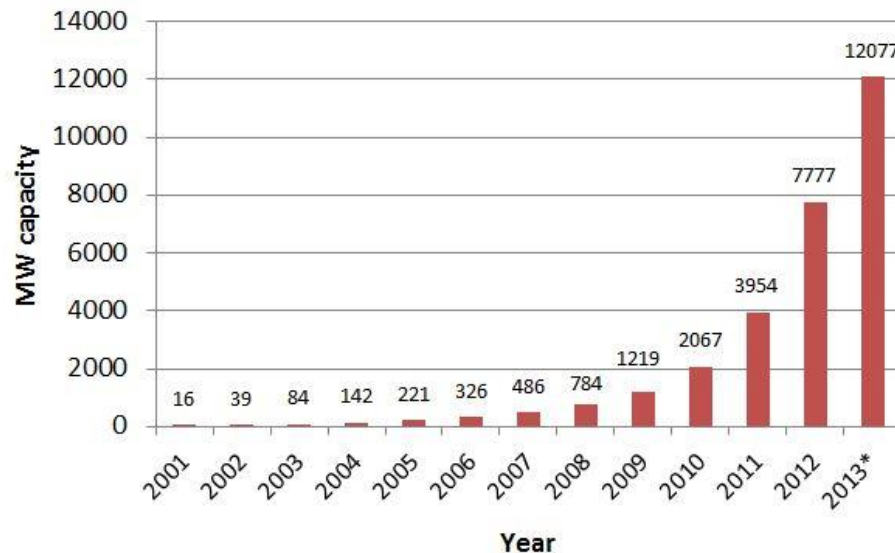
# Why Community Solar?



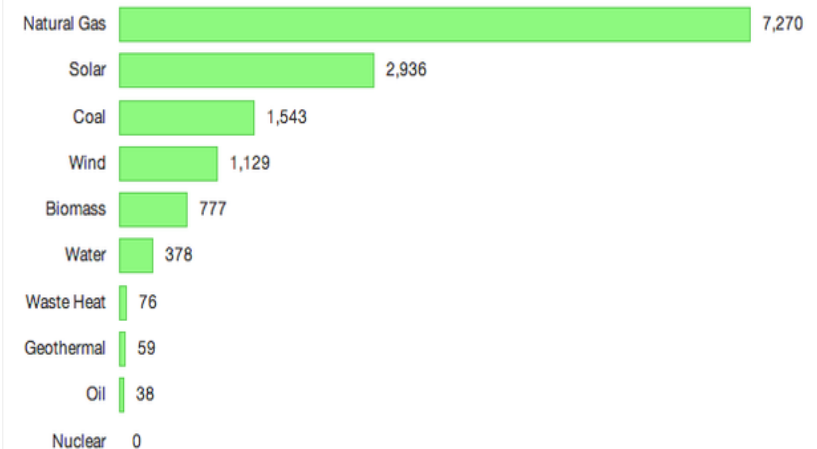
# The Growth Curve of US Solar

- Solar is now the 2<sup>nd</sup> highest source of new power generation in the U.S.
- Solar capacity has nearly tripled in the last 3 years
- New capacity driven by a nearly 75% decrease in system costs

**U.S. Solar Capacity (MW)**



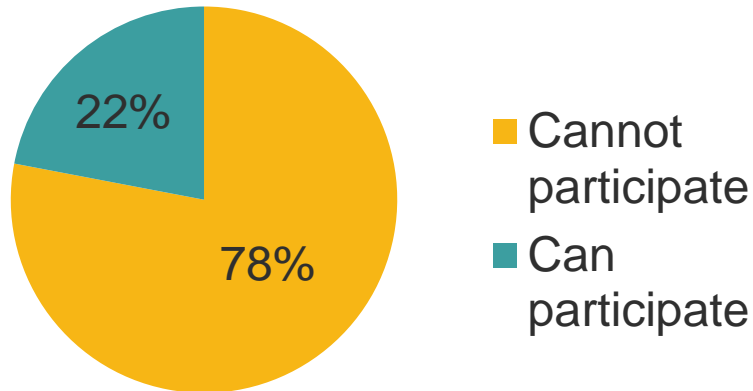
**Top Sources of New US Power Capacity (2013)**



# Why Community Solar?

11

## Percentage of Americans Who can Participate in Rooftop Solar



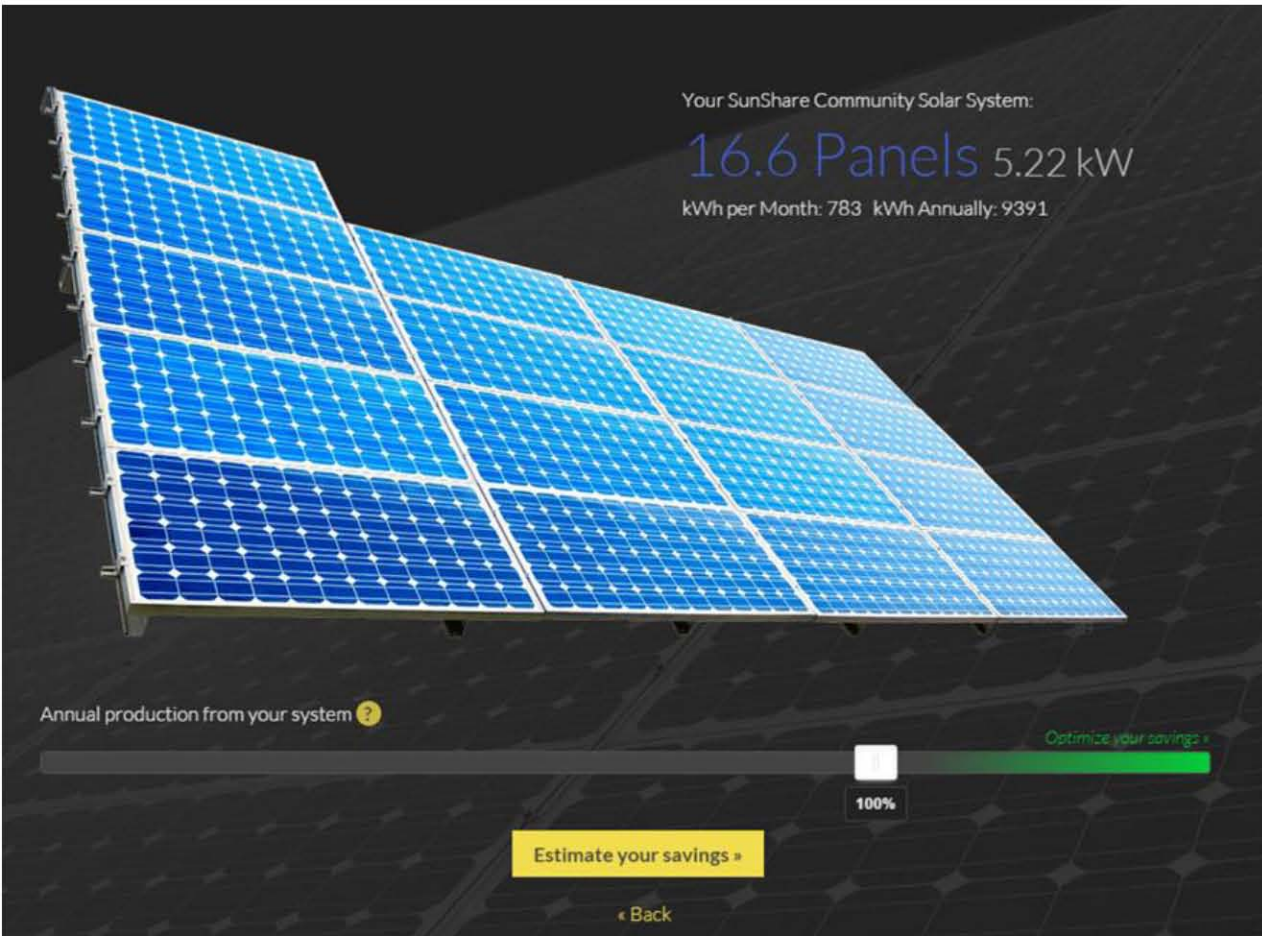
Source: National Renewable Energy Laboratory, 'Supply Curves for Rooftop Solar Generated for United States,' 2008.



- ✓ Gives your customers what they want: choice!
- ✓ Broadens solar energy access to everyone
- ✓ No hassle of rooftop or onsite installation for customers
- ✓ Boosts local economy and creates jobs



# The Residential Experience





# Many Utility Benefits

13

- Increased customer satisfaction
  - Utilities maintain customer relationship and can choose utility-branded programs
- Affordable way to meet RPS goals
  - Cost-recovery mechanisms for transmission and distribution
  - No capital costs required
  - Economies of scale achieved at ~1MW in size
- Ease costly network upgrades
  - Community Solar companies can work with utilities to strategically locate Solar Gardens to strengthen power distribution
- Social equity
  - All ratepayers can participate, regardless of location or property ownership

# The Project Dashboard



# Policy/Regulatory Framework



# Policy/Regulatory Requirements

16

- Community Solar is dependent on policy/regulatory bodies to create and maintain programs for ratepayers
- Methods for initiating Community Solar programs
  - State law
    - Example: Colorado Solar Gardens Act (HB 10-1342)
    - Applicable mostly to Investor-Owned Utilities
    - Establishes framework for Public Utilities Commission to establish program rules, regulations, and process
  - Utility-driven programs
    - Example: Colorado Springs Utilities
    - Usually municipal utilities and cooperatives
    - Can be faster-moving process with more utility control

# Program Design





# Program Design

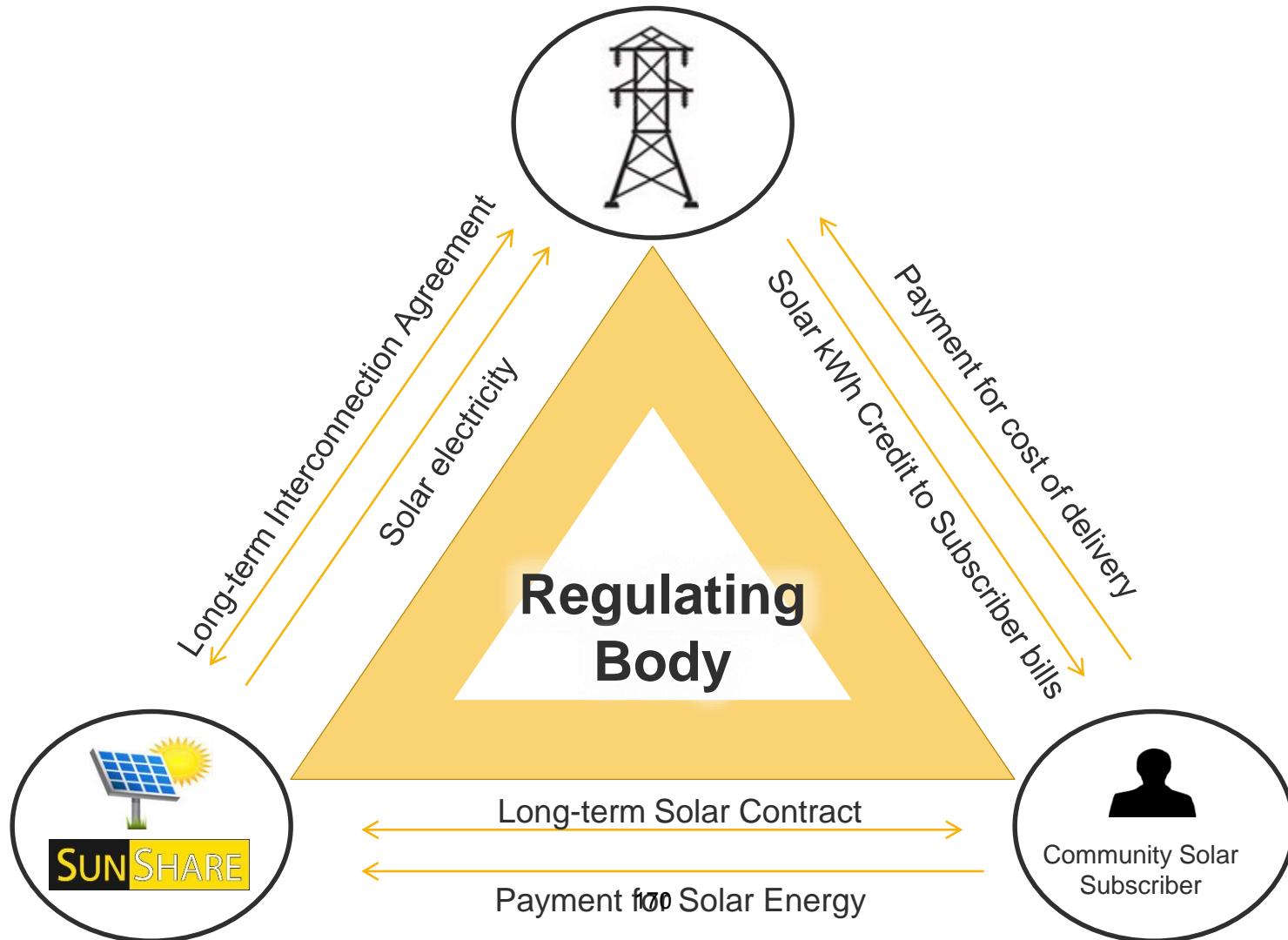
18

## ○ Program levers

- Size (Program/Individual Project)
  - Examples
    - Colorado Springs Utilities: 2MW Pilot Program
    - Xcel Energy (MN): market-based program
- Length of contract with solar companies and customers
  - Typical program length 20-25 years
- Roles of utility and solar developers
  - Branding
  - Business model
  - Developer selection process
- Rate design

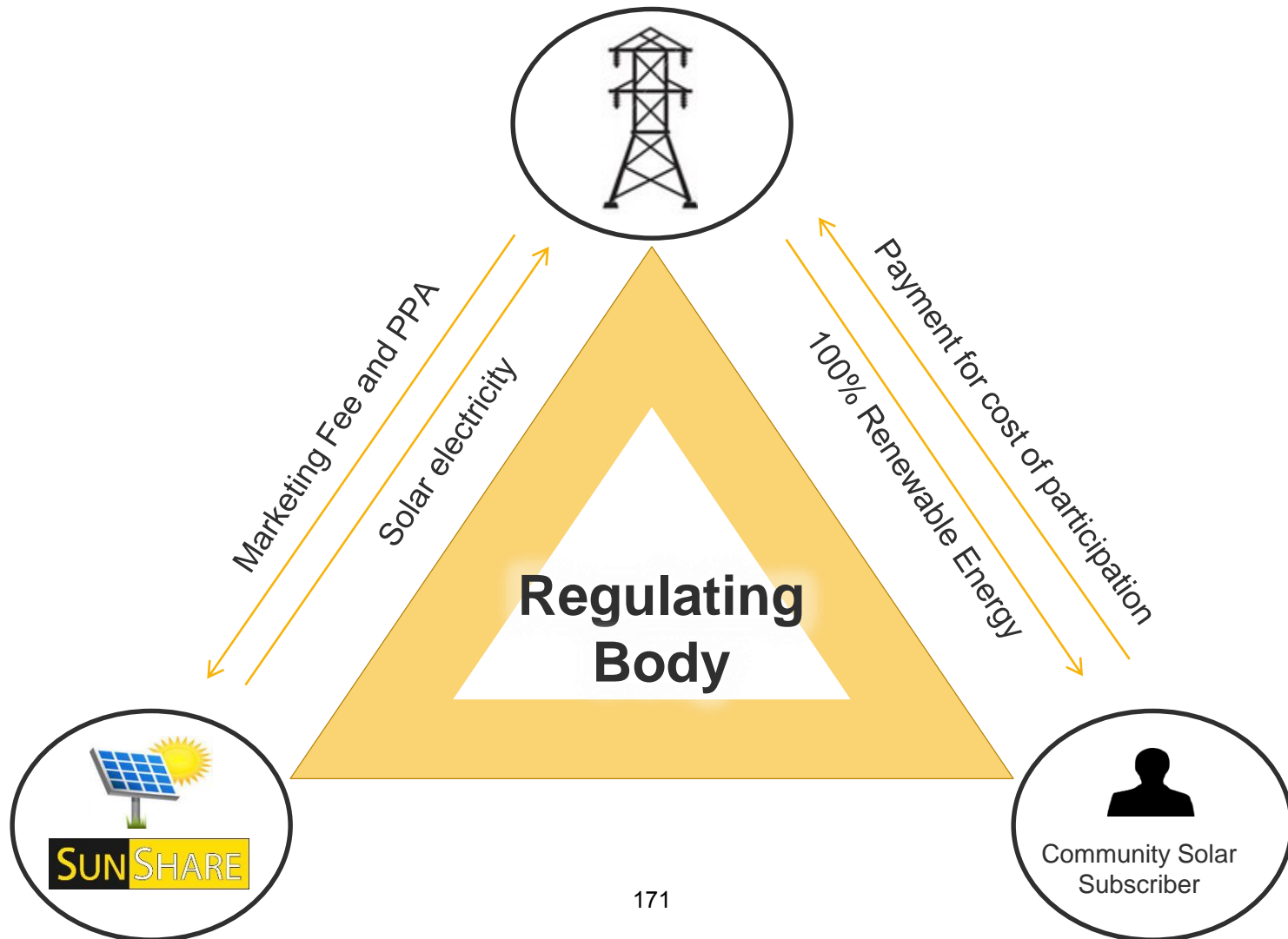
# Tariff Model

19



# Subscription/PPA Model

20



# Rate Design

21

- Considerations
  - Cost recovery mechanism
  - Value of solar
  - Impact on ratepayers
  
- Sample bill credit structure and cost-recovery
  - Xcel Energy (CO): Cost of Service
    - Bill Credit = Retail rate (incl. demand charges) – Cost of Delivery
  - Colorado Springs Utilities: Cost of Service + REC purchase
    - Bill Credit = (Non-fuel) + (Fuel and Purchased Power) + (Capacity) + (Cost Adjustment) + (REC purchase)
  - Xcel Energy (MN): Retail rate + REC purchase (fuel rider cost recovery)
    - Bill Credit = Retail rate + 2-3¢/kwh REC purchase

# Case Study: Minnesota

## 2013 MN Community Solar Garden legislation:

Access to solar for all

No caps on program size

Helps MN achieve statewide goals:

- 10% solar by 2030
- 1.5% by 2020





# MN Program Details

## Program specifics

- ✖ Consumers can purchase up to 120% of their consumption
- ✖ Systems will be limited to 1 MW-AC
- ✖ Systems may be co-located
- ✖ Awards granted via open-submission, first-ready, first-serve application process; Xcel is required to take any projects submitted that meet the guidelines creating a large market potential
- ✖ No customer may purchase more than 40% of any garden
- ✖ Each projects must have at least five subscribers



# We are here to support you

Ross Abbey  
Director of Government Affairs

# In the Media

25



## Denver-based SunShare wants to sell Minnesota a share of the sun

STAR TRIBUNE, Published by David Shaffer, September 6, 2014

SunShare, a developer of community solar gardens, sees opportunity in Minnesota. The Denver-based company is opening an office and hiring workers in Minnesota, and in 2015 plans to build large solar farms whose output will be shared by Xcel Energy customers who sign up to be subscribers. [\[Read Full Story\]](#)



## Trendspotting at Solar Power International 2014

Solar Novus Today, Anne Fischer, October 27, 2014

Aside from the challenges and opportunities posed by the potential end of the investment tax credit in the US, a few trends emerged from across the [Solar Power International](#) conference and exhibition held last week in Las Vegas.

First off, community solar is big and getting bigger in the US. Also known as solar gardens... [\[Read Full Story\]](#)



## Water World owner, SunShare sign big solar power deal

The Denver Business Journal, by Cathy Proctor, September 22, 2014

SunShare LLC, a Denver-based community solar power developer, has signed its largest single-customer power-supply contract with Hyland Hills Park and Recreation District, owner of the Water World attraction in Federal Heights. [\[Read Full Story\]](#)



## Here comes the sun: Montbello school the recipient of solar energy

THE DENVER POST, Published by Anthony Cotton, August 28, 2014

Chatting with students Thursday at Academy 360 in Denver's Montbello neighborhood, Mayor Michael Hancock made a little confession: He shared in their wonderment regarding solar energy. [\[Read Full Story\]](#)



## Colorado solar player expanding to Twin Cities

MINNEAPOLIS/ST. PAUL BUSINESS JOURNAL, Published by Katherine Grayson, August 22, 2014

A Colorado developer of "community solar" projects is expanding into the Twin Cities market, aiming to tap into an expected solar-development boom in Minnesota. [\[Read Full Story\]](#)



## Adams County government to power its buildings with community solar panels

DENVER BUSINESS JOURNAL, Published by Caitlin Hendee and Cathy Proctor, August 19, 2014

Adams County government will become the first in the country to power its buildings with energy from community solar power, with the city of Arvada also signing. [\[Read Full Story\]](#)



## Westminster inks deal to draw energy from community solar gardens

THE DENVER POST, Published by Austin Briggs, July 21, 2014

Westminster is joining other communities in providing a way for residents to buy into solar energy without installing solar panels. [Denver-based SunShare](#) is currently building solar fields in Jefferson and Adams county that will deliver a combined total of 4 megawatts of energy per year when they go online at the beginning of 2015. [\[Read Full Story\]](#)



## Nation's Largest Community Solar Garden Sold Out

CNBC, via PRNewswire, June 25th, 2014

A historic moment for the rapidly growing Community Solar market, Colorado energy company SunShare has sold out the nation's largest privately developed and subscribed Community Solar Garden - before construction begins on the 10,000+ solar panel installation this fall. [\[Read Full Story\]](#)

**Sign 1) What is Community Solar?** (english and spanish)

Community Solar will enable Austin Energy customers to get solar power, even if they can't install it at their own home.

A community solar system is a large, centralized solar project that can provide power to many homes, at lower cost than installing smaller individual systems.

Community Solar is perfect for renters, homeowners with shaded roofs, or anyone who doesn't want to pay for and maintain a solar system at their own home.

Austin's first Community Solar project is proposed at the Kingsbery Substation.

The Kingsbery Community Solar Project would be 2,300 kilowatts (kW), enough to power about 500 homes, and would be the size of about 20 football fields.

Visual: Photo from Webberville (see options here: <http://test.imaginesolar.com/austin-energys-new-solar-power-plant-in-webberville/> - images are from AE, but not sure where the originals are)

**Sign 2) Clean Power for East Austin** (English and Spanish – 2 separate signs(?))

*From old, dirty fuel to a bright, new renewable energy future*

Solar power is clean, quiet, and safe – that's what I call a great neighbor! [make that a little call-out bubble?]

Solar energy is renewable, produces no pollution, and the fuel is free: just add sunshine!

There are already XXX solar installations connected to the Kingsbery Substation, totaling XX kilowatts (kW); the new Community Solar project will add 2,300 kW.

Each rooftop solar system helps reduce the customer's electric bill, and creates jobs in the local community. There are over 40 solar installation companies in Austin.

*A Clean Energy Innovation Hub*

Austin Energy is also installing a 1.6 megawatt (MW) energy storage project (that's like a half-million AA batteries or enough energy to power a house for 2 months!) at the Kingsbery substation that will work with the community solar project to improve grid reliability and power quality in the neighborhood.

East Austin will be the first neighborhood in Austin to have both clean energy and energy storage, making it one of the most resilient and sustainable communities in the country.

The project will provide a learning opportunity for Austin Energy, local students, as well as visitors from around the world.

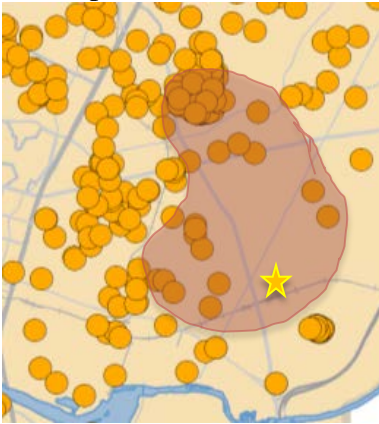
Visual 1: Image of container-sized storage project (in a bubble next to the storage info)



[Similar to this; finding graphic

with approval from Samsung/other]

Visual 2: Impact Map w/existing PV installs (overlay shaded "kidney bean" over Tim's PV map, with street names?)



[example using Tim's map; will try to make version with smaller markers. Made up the kidney bean, waiting for info from Clayton]

### **Sign 3) Kingsbery Community Solar Site**

The project would be located on land owned by Austin Energy around the Kingsbery Substation, which provides electricity to the Airport-Springdale neighborhood, and north to the new Mueller development.

Construction would take place in summer of 2016.

Visual: Aerial map of Kingsbery sub and project (with or without text boxes?); blow out to photo of Webberville (see options here: <http://test.imaginesolar.com/austin-energys-new-solar-power-plant-in-webberville/> - images are from AE, but not sure where the originals are)





Prompts:

"What should Austin Energy know about the site?" (ask next to aerial map of Kingsbery).

"Would you want to be able to visit the project and learn more about solar energy and smart grid technologies?"

#### **Sign 4) How Does Community Solar Work?**

AE customers can sign up for 1-10 kW of solar power from the project.

Participating customers pay a monthly subscription fee for their portion of the solar array.

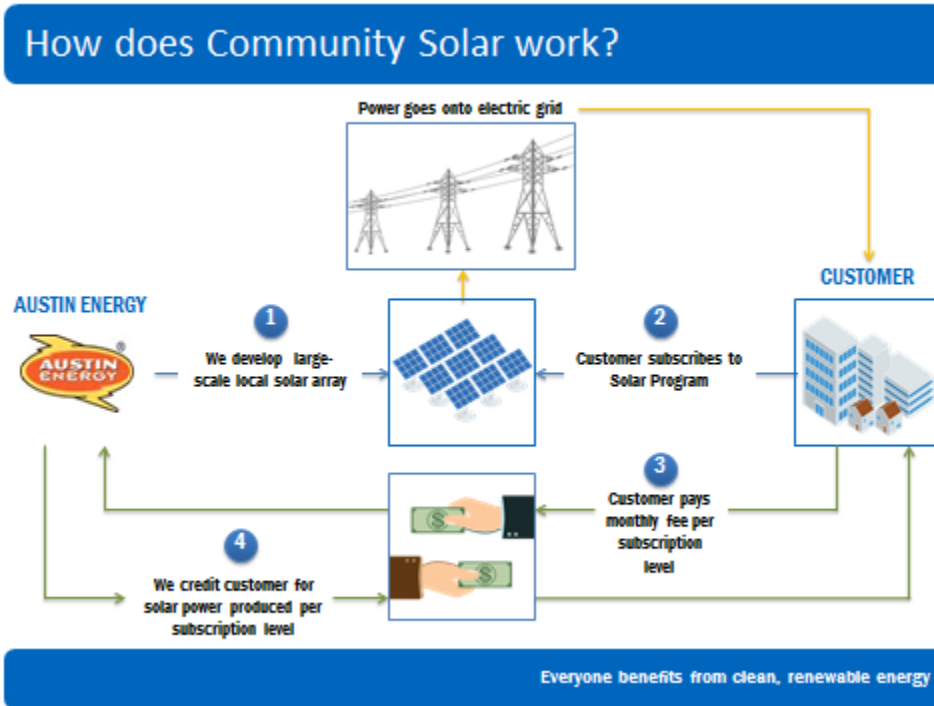
Participants receive a credit on their electric bill for their portion of solar generation from the array.

There are NO EXTRA COSTS for non-participating customers.

Community Solar will make solar more accessible to Austinites, and improve power service in the immediate area.

Visual: How does CS Work slide





### Sign 5) How does solar work?

Visual: poster from Solar Schoolhouse (22"x28")

### Prompts for Public Feedback Boards (on 4'x8' boards) (eng/spanish):

"Why do you want clean energy in East Austin?"

"What should we name the community solar project?"

**Poff, Karen**

---

**From:** Poff, Karen  
**Sent:** Tuesday, March 08, 2016 12:53 PM  
**To:** Chakka, Sathibabu  
**Subject:** RE: VoS

Hi Babu,  
As soon as you can. Don't worry about doing any new analysis. I just need the data referenced below so that I can calculate an estimate of the value for the subscription analysis. Thanks, Karen

---

**From:** Chakka, Sathibabu  
**Sent:** Tuesday, March 08, 2016 10:54 AM  
**To:** Poff, Karen  
**Subject:** RE: VoS

Karen,

When do you need this by?

Thanks  
Babu

---

**From:** Poff, Karen  
**Sent:** Tuesday, March 08, 2016 10:41 AM  
**To:** Chakka, Sathibabu  
**Subject:** VoS

Hi Babu,  
As a follow-up to our meeting last week, I'm working on developing the community solar subscription models but need to apply an estimated Value of Community Solar credit to understand the value proposition to the customer. Could you send me the Economic Values for 2012 – 2016 (see the 2016 values circled in red in the attached pdf). I can apply the Load Match and Distributed Loss Savings Values to determine a VoCS less the transmission value and potentially the environmental value. Consistent with the current VoS I will calculate the 5-year rolling average (hence the request for 5-years' worth of Economic Values). Also, did we agree that the Distributed Loss Savings percentages should be reduced by 2% for the Value of Community Solar? Thanks, Karen

**Karen Poff** | Project Manager, Solar Energy Services | Austin Energy  
811 Barton Springs Road | Austin, TX 78704 | 512.322.6464



**Poff, Karen**

---

**Subject:** Community Solar value / pricing  
**Location:** 811 room 316 (Danielle's office)  
  
**Start:** Fri 12/4/2015 1:30 PM  
**End:** Fri 12/4/2015 2:30 PM  
  
**Recurrence:** (none)  
  
**Meeting Status:** Accepted  
  
**Organizer:** Murray, Danielle  
**Required Attendees:** Chakka, Sathibabu; Harvey, Timothy (Tim); Poff, Karen

Hi all,

Following up on the solar committee mtg last week, let's sit down Monday and talk about CS subscription options (again...). Goals are to:

- Differentiate between competing "offerings," i.e. GreenChoice and Rooftop Solar
- Provide a clear value to participants (likely some form of rate stability / hedge)
- Achieve cost recovery
- Simple enough for participants to understand
- Encourages customers to stay with the program (and support their favorite local utility) long term
- Accommodates additional CS projects in the future (with different PPA prices)
- Doesn't reveal actual PPA price
- Able to integrate into CC&B (less of a concern if we're using a 3<sup>rd</sup> party platform like CEC)

I've been playing with the idea of a shorter payment term on the subscription side (including paying everything upfront), and a fixed vs escalating Community Solar rate that the participant would receive for their production (can think of it like a PPA rate, or VOCS)

-D



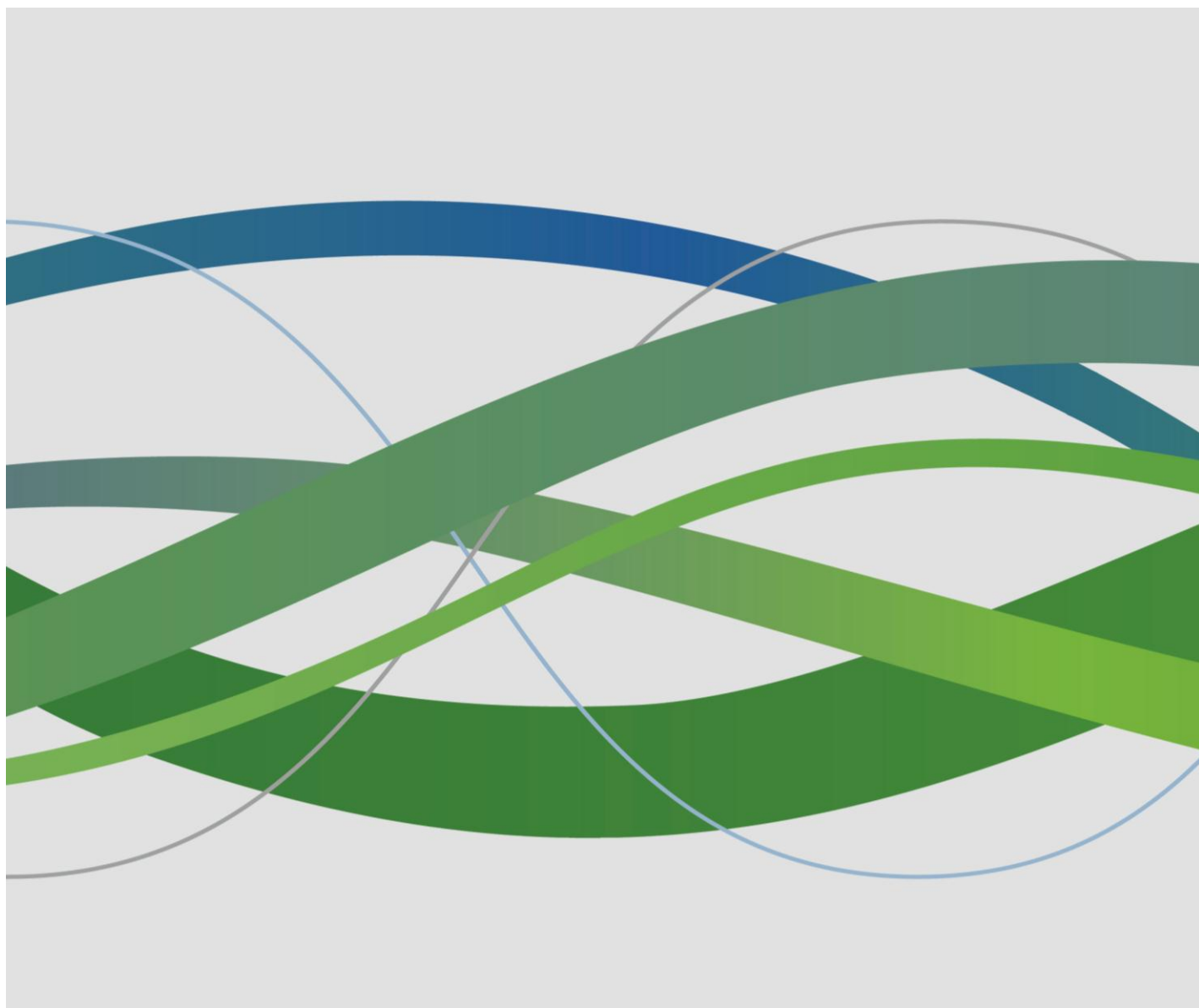
# Austin Energy

## Review of Strategic Plan for Local Solar in Austin

Prepared by DNV KEMA Energy & Sustainability

October 17, 2013

FINAL REPORT





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**Table 1: Revision History**

<b>Date</b>	<b>Reason for Change(s)</b>	<b>Author</b>
9/3/13	V1 – Draft outline for discussion	DNV KEMA
9/5/13	V3 – Initial draft for DNV KEMA review	DNV KEMA
9/6/13	V4 - Updated draft for Austin Energy preliminary review	DNV KEMA
9/11/13	V5-7 - Review in-progress edits	DNV KEMA
9/13/13	V8 – Interim Deliverable to Austin Energy	DNV KEMA
9/16/13	V10 – Interim Deliverable with requested AE edits	DNV KEMA
9/25/13	FINAL – AE requested edits	DNV KEMA
10/2/13	FINAL v2 – AE requested edits	DNV KMEA
10/8/13	FINAL v3 – AE requested edits to Executive Summary	DNV KMEA
10/14/13	FINAL v4 – Formatting Changes	DNV KEMA
10/15/13	FINAL v6 – Formatting Changes	DNV KEMA
10/16/13	FINAL REPORT	DNV KEMA



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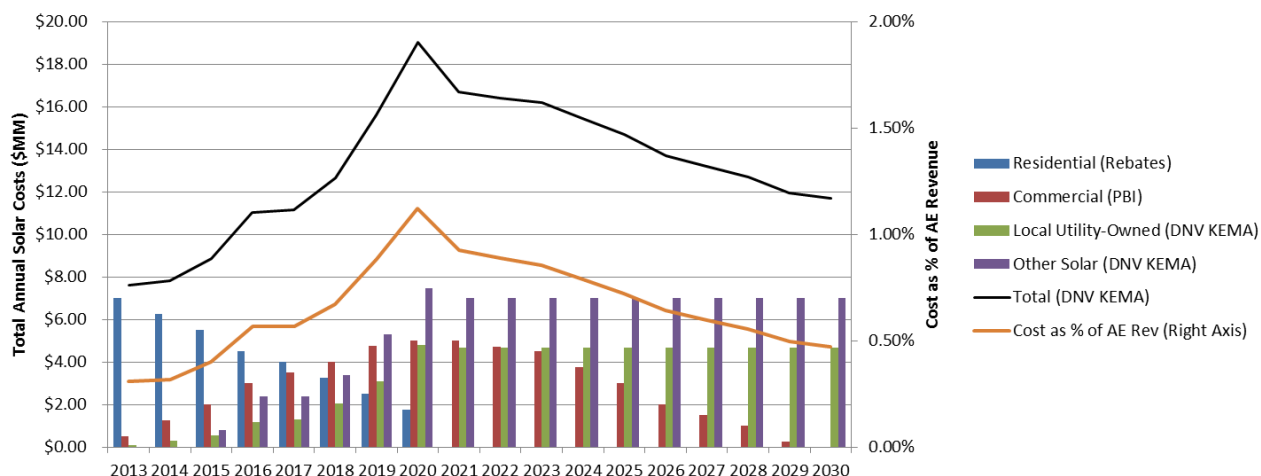
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## 1. Executive Summary

DNV KEMA has reviewed the Local Solar Advisory Committee's (LSAC) report "A Strategic Plan for Local Solar in Austin". The LSAC report advocates adoption of "Scenario 2" which calls for increasing the City of Austin's 2020 solar goal to 400MW (consisting of 100MW customer-sited, 100MW local utility scale, 200MW non-local other utility scale solar).

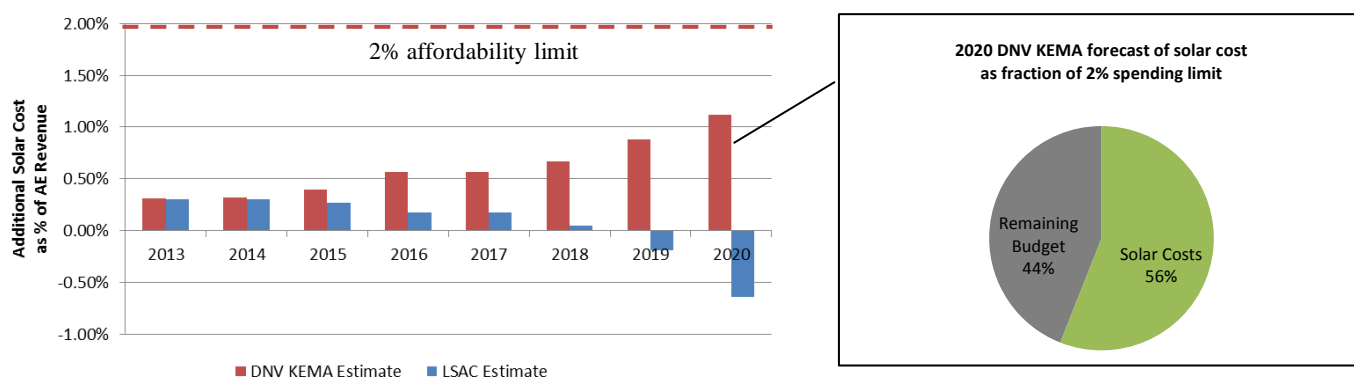
The DNV KEMA review concludes that the LSAC's recommended goal of 100 MW of customer rooftop solar is technically feasible and confirms many of the forecasted benefits and solar equipment cost declines. However, this assessment critiques the LSAC utility cost assumption of forecasted cost savings of local utility scale and other utility scale solar as compared to the LCOE of new gas fired generation. DNV KEMA suggests that the comparison should be between the cost of the proposed solar resources and least cost alternative of meeting forecasted demand. For local utility scale solar, the impact of this assumption change in year 2020 would be \$4.79 million of additional cost, versus the LSAC's forecasted \$0.5 million in savings, a \$4.85 million difference. For other utility scale solar, the impact of this assumption change in year 2020 would be \$7.48 million of additional cost from other utility scale solar versus the LSAC's forecasted \$11.27 million in savings, an \$18.75 million difference. For all solar categories, the additional costs could be as high as \$93 million over the 2013-2020 period and \$236 million for the 2013-2030 period. In year 2020, this would equate to over 1% of Austin Energy's forecasted revenue, as illustrated below:





**Figure 2: Annual Solar Costs Forecast 2013-2030**

Although outside the scope of this report, the City of Austin and Austin Energy may wish to assess the affordability of the recommended solar scenario vis-à-vis the 2% cost increase limit and other utility spending projects. The graphic below illustrates forecasted solar cost against the 2% affordability target from the both the original LSAC report and DNV KEMA's assessment:



**Figure 3: Annual Solar Costs Forecast vs. 2% affordability limit 2013-2020**



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The table below summarizes this report's review of the LSAC's three scenarios and DNV KEMA's findings:

Scenarios			
	1 Business as usual (200MW existing)	2 Meet demand growth (400MW)	3 Plant Replacement (600MW)
<u>Penetration Technical Feasibility</u>			
<b>Customer</b>	Feasible	Feasible	Feasible
<b>Utility</b>	Feasible	Uncertain <sup>1</sup>	Uncertain <sup>1</sup>
<b>Other</b>	NA	Feasible	Feasible
<u>Utility Cost Assumptions</u>			
<b>Customer</b>	Confirmed	Confirmed	Confirmed
<b>Utility</b>	Confirmed	Uncertain <sup>2</sup>	Uncertain <sup>2</sup>
<b>Other</b>	NA	Uncertain <sup>2</sup>	Uncertain <sup>2</sup>

**Table 4: Scenario Assessment Summary**

<sup>1</sup> Interconnection and grid remediation presents an additional implementation risk to achieving the 100 MW utility scale goal. Although not mentioned in the LSAC report, siting, permitting, and interconnecting generation greater than 10 MW involves considerable review and coordination within the City of Austin, Austin Energy, and ERCOT. There is also uncertainty within the City of Austin about the availability of sufficient city-owned sites.

<sup>2</sup> The uncertainty related to the utility cost implications for local utility scale and other utility scale solar are related to the "Net Cost" assumption discussed on page 1 of the executive summary and in section 3.2. DNV KEMA suggests that the LSAC's methodology of comparing solar costs to new natural gas power plant construction should be changed to a comparison of solar cost to the least-cost supply alternative. This approach is described in section 3.2.



DNV KEMA inventoried and reviewed the LSAC report's assumptions and cited sources for consistency with known and published solar-related cost data. Special attention was paid to the Lazard Levelized Cost of Energy Analysis as this source was cited throughout the report and provided the basis for several cost and benefit assumptions. The table below summarizes the most significant endorsements and questions DNV KEMA makes based on this review:

Confirmed	Uncertain
<ul style="list-style-type: none"> <li>Local physical solar resource potential</li> <li>Projected decline of installed solar cost</li> <li>Benefit of residential rebate phase-out</li> <li>Benefit from commercial PBI and resulting solar project scale</li> </ul>	<ul style="list-style-type: none"> <li>Negative net cost of utility scale solar (local and other)</li> <li>Unaccounted for administration and grid remediation cost</li> <li>Unaccounted for ITC expiration</li> </ul>

**Table 5: Confirmations and Questions Summary**

DNV KEMA investigated the feasibility of achieving 100 MW of customer-sited distributed solar, as suggested by the LSAC report. Based on a rooftop potential report, sponsored by the US Department of Energy (DOE), Solar America Cities, and Austin Energy in 2009, it is estimated that over 1,000 MW of residential and over 800 MW of commercial and industrial rooftop solar capacity is feasible.<sup>3</sup> Based on review of this source and additional analysis, DNV KEMA believes the 100 MW of customer-side distributed generation proposed by the LSAC report is feasible.

For local utility scale solar, the DOE report cites a technical availability of 9 MW of utility solar and 431 MW of civic solar. This study appears to confirm the technical feasibility of the LSAC's 100 MW suggested goal, but does not address the short or long-term economic feasibility of such an investment. Although DNV KEMA questions the applicability the LSAC report's "net-cost"

<sup>3</sup> Wiese, Steven. "Assessment of Rooftop Area in Austin Energy's Service Territory Suitable for PV Development". 2009

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assumptions, the assessment largely agrees with penetration technical feasibility and the economic development benefits that local utility scale solar generates.

The LSAC report also recommends 200 MW of other, non-local utility scale solar. Since this category is not local, DNV KEMA believes it would be technically feasible to secure 200 MW of solar from areas outside Austin. However, DNV KEMA believes the costs incurred and achieved by non-local, utility scale solar as estimated in the LSAC report are overly optimistic.

In addition, DNV KEMA compared a number of metrics to benchmark Austin Energy's solar standing alongside three municipal utilities of similar size: Sacramento Municipal Utility District (SMUD), CPS Energy, and Los Angeles Department of Water and Power (LADWP). DNV KEMA found that Austin Energy charges competitive rates to all customer sectors, and offers a generous rate for distributed solar. Austin Energy currently has 1.27% solar capacity to grid capacity, second only in this peer group to SMUD, which claims 4.32%<sup>4</sup>. However, CPS and LADWP both have plans in the near future for the addition of several hundred MW's of local and non-local utility scale solar. All utilities reviewed here are targeting 33%-35% renewable energy supply by 2020, except CPS, which is targeting 20% renewable supply by 2020. Ultimately, Austin Energy remains competitive in all categories reviewed here. Among these municipalities, a significant and aggressive trend toward increasing solar capacity continues.

---

<sup>4</sup> Solar capacity to grid capacity percentages are calculated by DNV KEMA based off of reported installed solar capacity (Table 22) and total grid capacity (Table 21).



## 2. Background and Purpose

The Austin City Council created the Austin Local Solar Advisory Committee (LSAC) and charged the committee with developing a strategic plan to ensure the optimum utilization of Austin's local solar resource base. LSAC, consisting of representatives of a broad cross-section of stakeholders, submitted in November of 2012 a report "A Strategic Plan for Local Solar in Austin" outlining three scenarios for local solar development. The three LSAC scenarios are:

1. Business as usual: No additional solar policy change
2. Meet AE load growth with new solar: 400MW of solar consisting of 100MW customer-sited, 100MW local utility scale, and 200MW non-local other utility scale
3. Gas plant replacement: 600MW of solar consisting of 100MW customer-sited, 200MW local utility scale, and 300MW non-local other utility scale

The LSAC report advocates that the City of Austin adopt Scenario 2 (400MW) as its solar goal. DNV KEMA is assisting Austin Energy to review the LSAC scenarios and to identify and evaluate all high level cost assumptions. This review is intended to inform Austin Energy's technical and financial planning efforts vis-à-vis the LSAC's recommended goals.

The DNV KEMA team leveraged both its industry knowledge and publically available sources to analyze the economics and solar benefits to evaluate the affordability of each of the three scenarios from both a utility perspective and from a community perspective.

For context, it is also worth noting that Austin Energy's solar goals were previously increased from 100MW to 200MW of solar capacity by 2020. This change took place in 2011 as part of Austin Energy's generation portfolio planning.



### 3. LSAC Findings and Assessment

#### 3.1 Plan's Strategies for Achieving stated Goal

The LSAC report identified three scenarios in their recommendation: business as usual, meet demand growth, and plant replacement.

##### 3.1.1 Residential Solar

LSAC made several fundamental assumptions to evaluate the financial feasibility of the proposed residential plan, which recommends a cumulative 45 MW of residential solar be installed by 2020. This section of the report will evaluate the rigor of these assumptions. The table below shows the summary of residential capacity goals and costs.

Residential									
	Pre-2013	2013	2014	2015	2016*	2017	2018	2019	2020
MWac (annual)		4	4.2	4.4	4.5	5.3	5.9	6.3	7
MWac (cumulative)	6.4	10.4	14.6	19	23.5	28.8	34.7	41	48
Installed costs (\$/Wdc)	\$3.90	\$3.65	\$3.41	\$3.19	\$2.98	\$2.79	\$2.61	\$2.44	\$2.28
Rebate Level (\$/Wac)	\$2.00	\$1.75	\$1.50	\$1.25	\$1.00	\$0.75	\$0.55	\$0.40	\$0.25
Rebate Budget (\$M)	\$4.00	\$7.00	\$6.25	\$5.50	\$4.50	\$4.00	\$3.25	\$2.50	\$1.75
Production factor is assumed to be 1,300 kWh/kWac, with a DC-AC derating factor of 0.95.									
Total Incentives (2013-2020): \$34.75M; After 2020: \$0									
NPV5% of Incentives (2013-2020): \$29.31M After 2020: \$0									
* The current federal investment tax credit (ITC) is scheduled to decrease from 30 percent to 10 percent in 2016. Modeling does not assume the effect of this expiration on nominal and after-tax costs									

**Table 6: Residential Summary Table Adapted from LSAC Strategic Report**

DNV KEMA reviewed the assumptions made by LSAC and summarized the major findings below:

## DNV KEMA Energy &amp; Sustainability



Category	Assumption	DNV KEMA Response	Comments
Installed Cost	\$3.90/Wdc with 6-7% Annual Decline	Reasonable	Ryan Wiser et al, in their July 2013 report titled "Tracking The Sun VI," indicate residential PV costs of \$3.90/W in Texas in 2012. <sup>5</sup> The declining price trend of 6-7% per year is reasonable and consistent with both an industry growth rate of 25% and a commonly anticipated technology "progress ratio," (price-volume learning curve term) of 0.82. <sup>6 7</sup>
Production Factor	1,300 kWh/kWac	Conservative	A production factor of just 1,300 kWh/kWac would be viewed as conservative by DNV KEMA. In the Austin climate, a typical but sub-optimal residential system could reasonably be expected to receive 5.2 peak sun hours per day per NREL's 30-year average. At a typical modern performance ratio of 0.75 for a modestly shaded and intermittently dusty residential system, this would amount to a production factor, or specific yield, of 1,423 kWh/kWp. Converting this to an ac-based capacity under warmer real field operational conditions would likely amount to a derating factor of about 0.85, not 0.95, making the expected production factor about 1,674 kWh/kW-ac. (A modern residential inverter might have an efficiency of 95%, but when coupled with the inevitable temperature, wire, and mismatch losses, the dc-to-ac conversion is about 85%.) The projected yield of 1,674 kWh/kW-ac is 29% higher than the LSAC production forecast anticipates, and would represent that much more of an energy contribution at no additional rebate cost. The higher production would increase the cost of a PBI-based incentive program, though such incentives are not common among residential installations.
Policy Impact	Did not address the impact from potential federal ITC changes in 2016	Optimistic	Based on PV cost and installed capacity trends over the past five years, and on the generally declining incentive structures in numerous states, it seems likely that the industry won't need to lobby heavily for a Federal 30% tax credit extension. While not wholly unpopular even among non-industry sectors, the political backlash of continued Federal generosity in the wake of the Solyndra case and similar loan failures may not be practical to expect. A Federal tax credit of 10% would seem to be more in line with past support. If so, there would be a drop-off of several percent in residential PV market capacity unless that discontinuity were matched by an equal boost at the state or local level, neither of which would seem likely for Austin Energy. On that basis, the residential forecast per LSAC would seem unexpectedly optimistic for growth between 2016-17, as the LSAC trend shows an 18% increase that year, with just 2-5% program increases in the three prior years.

**Table 7: Evaluation of Residential Assumptions**

While the LSAC report's estimated current and future installed PV costs are defensible, the report acknowledged that it did not model the expected decrease in the federal tax credit. The

<sup>5</sup> Wiser, Ryan et al. "Tracking the Sun VI". June, 2013

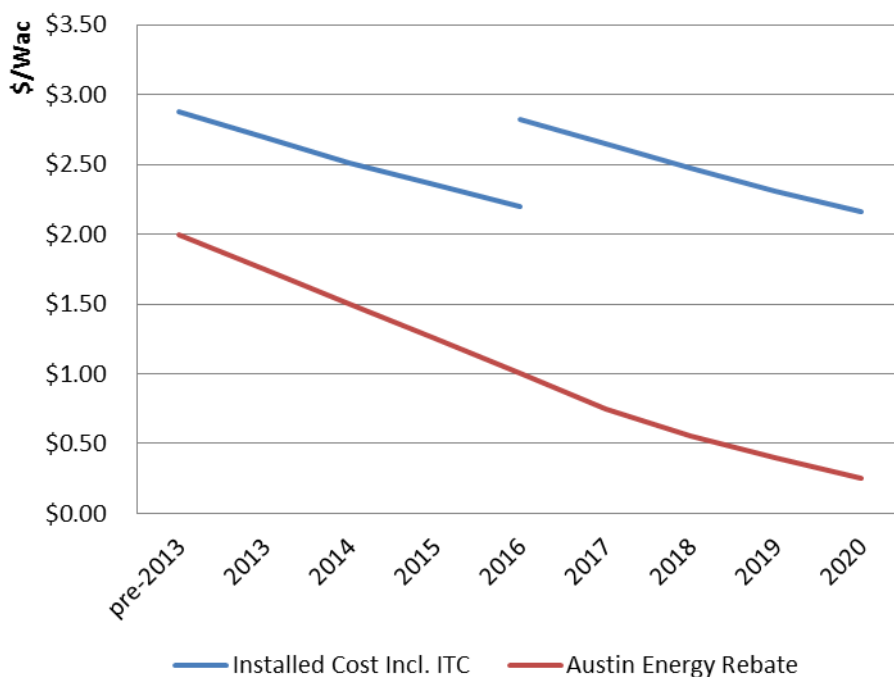
<sup>6</sup> Margolis, Robert. "Photovoltaic Technology Experience Curves and Markets". March, 2013

<sup>7</sup> Bowden, Stuart et al. Moore's Law of Photovoltaics. May, 2010





figure below shows the effect on installed costs that this change could have if the 30% tax credit were reduced to 10% in 2016. The area between the blue and red lines represents the customer's installed cost after the ITC and Austin Energy's rebate. The cost felt by the residential customer jumps from \$1.20/Watt to \$1.89/Watt and remains around this cost until 2020.



**Figure 8: Committee Estimates for Installed Solar Costs Including ITC and Austin Energy Rebate**

In further evaluating the feasibility of this level of solar, it is important to consider there are discussions across the country regarding the impact extensive distributed generation will have on rate schedules, although there has yet to be a consensus on the impact or which strategies can most effectively handle the movement toward distributed generation.

Further consideration should also be paid to the impact that additional import duties for PV panels will have on domestic prices. Although, to date, the impact from anti-dumping duties imposed on Chinese imports to the United States in 2012 has had little effect on the continued decline in domestic prices. Nonetheless, the City of Austin may wish to consider allowances for reducing local solar goals in the face of future supply or price disruptions.



### 3.1.2 Commercial Solar

LSAC's plan calls for a goal of 55 MW of commercial solar by 2020. Many of the assumptions made by the committee for commercial solar are similar to those made for residential. This section will review the rigor of the major assumptions, most of which are embedded in the Table 9, below.

Commercial									
	2012	2013	2014	2015	2016*	2017	2018	2019	2020
MWac (Annual)		1	4	4.5	7	4.4	6.1	14.3	12.8
MWac (cumulative)	1.4	2.4	6.4	10.9	17.9	22.4	28.4	42.7	55.5
Installed costs (\$/Wdc)	\$3.30	\$3.05	\$2.80	\$2.60	\$2.40	\$2.20	\$2.00	\$1.85	\$1.60
Installed Cost Annual Decrease		8%	8%	7%	8%	8%	9%	8%	14%
Installed costs Post ITC (\$/Wdc)	\$2.31	\$2.14	\$1.96	\$1.82	\$2.40	\$2.20	\$2.00	\$1.85	\$1.60
Annual PBI Budget (\$M)	\$0.14	\$0.14	\$0.13	\$0.11	\$0.10	\$0.08	\$0.06	\$0.04	\$0.01
Amt.: net projects (\$M)		\$0.21	\$0.75	\$0.75	\$1.00	\$0.50	\$0.50	\$0.75	\$0.25
Assumes 10 year PBI contracts									
Production factor is assumed to be 1,276 kWh/kWdc, per PVWatts v.1 modeled at 5% tilt, due south orientation in Austin. Conversion from kWh/kWdc to kWh/kWac assumes a DC-AC conversion factor of 0.85.									
Annual PBI commitment costs peak at \$5M/yr in 2020 and 2021 and taper to \$0/yr in 2030.									
Total Incentives (2013-2020): \$24.00M After 2020: \$25.71									
Total (through 2030): \$49.71									
NPV5% of Incentives (2013-2020): \$18.29M NPV5% of Incentives (through 2030): \$33.02M									
* The current federal investment tax credit (ITC) is scheduled to decrease from 30 percent to 10 percent in 2016. Modeling does not assume the effect of this expiration on nominal and after-tax costs.									

**Table 9: Commercial Summary Table Adapted from LSAC Strategic Report**



A summary of DNV KEMA's review of LSAC's assumptions is presented in the table below.

Category	Assumption	DNV KEMA Response	Comments
Installed Cost	\$3.30/Wdc and 7%-14% annual decline	Slightly Optimistic	Wiser's 2013 Lawrence Berkeley report, the same source used to verify the exact price cited in the LSAC report for Texas residential PV cost in 2012, also lists a 2012 medium-size commercial PV cost of \$4.50/Wp in Texas, so the LSAC cost figures seem considerably more optimistic than that one trusted source would suggest. <sup>8</sup> However, for commercial PV greater than 100 kW, for which no Texas system data were reported due to an insufficient sample size, there were states that reported costs in the \$3.30/W range. For example, Colorado commercial systems averaged \$3.20/W, so the LSAC quote is not implausibly optimistic.
Production Factor	1,276 kWh/kWac	Conservative	The specific yield for a commercial rooftop system in Austin, even for a popular very low-slope type, would likely be well in excess of 1,276 kWh/kWac. Depending on the value used to convert kWac to kWp, a yield of 1,276 would translate to less than 1,100 kWh/kWp, an implausibly poor result for this climate. DNV KEMA would expect a typical low-slope yield to be more in line with the product of a solar resource of 5 peak hours per day x 365 days/yr x 0.80 performance ratio for modern, maintained and unshaded commercial systems, for a dc yield of 1,460 kWh/kWp. This is the more common nomenclature used in the industry, but if that value were converted to an ac basis using a conversion factor of 0.85, the corresponding ac-based yield would be 1,718 kWh/kW-ac. This is 35% above the LSAC projection and is worthy of further study and clarification. In PVWatts, users are tasked to apply a derate factor that accounts for all losses other than temperature. The default derate factor is 0.77, which was appropriate for older systems but is widely viewed as too conservative for contemporary systems. Modern PV features true-to-nameplate module output, whereas manufacturers formerly routinely overstated actual output by 5%. Modern inverters operate in the 95-97% efficiency range, while the older PVWATTS guideline assumed efficiencies of about 90-92%. These two changes alone mean most modern PV systems should achieve annual performance ratios of 75-80%, when older systems typically hovered around 70%. PVWatts is a fine tool, but its inputs must be user-adjusted to reflect current practices and expectations, and generally, these expectations are now several percent better than when the program was introduced over 15 years ago.
Policy Impact	Did not address the impact from potential federal ITC changes in 2016	Optimistic	See Residential Section

**Table 10: Evaluation of Commercial Assumptions**

<sup>8</sup> Wiser, Ryan et al. June, 2013



From a financial perspective, the assumed installed costs seem slightly optimistic, though achievable based on a review of current sources.<sup>9</sup> It should be noted that the annual decline in commercial solar cost is between 7% and 14%, which is more rapid than residential. It should also be noted that LSAC acknowledged ignoring the expiration of the federal ITC in commercial as it did in the residential sector.

In calculating the financial impact from the utility's perspective, LSAC estimated annual incentive budgets. While the total estimated incentive budget from 2013-2020 is twenty-four million dollars, the year-by-year annual PBI Budget figures tabulated in the report appear to be \$/kWh. DNV KEMA used the LSAC's assumed production factor and proposed addition of commercial solar to recalculate total annual budgets. Annual budgets as outlined in the report and recalculated by DNV KEMA are shown below.

Commercial									
	2012	2013	2014	2015	2016*	2017	2018	2019	2020
Annual PBI Budget (\$/kWh)	\$0.14	\$0.14	\$0.13	\$0.11	\$0.10	\$0.08	\$0.06	\$0.04	\$0.01
Annual PBI Budget (\$M)	\$0.25	\$0.43	\$1.07	\$1.70	\$2.55	\$2.97	\$3.40	\$4.03	\$ 4.25

**Table 11: Annual Commercial Incentive Budgets as Reported in the LSAC Strategic Report**

While the LSAC reports a total incentive budget of \$24.00M from 2013-2020, our calculation reports \$20.39M, a small, but not insignificant difference.

Separately, the LSAC report recommends changes to include a capacity charge benefit for commercial solar. DNV KEMA would like to point out that both net-metered commercial solar (those under 20kw) and full PBI commercial solar implicitly receive capacity benefits from solar by reducing capacity demanded during the 4 Coincident Peak (4CP) days that determine capacity/transmission charges. DNV KEMA recommends Austin Energy conduct a more detailed investigation into the commercial rate schedule to fully value this benefit.

<sup>9</sup> Wisner, Ryan et al. June, 2013



### 3.1.3 Local Utility-Owned or Contracted Solar

In addition to the distributed solar, LSAC's plan calls for a goal of 100 MW of local, utility scale solar by 2020, requiring an additional installment of 70 MW. LSAC's financial analysis of utility scale solar is justifiably different than that of distributed solar. This section will review the rigor of the major assumptions made in their analysis, most of which are embedded below.

Local Utility-Owned or -Contracted									
	2012	2013	2014	2015	2016*	2017	2018	2019	2020
MWac (annual)		1	2	3	8	2	10	15	28
MWac (cumulative)	31	32	34	37	45	47	57	72	100
MW AC (cumulative, excl. WSP)	-	1	3	6	14	16	26	41	69
Solar Contract Cost (\$/kWh)	\$0.11	\$0.11	\$0.10	\$0.10	\$0.10	\$0.09	\$0.09	\$0.09	\$0.09
New Gas Cost (\$/kWh)	\$0.08	\$0.08	\$0.08	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09
Net Solar Cost (\$/kWh)	\$0.03	\$0.03	\$0.02	\$0.02	\$0.01	\$0.01	\$0.00	(\$0.00)	(\$0.01)
Production Factor (kWh/kWac)	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750
Net Solar Cost (\$M)		\$0.04	\$0.11	\$0.20	\$0.35	\$0.37	\$0.40	\$0.32	(\$0.05)
Net solar cost is the difference between estimated contracts for new solar and new gas generation. Net solar cost excludes the cost of the already-contracted Webberville Solar Project (WSP), though this project is counted toward meeting the goal.									
Levelized cost of solar in 2012 assumes \$2.50/watt for ground-mounted single-axis tracking per Lazard's Levelized Cost of Energy Analysis – Version 5.0, 2011, blended with smaller rooftop and ground-mounted installations in the range of \$136-\$192/MWh. This estimate of solar costs is high relative to current committee estimates, which show large local solar costs at \$2.40/watt. Solar costs are assumed to decrease at 3% per year.									
Levelized costs of new gas generation are estimated by Lazard's Levelized Cost of Energy Analysis – Version 5.0, 2011 in the range of \$69-\$97/MWh; modeling assumes \$80/MWh. New gas costs are assumed to increase at 2% per year. These values are conservative compared to findings presented in the Committee's working group reports.									
Net solar cost (2013-2020): \$1.73M (continues at -\$0.05/yr after 2020, assuming no new acquisition).									
NPV5% of net solar costs (2013-2020): \$1.37M.									
Total (through 2030): \$1.21M. NPV5% (through 2030): \$1.10M.									
Both total values assume no new acquisition after 2020, and all contract lengths through 2030.									
* The current federal investment tax credit (ITC) is scheduled to decrease from 30 percent to 10 percent in 2016. Modeling does not assume the effect of this expiration on nominal and after-tax costs.									

**Table 12: Local Utility Scale Summary Table Adapted from the LSAC Strategic Report**

## DNV KEMA Energy &amp; Sustainability



A summary of the review of assumptions is shown below.

Category	Assumption	DNV KEMA Response	Comments
Solar Contract Cost	\$0.11/kWh to \$0.09/kWh	Reasonable	The 20-year PPA cost of 11 cents/kWh seems reasonable against a backdrop of assumptions centered on a standard commercial third-party system at a \$2.50/W installed tracking system cost, located near Midland, TX, with a discount rate of 9% and debt cost of 8%. Under this set of assumptions, the PPA allows the investor to realize a modest lifetime benefit/cost ratio of 1.05 and a positive net present value. This economic picture improves if one assumes a continuation of electricity sales under a new PPA after 20 years. The PPA price does not seem overly generous. In the absence of any tax credits, the investment is very poor - a B/C ratio of just 0.71 and a certain no-go, even if the capital cost goes down to \$1.70/W. With no tax advantages, a system cost of \$1.70 or less is needed for the investment to be economic on a 20-year PPA.
Production Factors	Steady production factor	Slightly Optimistic	DNV KEMA customarily forecasts an annual decline of 0.75% per year in output. This is in good agreement with the 0.8% average degradation rate cited by NREL's Jordan and Kurtz in their white paper surveying 1,920 samples. <sup>10</sup> DNV KEMA would expect this inevitable but slow degradation to have a biased but small effect that would slightly dilute the expectations cited in the LSAC report.
Installed Costs	\$2.50/Watt for ground-mounted single-axis tracking	Slightly Conservative	As rapidly as the installed costs for this style of PV system have declined in the past five years, the \$2.50/W estimate seems very reasonable, perhaps slightly conservative compared to the latest bids being offered for comparable tracking systems in southwest locations.
Installed Costs	3% annual decrease in solar cost	Conservative	The 3% annual cost decline seems historically conservative. At an industry growth rate of 25% and assuming a technology progress ratio of 0.82 (per Margolis, 2003 and later citations), an annual cost decrease of 7% would seem likely and matches what has been seen over the past decade. If growth slows to just 5% per year, a cost drop of 3% would still be realized according to the progress ratio principle.

**Table 13: Evaluation of Local Utility Scale Assumptions**

The case made by LSAC for local utility scale solar is conservative or reasonable overall.

However, the report compares the costs and benefits of utility solar to New Gas, which would likely inflate the achievable savings. This topic is discussed in section 3.2.

Interconnection and grid remediation presents an additional implementation risk to achieving the 100 MW utility scale goal. Although not mentioned in the LSAC report, siting, permitting, and interconnecting generation greater than 10 MW involves considerable review and coordination within the City of Austin, Austin Energy, and ERCOT. There is also uncertainty within the City of Austin about the availability sufficient city-owned sites.

<sup>10</sup> Jordan and Kurtz. "Photovoltaic Degradation Rates - An Analytical Review". Page 7. 2011





### 3.1.4 Other Utility Scale Solar

Finally, LSAC's plan calls for a goal of 200 additional MW of other utility scale solar by 2020. This section will review the rigor of the major assumptions made in their analysis, most of which are embedded below.

Other Utility Scale									
	2012	2013	2014	2015	2016*	2017	2018	2019	2020
MWac (annual)	-	-	-	15	35	-	25	50	75
MWac (cumulative)	-	-	-	15	50	50	75	125	200
Solar Contract Cost (\$/kWh)	\$0.08	\$0.08	\$0.08	\$0.07	\$0.07	\$0.07	\$0.07	\$0.07	\$0.06
New Gas Cost (\$/kWh)	\$0.08	\$0.08	\$0.08	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09
Net Solar Cost (\$/kWh)	\$0.00	(\$0.00)	(\$0.01)	(\$0.01)	(\$0.02)	(\$0.02)	(\$0.02)	(\$0.03)	(\$0.03)
Production Factor (kWh/kWac)	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250
Net Solar Cost (\$M)		\$0.00	\$0.00	(\$0.40)	(\$1.64)	(\$1.64)	(\$2.96)	(\$6.03)	(\$11.27)
Net solar cost is the difference between estimated contracts for new solar and new gas generation.									
Production factor is assumed to be 2,036 kWh/kWdc, per PVWatts v.1 modeled at latitude tilt, due south orientation, single axis tracker in Midland. Conversion from kWh/kWdc to kWh/kWac assumes a DC-AC conversion factor of 0.90.									
Levelized cost of solar in 2012 assumes \$2.50/watt for ground-mounted single-axis tracking per Lazard's Levelized Cost of Energy Analysis – Version 5.0, 2011. This estimate of solar costs is high relative to current committee estimates, which show large solar costs as low as \$1.80/watt. Solar costs are assumed to decrease at 3% per year.									
Levelized costs of new gas generation are estimated by Lazard in the range of \$69-\$97/MWh; modeling assumes \$80/MWh. New gas costs are assumed to increase at 2% per year. These values are conservative compared to findings presented in the Committee's working group reports.									
Total Cost (2013-2020): -\$23.94M. NPV5% of Costs (through 2020): -\$17.11M.									
Total (through 2030): -\$136.60M. NPV5% (through 2030): -\$75.98M.									
Both total values assume no new acquisition after 2020, and all contract lengths through 2030.									
* The current federal investment tax credit (ITC) is scheduled to decrease from 30 percent to 10 percent in 2016. Modeling does not assume the effect of this expiration on nominal and after-tax costs.									

**Table 14: Other Utility Scale Summary Table Adapted From LSAC Strategic Report**

DNV KEMA Energy & Sustainability



The table below details the assumptions made in the LSAC report and DNV KEMA's evaluation of them.

Category	Assumption	DNV KEMA Response	Comments
Solar Contract Cost	\$0.08/kWh to \$0.06/kWh	Reasonable (see ITC comment)	The reduced PPA of 8 cents/kWh would only look attractive if the investor were able to realize the 30% tax credit (or its equivalent Federal 1603 Grant), and if the cost were \$2/W, and the location was a sunnier spot such as El Paso, and if the PPA term were 30 years. Under those terms, a favorable B/C ratio of 1.09 may be realized. At 20 years, this doesn't seem to pencil out favorably - B/C ratio dips slightly below 1.0. At \$2.50/W, the B/C ratio dips to 0.91 and is far too low to justify the investment. The financing terms of 20% equity, 80% debt, 8% loan and 9% discount rate as applied above were used for this analysis as well.
Production Factor	2,250 kWh/kWac	Conservative	The production factor of 2,250 is consistent with DNV KEMA estimates for tracking system output in El Paso on a dc basis, that is, 2,250 kWh/kWp is a reasonable estimate. On an ac basis, the stated value is viewed by DNV KEMA as conservative, since a value of over 2,600 would be expected on an ac basis for this optimal southwest tracker example. Throughout, it appears there may be a mismatch of labeling on the production factor units, as 2,250 kWh/kWp is a common high-end yield that has been proven in the field, and, as noted above, yields are most commonly expressed in units of kWh/kWp.
DC-AC Conversion Factor	DC-AC Conversion factor of 0.90	Reasonable	In general, the more generous assumption of a 0.90 conversion is probably justified for best-case contemporary utility scale systems. Most should be able to achieve the 0.90 dc to ac conversion because they feature very high efficiency inverter/transformer combinations of around 0.96. Depending on what other loss factors are considered in the conversion, this leaves plenty of calculation allowance for small but cumulative effects such as clipping, wire resistance, imperfect maximum-power-point tracking, and mismatch, which collectively would lessen the conversion factor from 0.96 but still enable it to surpass 0.90. The one large unknown in this discussion is temperature. If temperature is intended to be included in this dc to ac conversion, then 0.90 is not likely to be attained. Temperature losses alone would be in the 8% range in most southwest locations. That consideration alone would drop the overall dc to ac conversion factor back into the mid-80 percentile range. The reasonableness of this and other conversion and conventions is entirely dependent on the terms that lumped within the conversion.
Installed Costs	\$2.50/W	Slightly Conservative	Although a reasonable cost assumption, as noted above, at \$2.50/W, the investment does not look attractive, even in an optimal southwest location such as El Paso. At this cost, a higher PPA would be needed: at least 10 cents/kWh for 20 years.

**Table 15: Evaluation of Other Utility Scale Assumptions**

Although not addressed in the LSAC report, Austin Energy may also wish to consider the cost impacts from ERCOT settlement of non-local generation. Such an analysis is beyond the scope of this assessment and will depend on the nodal location of the procured other utility scale solar.



Additional analysis of other utility scale solar assumptions is included in the Appendix of this report.

### **3.1.5 Developing Options for Solar Financing**

The LSAC report suggests Austin Energy pursue both traditional and innovative financing mechanisms, including on-bill repayment, leases or lease-to-own, commercial financing, and co-development with industry partners. The report does not go so far as to recommended specific solutions. DNV KEMA agrees that these are appropriate methods to research further. Aside from the traditional capacity-based rebate of \$1.5/Watt and the Value of Solar Credit of 12.8 cents/kWh, Austin Energy also has other programs that reduce the upfront and overall costs of solar systems for their customers. Austin Energy is already offering subsidized financing through the Velocity Credit Union<sup>11</sup>. This ARRA-funded program offers loans as low as 1.9% APR for residential customers to purchase and install PV systems. In addition, Austin Energy has been exploring various options for community solar programs that the utility could offer. Two of the main options are:

1. SolarChoice. This is similar to Austin Energy's GreenChoice program where a customer's regular fuel charge is replaced by a renewables fuel charge, in this case SolarChoice fuel charge. The fuel charges are based on the actual costs of fuels or power purchase price to Austin Energy.
2. SolarShare. This is program allows customers to own 1-kW shares of a solar portfolio by paying for a fixed monthly fee over a fixed number of years, eg. 5 years. By the end of the period, the solar share is considered fully paid for, but the customers will continue to receive benefits of the solar share at the Value of Solar rate for 25 years (the presumed lifetime of PV systems).

In addition, in June 2013, the Governor approved SB 385 Property Assessed Clean Energy (PACE) Financing Program for commercial and industrial sectors. This program allows property owners to obtain long-term and low-cost financing from private lenders for their solar systems and repay the loan annually via an assessment on their property taxes.

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<sup>11</sup> <https://www.velocitycu.com/loans>

DNV KEMA Energy & Sustainability



### **3.1.6 Solar Accessibility**

The LSAC report notes that where economies of scale can be leveraged, cost effectiveness increases and larger projects are better suited to include community members who couldn't participate otherwise. One of the key suggestions LSAC has offered to increase the accessibility of solar is to further research into community solar. DNV KEMA's prior community solar research for Austin Energy identified the feasibility of a utility-driven capacity-based model.<sup>12</sup> This approach would offer customers a 1-kW share of solar and would pay the system off over five to seven years, although Austin Energy would continue to maintain them throughout their lifetime. The report found this model to be feasible and provided Austin Energy with recommended rate per month.

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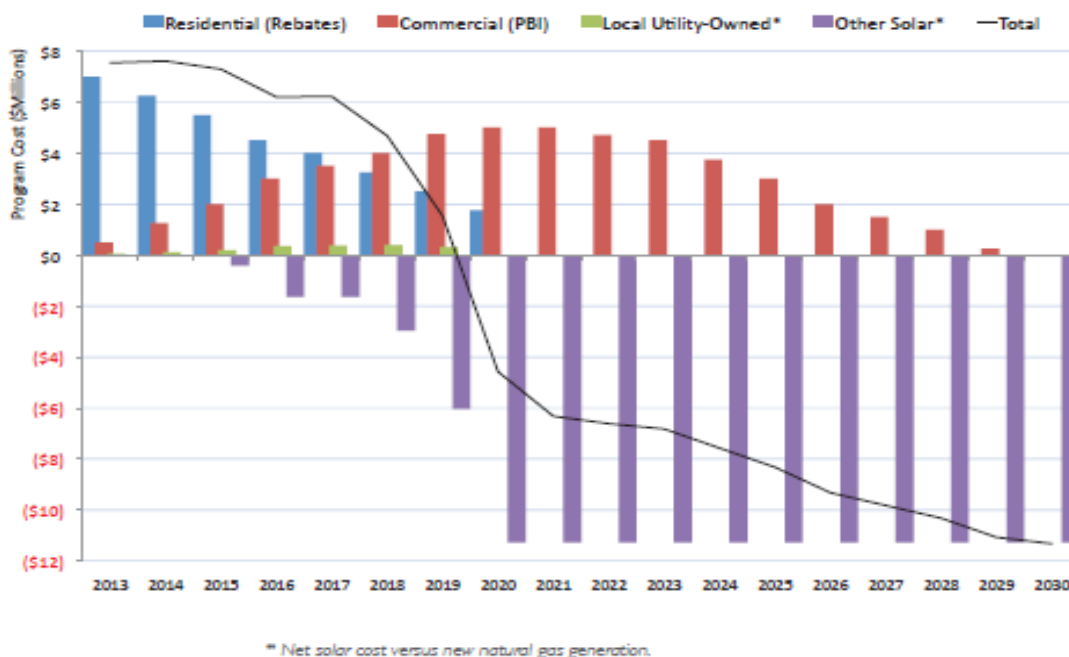
<sup>12</sup> DNV KEMA. "Community Solar Program". February 2013.



## 3.2 Plan's Impacts Summary

### 3.2.1 Utility Costs

The LSAC report forecasts Austin Energy's costs of supporting Scenario 2 in nominal, NPV and percent of revenue terms. The report's cost impact by solar type is summarized in the chart from page 17 of the LSAC report copied below:



**Figure 16: LSAC Summary of Costs and Savings**

As the illustration shows, the forecasted total scenario cost of \$36 million depends on expected savings from the other utility scale solar resource. The table below is extracted from the LSAC report footnotes.

## DNV KEMA Energy &amp; Sustainability



Annual Costs (\$M)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Residential (Rebates)	\$7.00	\$6.25	\$5.50	\$4.50	\$4.00	\$3.25	\$2.50	\$1.75	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Commercial (PBI)	\$0.50	\$1.25	\$2.00	\$3.00	\$3.50	\$4.00	\$4.75	\$5.00	\$5.00	\$4.71	\$4.50	\$3.75	\$3.00	\$2.00	\$1.50	\$1.00	\$0.25	\$0.00
Local Utility-Owned*	\$0.04	\$0.11	\$0.20	\$0.35	\$0.37	\$0.40	\$0.32	(\$0.05)	(\$0.05)	(\$0.05)	(\$0.05)	(\$0.05)	(\$0.05)	(\$0.05)	(\$0.05)	(\$0.05)	(\$0.05)	(\$0.05)
Other Solar*	\$0.00	\$0.00	(\$0.40)	(\$1.64)	(\$1.64)	(\$2.96)	(\$6.03)	(\$11.27)	(\$11.27)	(\$11.27)	(\$11.27)	(\$11.27)	(\$11.27)	(\$11.27)	(\$11.27)	(\$11.27)	(\$11.27)	(\$11.27)
Total	\$7.54	\$7.61	\$7.30	\$6.20	\$6.23	\$4.68	\$1.54	(\$4.57)	(\$6.32)	(\$6.61)	(\$6.82)	(\$7.57)	(\$8.32)	(\$9.32)	(\$9.82)	(\$10.32)	(\$11.07)	(\$11.32)

**Table 17: Utility Costs Impact Summary Table Adapted From LSAC Strategic Report**

As discussed in section 3.1.4 above, the forecasted cost savings of utility scale and other utility scale solar is compared to the LCOE of new gas fired generation, as valued in the Lazard LCOE analysis. It is unclear to DNV KEMA why this comparison is relevant from the utility cost perspective. DNV KEMA suggests that the comparison should be between the cost of the proposed solar resources and least cost alternative of meeting forecasted demand. As shown in the Appendix, forward wholesale prices for peak periods (5x16) in ERCOT's South zone for 2014-2020 range from \$44-50/MWh. This is a large difference from LSAC's comparison to \$80/MWh increasing 2% per year. The impact of this assumption change in year 2020 would be \$7.48 million of additional cost from Other Solar versus the LSAC's forecasted \$11.27 million in savings, an \$18.75 million difference.



## DNV KEMA Energy &amp; Sustainability



Other Utility Scale	2012	2013	2014	2015	2016*	2017	2018	2019	2020
MWac (annual)	-	-	-	15	35	-	25	50	75
MWac (cumulative)	-	-	-	15	50	50	75	125	200
Solar Contract Cost (\$/kWh)	\$0.08	\$0.08	\$0.08	\$0.07	\$0.07	\$0.07	\$0.07	\$0.07	\$0.06
New Gas Cost (\$/kWh)	\$0.08	\$0.08	\$0.08	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09
Forward power price \$/kWh			\$0.045	\$0.049	\$0.050	\$0.048	\$0.047	\$0.046	\$0.046
Net of Gas Solar Cost (\$/kWh)	\$0.00	(\$0.00)	(\$0.01)	(\$0.01)	(\$0.02)	(\$0.02)	(\$0.02)	(\$0.03)	(\$0.03)
Net of forward price cost (\$/kWh)			\$0.030	\$0.024	\$0.021	\$0.021	\$0.020	\$0.019	\$0.017
Production Factor (kWh/kWac)	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250
Net Solar Cost (\$M)		\$0.00	\$0.00	(\$0.40)	(\$1.64)	(\$1.64)	(\$2.96)	(\$6.03)	(\$11.27)
Net Solar Cost vs. Forwards (\$M)				\$0.81	\$2.38	\$2.37	\$3.38	\$5.29	\$7.48
Cumulative Other Utility Scale Cost (\$M)				\$0.81	\$3.19	\$5.56	\$8.93	\$14.23	\$21.71

**Table 18: Other Solar Cost Net of Least-Cost Supply Alternative**

The LSAC report estimates that without savings from other utility scale solar, the cost of local solar would be \$60 million during the 2013-2020 period. The table above suggests that considering a net cost of other utility scale solar versus the least cost supply alternative, the additional costs for other utility scale solar could be as high as \$21 million during 2013-2020 period. Total cumulative solar cost for all categories for 2013-2020 could exceed \$90 million. These changes to the Other Utility Scale Solar assumptions are illustrated in the figures and tables below:

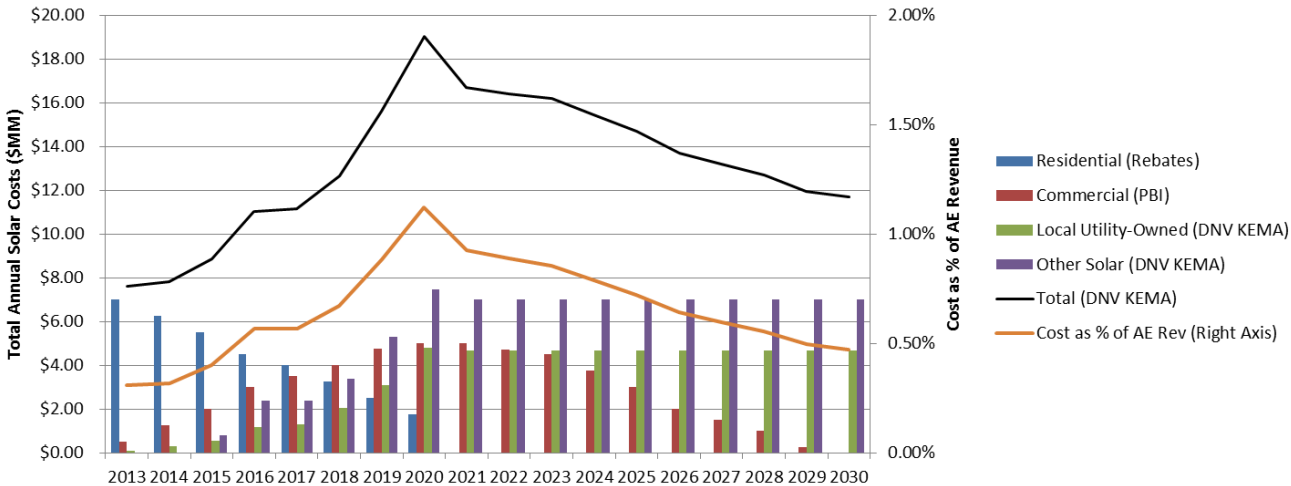


Figure 19: Revised net cost of solar forecast (\$Millions)

## DNV KEMA Energy &amp; Sustainability



Year	Est. Total Revenue (\$M)	Residential	Commercial	Large Local (Revised)	Large Other (Revised)	Less 2012 Baseline	Total Applied Against Aff. Limit	Solar Cost as % of Est. Total Revenue	Solar Cost as % of Est. Total Revenue (Local Only)
2013	\$1,167	\$7.00	\$0.50	\$0.11	\$0.00	(\$4.00)	\$3.54	0.31%	0.31%
2014	\$1,191	\$6.25	\$1.25	\$0.30	\$0.00	(\$4.00)	\$3.61	0.32%	0.32%
2015	\$1,215	\$5.50	\$2.00	\$0.54	\$0.81	(\$4.00)	\$4.83	0.40%	0.33%
2016	\$1,239	\$4.50	\$3.00	\$1.16	\$2.38	(\$4.00)	\$7.33	0.57%	0.38%
2017	\$1,264	\$4.00	\$3.50	\$1.29	\$2.37	(\$4.00)	\$7.28	0.57%	0.38%
2018	\$1,289	\$3.25	\$4.00	\$2.05	\$3.38	(\$4.00)	\$8.48	0.67%	0.41%
2019	\$1,315	\$2.50	\$4.75	\$3.07	\$5.29	(\$4.00)	\$11.30	0.88%	0.48%
2020	\$1,341	\$1.75	\$5.00	\$4.79	\$7.48	(\$4.00)	\$14.13	1.12%	0.56%

**Table 20: Cost as a Percentage of Revenue with Revised Large Local and Other Utility Scale Solar Cost**

DNV KEMA confirms the LSAC's assumption of 2% annual revenue growth. This growth rate is in line with ERCOT's "Long-Term Energy Forecast rate of 1.9%"<sup>13</sup>.

### 3.2.2 Other Impacts and Benefits

The LSAC report also considered community benefits such as economic development, health and environmental benefits. Although not the primary focus of this assessment, DNV KEMA reviewed these stated benefits and found the assumptions and claims reasonable.

<sup>13</sup> Electric Reliability Council of Texas. "2013 ERCOT Planning, Long-Term Hourly Peak Demand and Energy Forecast".

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For example the National Renewable Energy Laboratories Jos and Economic Development Impact model (JEDI) is a widely-cited and vetted model for these types of benefits. The local Austin, TX area benefit may be greater than the JEDI assumptions indicated. A recent review of the qualified Austin-area solar contractor database yielded over 700 local firms.

The LSAC report proposes approximately \$15 million in health and environmental benefits during the period. Although not material to the utility cost perspective, this claim seems reasonable especially considering water savings in the context of the current drought and resulting economic loss in the LCRA territory. However, actual air emissions saving estimated from the LSAC report's sources may be less than forecasted due to the fact that no coal plants will be replaced in the Austin Energy territory and that the lignite and sub-bituminous plants located south of Austin will not likely reduce production as a result of Austin's increased use of solar.



## 4. Austin Energy Benchmarking

DNV KEMA benchmarked Austin Energy's solar program offerings, goals, and pricing with those of CPS, Energy, Los Angeles Department of Water and Power (LADWP), and Sacramento Municipal Utility District (SMUD). These utilities were chosen because they were municipalities, relatively similar in customer and revenue size and located in climates amenable to solar. Metrics for choosing these utilities are shown in Table 21. In revenue, customer count, and total grid capacity, SMUD is the closest municipality to Austin Energy considered in this review. Austin Energy's average 2011 retail prices for all sectors were lower than those of SMUD and LADWP. Compared to CPS, Austin Energy's electricity prices were higher across all sectors except for industrial, where Austin Energy averaged 6.36 cents/kWh and CPS averaged 6.57 cents/kWh.

Muni	Location	Average 2011 Retail Price <sup>14</sup>	Customer Count	Annual Revenue	Peak Load (MW)
Austin Energy	Austin, Texas	\$0.1188/kWh...Res \$0.1031/kWh...Com \$0.0636/kWh...Ind \$0.0923/kWh...Total	417,865 <sup>15</sup>	1,200,000,000 <sup>15</sup>	2,714
LADWP	Los Angeles, California	\$0.1281/kWh...Res \$0.1275/kWh...Com \$0.1153/kWh...Ind \$0.1266/kWh...Total	1,461,521 <sup>16</sup>	3,099,260,000 <sup>17</sup>	6,000 <sup>17</sup>
CPS	San Antonio, Texas	\$0.0926/kWh...Res \$0.774/kWh...Com \$0.0657/kWh...Ind \$0.0838/kWh...Total	728,000 <sup>17</sup>	1,900,000,000 <sup>18</sup>	4,817 <sup>18</sup>
SMUD	Sacramento, California	\$0.1235/kWh...Res \$0.1360/kWh...Com \$0.1131/kWh...Ind \$0.1192/kWh...Total	529,695 <sup>19</sup>	1,293,000,000 <sup>19</sup>	3,400 <sup>20</sup>

**Table 21: Utility Benchmarking Criteria as of 2013 (except where noted)**

<sup>14</sup> EIA Sector Revenues Divided by Sector Delivered Electricity; <http://www.eia.gov/electricity/data.cfm>

<sup>15</sup> AE 2011 Annual Performance Report

<sup>16</sup> Email correspondence from LADWP newsroom

<sup>17</sup> 2011 California Energy Commission

<sup>18</sup> CPS quarterly financial report. Peak in 2012.

<sup>19</sup> smud.org

<sup>20</sup> smud.org

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Next in their review, DNV KEMA compared Austin Energy's solar capacities, solar rates, and solar program offerings to each utility. The details of this review are shown in Table 22. DNV KEMA found that Austin Energy's 31 MW of utility scale and 7.8 MW of distributed solar are comparable to CPS' installations, though lower than SMUD, which has already achieved 158.7 MW of solar, 155 MW of which are distributed. LADWP has also installed comparatively more distributed solar per customer, but their installed utility scale capacity is lower than Austin Energy's at 11.6 MW. In addition, CPS and LADWP are aggressively increasing utility scale solar. LADWP has approved two PPAs for over 400 MW of utility scale solar and CPS has a 400 MW solar project in development. Overall, it appears that Austin Energy's peers are moving forward with portfolios including well over 100 MW of solar.

Regarding solar rates, Austin Energy is currently offering a rate of 12.8 cents/kWh, among the higher rates in this peer group. LADWP is offering feed-in tariff rates from 17 cents/kWh down to 13 cents/kWh in a stepwise decline as installed solar targets are met.<sup>21</sup> CPS recently proposed the SunCredit program, initially offering 5.6 cents/kWh, but estimating a 10.4 cent/kWh 20-year average market price.<sup>22</sup> The rollout of this program was postponed and there has been little detail regarding a replacement.

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<sup>21</sup> <http://www.ladwpnews.com/go/doc/1475/1681111/>

<sup>22</sup> [http://www.cpsenergy.com/files/SunCredit\\_Market\\_Price.pdf](http://www.cpsenergy.com/files/SunCredit_Market_Price.pdf)





Muni	Solar Capacity (MW)	Solar Capacity as Percent of Peak Load	Utility Solar Rates	Programs
Austin Energy	13.6 MW Distributed <u>31 MW Utility Scale</u> 44.6 MW Total	1.6%	\$0.128/kWh Value of Solar (Residential) \$0.12/kWh PBI (Commercial) \$1.50/Watt rebate	Residential rebates Commercial incentives Value of solar rate GreenChoice
LADWP	57 MW Distributed <u>11.6 MW Utility Scale</u> 68.6 MW Total  210 and 250 MW approved utility scale PPA <sup>23</sup>	1.1%	\$0.17 to \$0.13/kWh FIT <sup>24</sup>  Separate capacity rebate also available which can be combined with net metering customer benefits.	Solar Incentive 150 MW FIT TOD rate
CPS	10 MW Distributed <u>45 MW Utility scale;</u> 55 MW Total  400 MW Utility scale in development <sup>25</sup>	1.1%	\$0.056/kWh SunCredit (Discontinued) Net Metering Interim Solution  \$1.60/W STEP rebate (Residential)	STEP incentive Net Metering (until alternative is defined)
SMUD	155.3 MW Distributed 2.3 MW Utility Scale <u>1.1 MW Community Solar</u> 158.7 MW total solar	4.4%	\$0.0756/kWh FIT 10 year \$0.0837/kWh FIT 15 year \$0.0923/kWh FIT 20 year <sup>26</sup> .  Separate capacity rebate also available which can be combined with net metering customer benefits.	Solar incentive SolarShares Community Solar FIT Program (Currently closed for new applicants) TOD rate

**Table 22: Utility Comparison of Current Solar Capacities, Solar Rates, and Incentive Programs as of 2013**

Lastly, the DNV KEMA team reviewed legislative and utility-set renewable and solar goals. These comparisons are shown in Table 23. Austin Energy has the most aggressive renewable goal within this group, targeting a power supply made up of 35% renewable generation by 2020 and a minimum of 200 MW solar. LADWP and SMUD have both targeted 33% renewable generation by 2020 which is in line, though not required for municipalities, with the California Renewable Portfolio Standard.

<sup>23</sup> <http://runonsun.com/~runons5/blogs/media/blogs/a/FiT%20Program%20Proposal%20October%202012.pdf>

<sup>24</sup> <https://www.ladwp.com/>

<sup>25</sup> <http://www.tppa.com/events/mtgArchives/docs/am13/kosub.pdf>

<sup>26</sup> (<https://www.smud.org/en/business/customer-service/rates-requirements-interconnection/documents/FIT-Pricing.pdf>) The FIT price is between \$0.0628 to \$0.1860 for SMUD depending on the Time of Day. By comparison, Austin Energy's \$0.128/kwh rate is not significantly higher even considering the capacity rebate as well.

## DNV KEMA Energy &amp; Sustainability



Muni	State Renewable Goal (From DSIRE)	Muni Renewable Goal	Current Muni Renewable Percentage
Austin Energy	5,880 MW by 2015 10,000 MW by 2025 Non-wind goal of 500 MW (Muni's and Coops may opt-in)	35% renewable by January 1, 2020 (200 MW Solar)	20% Renewable (35% by 2016, per AE EMO)
LADWP	20% by 2013 25% by 2016 33% by 2020 (Muni's must adopt their own) CA Solar Initiative offers \$0.2- \$0.3/Watt rebate	33% Renewable by 2020 25% by 2016 <sup>27</sup> (280MW distributed solar goal per CA SB1 by 2017; No State solar RPS carve out)	19% Renewable
CPS	5,880 MW by 2015 10,000 MW by 2025 Non-wind goal of 500 MW (Muni's and Coops may opt-in)	20% Renewables by 2020 <sup>28</sup> (400MW of new solar planned)	11-13% Renewable <sup>25</sup>
SMUD	20% by 2013 25% by 2016 33% by 2020 (Muni's must adopt their own) CA Solar Initiative offers \$0.2- \$0.3/Watt rebate	33% plus 4% from "Greenergy" [sic] by 2020 <sup>29</sup> (125MW distributed solar goal per CA SB1 by 2017; No State solar RPS carve out)	27.7% Renewable <sup>30</sup>

**Table 23: Utility Comparison of Established Renewable and Solar Goals as of 2013**

Compared to peers considered in this review, Austin Energy charges competitive rates to all customer sectors, and offers a generous rate for distributed solar. While Austin Energy currently has a similar capacity of solar to these peers, it has significantly less distributed solar than SMUD; CPS and LADWP both have plans in the near future for the addition of several hundred MW's of local and non-local utility scale solar. All utilities reviewed here are targeting 33%-35% renewable energy supply by 2020, except CPS, which is targeting 20% renewable supply by 2020. Ultimately, Austin Energy remains competitive in all categories reviewed here, although among these municipalities, a significant and aggressive trend toward increasing solar capacity continues.

<sup>27</sup> [http://www.energy.ca.gov/2013\\_energypolicy/documents/2013-07-15\\_workshop/presentations/07\\_LADWP\\_Howard\\_AB1318\\_7-15-13.pdf](http://www.energy.ca.gov/2013_energypolicy/documents/2013-07-15_workshop/presentations/07_LADWP_Howard_AB1318_7-15-13.pdf)

<sup>28</sup> [http://www.cpsenergy.com/About\\_CPS\\_Energy/Who\\_We\\_Are/Environmental\\_Stewardship/Sustainability/Environmental\\_2012\\_Update.asp](http://www.cpsenergy.com/About_CPS_Energy/Who_We_Are/Environmental_Stewardship/Sustainability/Environmental_2012_Update.asp); website states 13% purchased power renewables and claims 913.4 MW of operational renewables. Dividing 913.4 MW by our reported total capacity of 8009 MW comes out to 11.4%. Without diving into further detail, the range 11%-13% is provided here.

<sup>29</sup> <http://smud.org>

<sup>30</sup> <https://www.smud.org/en/about-smud/company-information/documents/2012-annual-report.pdf>



## A. Appendix

### Other Utility Scale Solar Assumption Analysis

LSAC's recommendation for other utility scale solar is the most optimistic of all sectors. At an installed cost of \$2/W, the reduced PPA of 8 cents/kWh for 30 years could look attractive. This would be so if the investor were able to realize the 30% tax credit (or its equivalent Federal 1603 Grant), and if the location was a sunnier but distant spot such as El Paso. Under those terms, a favorable B/C ratio of 1.09 may be realized. This B/C ratio, while not a magic threshold, is viewed as satisfactorily high enough above the traditional, nominal B/C investment threshold of 1.0. DNV KEMA has assumed a B/C ratio above 1.0 would be required by investors to mitigate the substantial and foreseeable risks associated with the blend of economic assumptions needed to estimate a lifetime B/C ratio.

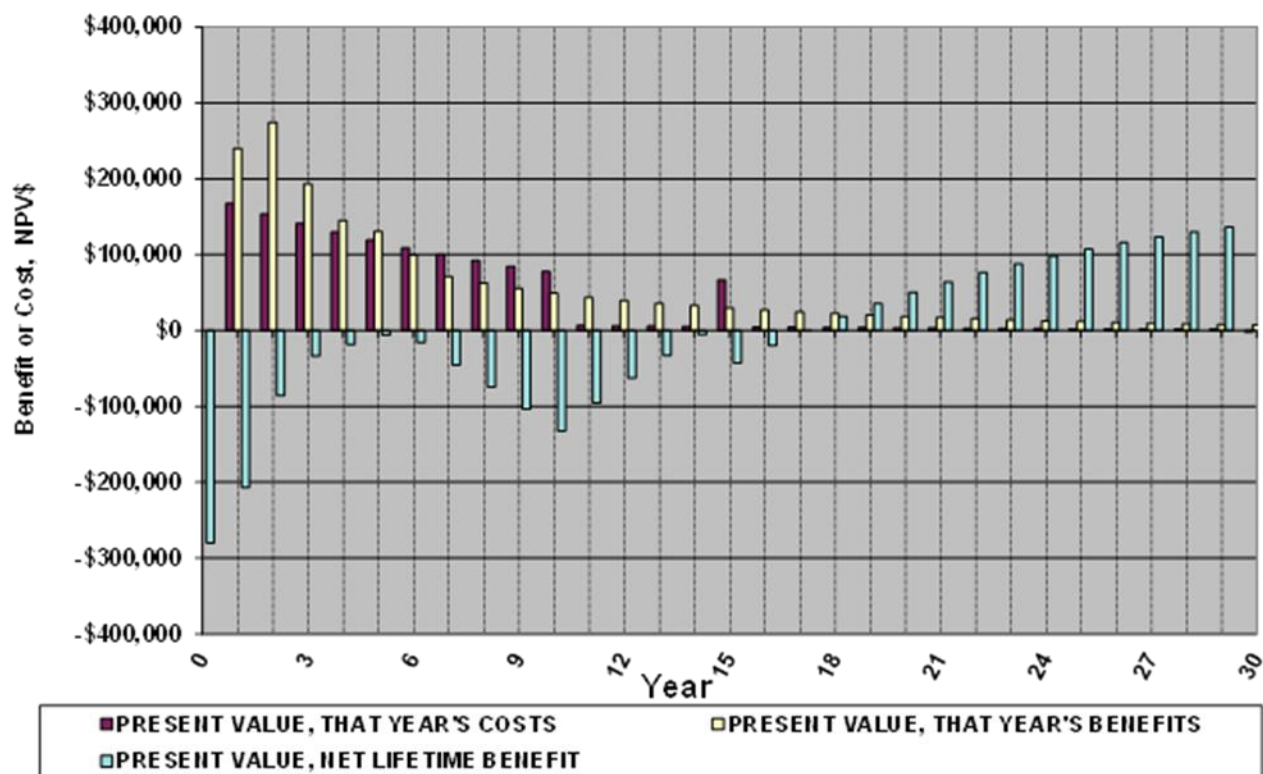
In order to maintain the same attractive B/C ratio in the absence of the 30% Federal incentive, the installed cost would need to decrease to \$1.28/W. Without the Federal incentive and with only a 20-year PPA at 8 cents/kWh instead of the above-stated 30 years, the installed cost would need to decrease even further, to just \$1.11/W, in order to maintain a B/C ratio of 1.09. While module prices may continue to decrease perhaps to the \$0.50/W range within this planning horizon, it seems unimaginable that the combination of all other costs -- materials, labor, engineering, land, and financing/insurance to name a few -- could decrease to less than \$1/W. If so, the likelihood of achieving PV capital costs in the \$1.11 - \$1.28/W seems negligibly small, suggesting the Federal incentives, if eliminated, would require 20-year PPA pricing in the 13 cent/kWh range in order to trigger PV development of the kinds contemplated here.

The first plot below shows the pro-forma discounted cash flows of costs and benefits for the \$2/W base case above. The discount rate is 9%, the 80/20 debt/equity loan is at 8% for 10 years, and the 8 cent/kWh PPA is for 30 years. This scenario corresponds to a lifetime B/C ratio of 1.09, though by another key yardstick, discounted payback, the true payback does not occur for 17 years. Note the teal-colored bars represent the lifetime cumulative discounted net benefit, which almost breaks even in year 5 as the depreciation allowance fades away, dips again in year 15 after the assumed inverter replacement, and then crosses into positive lifetime benefit in the 18<sup>th</sup> year.

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**Austin Energy: 1 MWEI Paso PV discounted cost and benefit payback calculations**

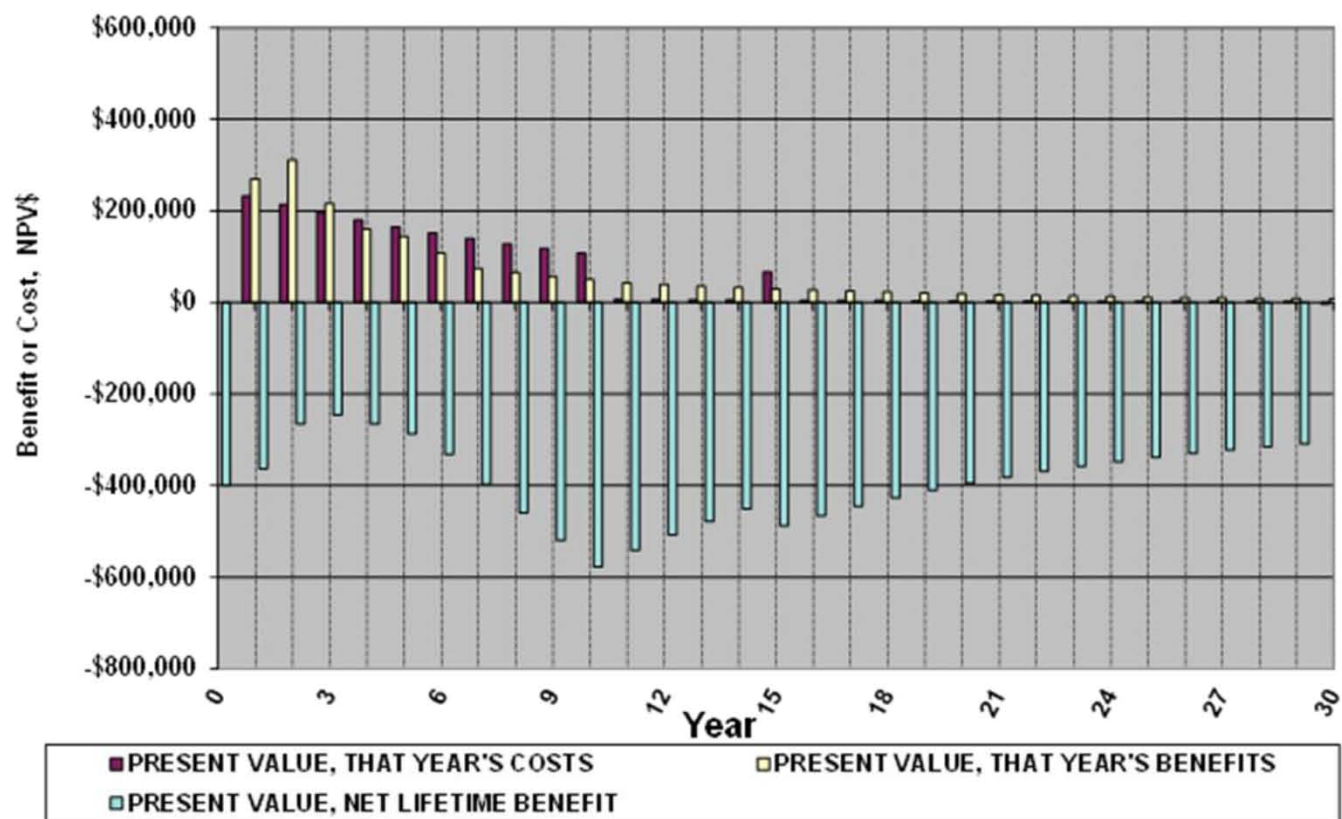


The second plot below shows the pro-forma discounted cash flows of costs and benefits for the base case, minus the 30% Federal incentive. The lifetime B/C ratio dips to just 0.76 and true payback is never realized at any point in the 30-year investment horizon (the teal-colored bars again represent the cumulative discounted net benefit and always remain negative in this example).

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**Austin Energy: 1 MWEI Paso PV discounted cost and benefit payback calculations**



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### ERCOT Forward Price Curves

Year	Natural Gas		5X16			2X16			7X8			RTC			WRA		
	NYMEX		NZ	SZ	WZ	NZ	SZ	WZ	NZ	SZ	WZ	NZ	SZ	WZ	NZ	SZ	WZ
2014	3.92		44.93	45.39	44.7	36.77	37.15	36.44	24.87	24.9	23.94	36.64	36.95	36.16	29.32	29.48	28.61
2015	4.131		48.69	48.94	47.91	39.64	39.84	39.31	25.81	25.84	24.62	39.29	39.46	38.47	30.97	31.08	30.1
2016	4.276		49.6	49.85	48.61	39.96	40.17	39.44	26.28	26.32	25.09	39.91	40.08	38.94	31.4	31.5	30.46
2017	4.379		47.69	47.95	46.04	38.22	38.43	37.16	26.07	26.11	24.62	38.56	38.73	37.09	30.65	30.75	29.35
2018	4.494		46.76	47	44.86	37.64	37.85	36.33	26.53	26.57	24.82	38.21	38.38	36.49	30.68	30.79	29.12
2019	4.707		45.93	46.18	44.03	36.98	37.19	35.67	25.44	25.48	23.72	37.34	37.52	35.62	29.75	29.86	28.19
2020	4.978		46.12	46.37	44.21	37.11	37.32	35.8	25.39	25.43	23.69	37.43	37.61	35.71	29.78	29.89	28.22

Source: NYMEX and SNL accessed 9/5/13

**Table 24: ERCOT Wholesale Gas & Power Forward Option Prices**



## **AE Community Solar Roadmap – DRAFT 2.17.15**

### **Goals & Timeline:**

Minimum 10 MW of community solar in AE territory by 2020; preference for PPA-based projects in the ground by end 2016 to receive federal ITC. Ideally, have a project in the ground in 2015, or at least begin sign-ups for project(s) with COD in early 2016.

Additional 60 MW by 2025 (if not filled by other customer-sited programs); earlier build out driven by program demand.

AE should pursue projects that can achieve lowest cost of energy, in order to provide attractive offering to participants. PPAs are currently the best option, though ownership may be the preferred option after 2017.

### **Project Preferences:**

- Solar PV project in AE territory (required)
- On d-grid and <1 MW to reduce interconnection challenges and costs, but large enough (>200kW) to capture economies of scale
- Rooftop, shade structures, or ground-mount if on otherwise largely un-developable land
- High public visibility, community “feel”, distributed in community
- Opportunity for participation by multiple customers and developers

### **First Procurement (2014): PPA at Kingsbery**

2-4 MW project at AE-owned Kingsbery substation. PPA agreement through competitive RFP (issued April 2014), with no-cost land lease. Likely COD summer 2016.

### **Second Procurement Round (2015): RFP for Customer-Hosted PPAs**

AE issues call for proposals (RFP) for solar developers to bring forward their best PPA rates, under an otherwise standard contract (that AE will provide in advance), for projects within AE’s service territory from which AE will buy power under 25 year contract (with ownership flip / buyout option after year 5). Projects must be between 200 kW and 1 MW, customer-sited, and developer must be able to show a long-term lease agreement or other cooperative agreement with the site host for the length of the PPA. AE will provide co-marketing opportunities for host (aka Solar Power Partner or Community Power Partner).

AE will communicate the opportunity in advance, particularly with key accounts and other large property owners, and could provide a list of interested hosts to developers in order to pursue leads (or otherwise help play matchmaker).

Projects will be selected by AE based on a competitive process, based on the following criteria:

- PPA Price offered – 25 year, no escalator [60%]
- Public Visibility [20%]
- Community Partnership Value – Key Account, Non-Profit Host, Affordable Housing, MF properties, “green” master planned community, commercial REITs [10%]
- Financial strength of respondent [5%]
- Local installer (or other local project partners) [5%]
- Subject to Interconnection Review and approval (go/no go criteria) – if multiple projects proposed on same feeder, higher scoring projects get priority in interconnection review and project approval.

Ideal hosts include:

- 1) Non-profits, schools, and affordable housing providers that do not have the capital or credit to go solar themselves but would like to support solar and receive lease payments, such as:
  - a. Austin Housing Authority properties
  - b. Foundation Communities and LifeWorks properties
  - c. AISD, PISD, Eanes, Lake Travis and/or Leander ISDs – many schools still without solar, and have standing seam roofs or large surface parking lots. Lake Travis ISD installs could mitigate heavy loading on feeders affected by residential housing boom along 620
  - d. Houses of worship (e.g. Grace Covenant, Great Hills Baptist, Riverbend, Hyde Park, others with very large roofs and programming 7 days/week)
  - e. CapMetro – transit centers and park and rides. Solar shade structures to shade busses provide significant economic value to CapMetro.
  - f. Camp Mabry – 800 kW roof mount along MoPac; Fairgrounds; other State properties
  - g. Federal Customers (GSA, IRS, USPS, VA)
- 2) REITs or other leased property owners who do not have enough common load to justify large solar array (or simply desire) but have large roofs with good solar exposure and would like lease payment or good PR. This includes large retail centers, particularly those owned by commercial REITs such as Stream or Trammel Crow, e.g.:
  - a. South Park Meadows, Barton Creek Mall, ArborWalk, Domain, Lakeline, Golden Triangle/Gateway
- 3) Large commercial properties with more PV potential than needed to cover their own loads. These customers could install 2 arrays, one behind the meter to serve onsite load, and one grid tied CS project, but achieve economies of scale for both projects.
  - a. Home Depot, Lowes, Ikea – large box stores that might also have an interest in marketing solar to their customers
  - b. Target/SoCore – already developing solar on properties, and interested in storage
  - c. Samsung
  - d. Freescale
  - e. LCRA
  - f. Seton
  - g. Apple
  - h. Google
  - i. Flextronics (may not be suitable due to dual-feed, relay complexities)
  - j. HEB (Lakeline) – 2 large south-facing roofs

- 4) "Green" master planned communities under development
  - a. Colony Park
  - b. Seaholm / Block 24
- 5) Ground-mount locations with no other high-value use and plenty of capacity on local feeder with nearby loads. These could overlap with the above, e.g. Camp Mabry, water catchment areas at Colony Park

**Strategic Benefits:**

- Market-driven solution. AE does not need to identify sites or do extensive pre-qualification. Developers will bring turn-key projects to AE; AE reviews and scores projects, offers standard PPA contract (at different rates based on each proposal) to highest scoring project(s), and offers co-marketing with host.
- Developer takes all development risk (financing, land use, etc.). Minimal risk to AE during project development or if project falls through. Pipeline of other projects available if any fall out.
- Achieves lowest prices (vs. standard offer / FIT, and vs. pre-selecting municipal sites).
- Flexible procurement; we can take as few or as many projects as make financial sense based on offerings.
- Agility and ability to execute in a timely manner.
- Standard, turn-key documents will make multiple projects possible to execute quickly.
- Opportunity to have long-term mutually-beneficial relationship with customers (incl key accts).
- Better integrated into the "community" than utility-scale, greenfield solar farms on the edge of town.

**Examples:** CPS' recent Rooftop Solar Project announcement followed a similar approach (see February RFP). APS Community Power Project reportedly had a flood of applications, developers had no problem finding hosts.

**Timeline (2015):**

March-April: Develop RFP and standard offer contract (PPA); identify interested potential hosts

May: Issue RFP, possibly hold site host-developer matchmaking event

June: Evaluate proposals and select projects

July: Sign PPAs with developers

July-December: Project development; goal of having at least one project COD before end of year.

**Parallel Procurement Option: Inter-local Agreement (2015-16)**

With CapMetro and/or AISD, subject to upcoming conversations with both.

CapMetro has already seen significant O&M savings from installing shade structures over bus bays; a possible cost-sharing arrangement could allow CapMetro and AE to build out solar shade structures over the remainder of the 5<sup>th</sup> street maintenance center, providing benefit to both organizations.

AISD is currently developing several new PV projects, which could potentially be expanded to provide generation for the CS program, and achieve economies of scale cost reductions for the projects.

## **Future Procurement: Utility-Owned DG (2017-on)**

Utility ownership of distributed generation and grid management assets may prove to be important strategic investments for utilities moving forward, particularly as DG costs drop, DG penetration increases, and ancillary services become increasingly important to maintaining power quality and grid reliability. While PPAs may be more financially attractive at present due to the federal tax credit and depreciation, AE should consider owning distributed generating assets in the future, likely after 2016. While these projects could provide power for the community solar program, this could also be set up as a behind-the-meter program or as a rate-based generation option; in any case, this would contribute to the 200 MW local solar goal, including potentially to the customer-controlled portion of the goal.

Under this model, AE allows customers to apply to host a solar array at their property, to be developed, owned and operated by the utility. AE will select sites based on selected criteria below, and issue an RFP for a solar developer to design, build and maintain the projects. AE will finance projects through utility bonds, QECBs, or crowd-funding (e.g. Solar Mosaic). AE will enter into a 25 year land or roof lease agreement with the hosts in return for [a monthly bill credit, or fixed bill, or provide them GreenChoice power at no extra cost to them for the amount of solar produced from their property; or give them a share of solar output], and recognize the host as a program partner in marketing materials. The utility will then be able to utilize smart inverters, storage and other grid-integration technologies to provide ancillary services, DR, peak shaving, etc., through individual system control and/or aggregation across the fleet.

### **Host Site Selection Criteria:**

- Capacity available on feeder
- Need for Volt/Var support on feeder
- Accessibility to AE, space for metering, inverter, and possibly storage
- PV Capacity potential
- Roof orientation
- Roof age and remaining life
- Roof composition and condition
- Roof warranty provisions
- Structural analysis
- Space availability
- Adequate sun intensity

### **Possible hosts:**

- Samsung
- Seton
- Apple
- LCRA
- Freescale
- Residential hosts
- Low-income homeowners

### **Benefits:**

- Enables utility to develop strategic distributed assets to improve grid reliability and power quality.
- Good relations and long-term contract with site hosts (e.g. large key account customers with substantial lobbying power, and/or residential customers, for whom this is a desirable offering from their trusted energy partner).
- Allow more widespread use of solar energy among AE's customer base
- May offer an entry point for fixed bills (similar to SRP proposal)
- AE may negotiate design/build/O&M contract with single developer to reduce admin costs.

## Risks:

- AE must do due diligence on many sites, may be difficult and expensive (e.g. to do multiple engineering assessments).
- AE must go through RFP process.

**Example:** SRP and APS proposals (late 2014)

## Future Procurement Option: Utility-Enabled Third-Party Program

Allow third-parties (such as the Clean Energy Collective, SunShares, or even local organizations such as churches or schools) to develop CS projects and sign up participants who pay for the project (either upfront or through ongoing subscription fees to the developer/administrator), and then receive modified VOS credits on their electric bill through the CS program for their portion of production (e.g. church members develop and fund a project on a church roof). AE accepts the power onto the grid, and administers Community VOS mechanism to credit participants for their portion of the system's production. Participants pay subscription fee to third-party developer, who also markets the program.

**Benefits:** AE doesn't have to go through any purchasing process, it simply allows such systems to interconnect pursuant to regular design criteria, and standard agreement to take the power and provide bill credits to owners (CS participants). Developer designs subscription rate(s), identifies participants, collects subscription fees. Allows for developers to provide different subscription offerings that fit different customers' needs (doesn't have to be one-size-fits-all program for all projects). There is no downside to AE if customers don't subscribe, or leave the program; developer bears all cost risks. Community members have requested this type of program.

**Risks/Cons:** Many small sites and multiple developers may create administrative burden. Need to track production from each site individually, and assign to those project's participants' bills.

**Examples:** Colorado and Minnesota programs (Xcel), with developers such as the Clean Energy Collective and SunShares. California legislation will require half of CS capacity to be third-party programs.

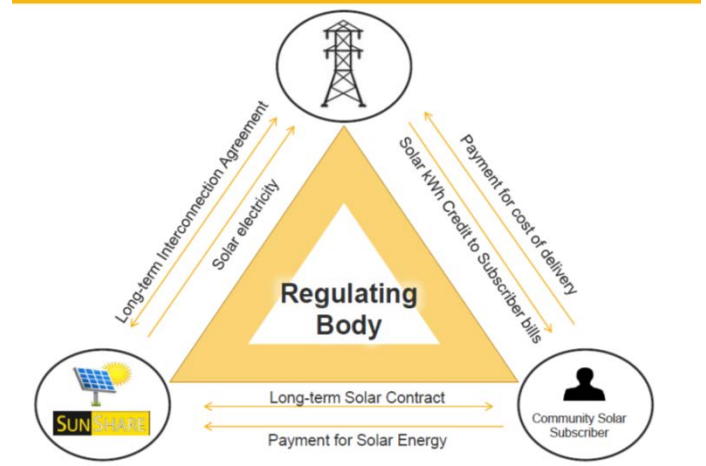


Figure 1: SunShare model

## **AGENDA**

**"Community Solar Speed Dating"**  
**Austin Energy Community Solar Program Networking Event**  
**December 9, 2015, 9:00 -10:30 am**  
**TLC 721 Barton Springs Rd, Assembly Room 130**

- |      |   |                    |
|------|---|--------------------|
| I.   | Arrival and Refreshments  | 9:00 AM – 9:10 AM  |
| II.  | Welcoming Remarks   | 9:10 AM – 9:15 AM  |
| III. | Overview of the Community Solar Program                               | 9:15 AM - 9:25 AM  |
| IV.  | Solar Developer Presentations<br>(Limited to 5 minutes per developer) | 9:25 AM – 9:55 AM  |
| V.   | Solar Developer and Site Host Networking                              | 9:55 AM – 10:30 AM |



# Announcement

## Austin Energy Community Solar Phase 2 Participation Opportunities

### Background

Over half of Austin Energy's residential customers rent their homes, or live in a multi-family building. Further, thanks to Austin's excellent tree cover in many neighborhoods, many roofs are too shaded to support a solar installation. Austin Energy's community solar program allows customers like these, who are unable to install solar panels on their own homes or dwellings, to receive the benefits of solar power without actually owning or hosting the solar panels onsite.

Austin Energy's first community solar project will be located on Austin Energy owned land around the Kingsbery substation in east Austin. We are preparing to solicit proposals for the second phase of projects, to be located at customer-hosted locations across the city.

Under both phases of Austin Energy's community solar program, Austin Energy purchases solar power from the selected community solar projects through a Power Purchase Agreement (PPA) and sells increments of solar capacity (kW) from the project to interested customers through a monthly subscription fee. Participating customers receive bill credits for the energy generated by their subscribed kW each month.

### Phase 2 Community Solar RFP

The RFP will solicit solar developers to bring forward their best PPA rates for community solar projects at least 200 kW and up to 1 MW in size, hosted at customer sites in Austin Energy's service territory. Under the PPA, Austin Energy will buy solar power under a 25 year contract. Projects must be customer-sited and solar developers must provide a Letter of Intent from the site host indicating their commitment to host the project for the length of the PPA. Potential solar sites (roofs or ground-mount areas) should at least 25,000 sq. ft. to meet the 200 kW minimum project size.

### Site Host Opportunity

Interested Austin Energy customers can partner with solar developers to become a "site host" for a community solar project. The host and developer would come to an agreement regarding the use of the roof (Austin Energy would not be a party to this agreement). For example, the site host could lease their roof to the solar developer, or the community solar project could be developed in conjunction with a solar system for the host, resulting in lower installed costs for both projects. Austin Energy would then contract with the solar developer to purchase the solar power under a PPA. Ideal site hosts include facilities with high public visibility and presence in the community including: non-profits such as schools, houses of worship and governmental agencies; affordable housing developments; multifamily properties; "green" master-developed communities; and commercial properties with considerable public visibility through their employee or customer base (particularly those with more PV potential than needed to cover their own loads, or otherwise choose not to install solar for their own use behind-the-meter).

Hosting a community solar project has several advantages:

- for non-profits and governmental agencies that can't take the federal tax credits and depreciation it's a good opportunity to support local solar and receive compensation for otherwise underutilized roof space;

- entities that don't have consistent daytime electricity loads throughout the year (e.g., school districts or seasonal manufacturers) and thus wouldn't benefit from behind-the-meter solar throughout the year can support community solar initiatives and receive compensation for otherwise underutilized roof space;
- large commercial customers with more PV potential than needed to cover their own loads could install 2 arrays, one behind the meter to serve onsite load and one grid-tied community solar project, but achieve economies of scale for both and receive a roof lease for the community solar project array; and
- it's a great opportunity to support solar in the Austin community and create good PR. Austin Energy will provide public recognition of community solar hosts and develop co-marketing opportunities with hosts.

### **Interested?**

Solar developers with experience developing, operating and maintaining large commercial or utility scale solar projects (>150 kW) should work with potential site hosts to determine the site's solar potential and if it might meet the requirements of the community solar RFP. If so, the site host and solar developer would negotiate the terms of their agreement, and the solar developer can respond to the RFP (tentatively set to be issued the second week of December, with response deadline of January 18, 2016). At the time the response to the RFP is submitted, the solar developer must provide a Letter of Intent from the site host indicating their commitment to host the project for the length of the PPA. Austin Energy will be hosting a "solar speed dating" networking event to bring interested site hosts and solar developers together. The event is scheduled for **December 9, 2015, from 9 – 10:30 AM** at the Austin Energy's Town Lake Center (TLC) 721 Barton Springs Rd. Assembly Rm 130. Coffee and light breakfast items will be served. If you would like to attend, please RSVP to Karen Poff, Austin Energy Solar Project Manager at [karen.poff@austinenenergy.com](mailto:karen.poff@austinenenergy.com).

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## Discussion Items for C.S. Working Group – January 2015

### 1) How much capacity do we need, and when?

- a) Want project operating, program launched, in 2015
  - i) Kingsbery won't be online until 2016. Are there other options that can get us a project in the ground by end 2015?
- b) Need 10 MW by 2020 to meet Council goal, another 60 MW by 2025; prefer before end 2016 to take advantage of ITC.
  - i) Need 8 MW by end 2016, in addition to Kingsbery

### 2) What size projects do we want / how many sites do we want?

- a) Want to achieve economies of scale, but stay on d-grid (<2 MW)
- b) Needs to be manageable for AE, minimize administration and transaction costs
- c) But want to afford opportunity to participate to multiple partners/customers

### 3) Where? What types of sites?

- a) Municipal sites vs Customer Sites vs Solar Farm (green field, no existing customer / load)
  - i) Do we have good municipal sites that could be completed in a timely manner?
  - ii) Are there cost-savings for siting on municipal property? (If not AE, would we need to pay any sort of land/roof lease?)
  - iii) Is there additional benefit to locating at key accounts / other customer sites?
- b) Rooftop vs. Ground-mount preferences
  - i) Differences in cost/kW will impact PPA rates
  - ii) Long term land use conflicts and land value changes could put pressure on groundmount projects to be redeveloped (or, could preserve [public] space for future use, such as parks)
  - iii) Possible cost-sharing opportunity with host(s) for parking shade structures?
- c) Preference among type of customer hosts (customer class, key accts, customers with more rooftop solar potential than load (incl retail or MF properties with tenants), customers with strong community ties/visibility, non-profits)?
- d) Feeder concerns/opportunities?

### 4) Who will own, and take tax credits/depreciation?

- a) Does AE have interesting in owning these generating assets, either now or in the future?
- b) Ownership/financing options:
  - i) AE owns from day 1; use municipal/utility bonds and/or CREBs, forgo tax credits

- ii) PPA w/developer, tax investor takes ITC/MACRS
  - (1) Ownership option after year 6
- iii) Use crowd-financing, such as Mosaic, along with tax equity investor
  - (1) AE owns, debt-finances through crowd funders
  - (2) PPA with crowd funders and tax equity investors providing capital
    - (a) Ownership option after year 6

**5) How to select sites/hosts? What contracting / purchasing mechanism is best?**

- a) If not municipal, AE solicits proposals from customers to host, or from developers (who find their own host partners). Several contracting options:
  - i) Open call for customer hosts + RFP for developer of selected sites
  - ii) RFP for projects (developer identifies sites, PPA rates, negotiates terms with site host)
  - iii) RAM (with or without clearing price)
  - iv) Standard Offer Contract (aka FIT)
- b) Possible selection criteria include:
  - i) PPA Price offered [REDACTED]
  - ii) Public Visibility
  - iii) Capacity (? preference for larger systems to reduce transaction costs? Or use to provide smaller, more community-integrated systems with a bump up in scoring, perhaps combined with community-partnership value?)
  - iv) Rooftop vs Ground-mount
  - v) Community Partnership value (how would we define/score this?)
  - vi) Local Installer?
  - vii) Interconnection Review (go/no go criteria)
    - (1) Cannot be located on downtown network
    - (2) Capacity must be available on feeder

**6) What value would customer-hosts receive?**

- a) PR/marketing value – cobrand with “Community Solar Partner”.
- b) Support commercial hosts with promoting program to their employees or tenants (they can subscribe to a project they see every day).
- c) Roof/land lease payment?
- d) Parking shading? (split the cost?)

**7) What are the strategic benefits to the selected options(s)/rollout plan?**



## Community Solar Rollout Options – DRAFT 1/29/15

### PPA Projects on Municipal Property

RFP for solar project development and PPA and long-term lease on municipal land. Ownership flip option after year 5 in AE wants to reduce debt. Could also use third party financier such as Mosaic to enable crowd-based financing, with Austinities able to fund the project and receive interest.

#### Current Project:

- Kingsbery Substation (2.3 MW, expected completion Q2/2016)

#### Other possible locations:

- Decker Power Plant (1 MW on land swapped with Rec & Parks for bike path)
- Hornsby Bend (1 MW next to wastewater txt plant – corrosion issues? Want lease payment)
- CapMetro transit centers (~250kW on bus shelters)
- Convict Hill (flood plain issues)

**Benefits:** AE has full control of site selection, can identify locations with other value to the city/utility, e.g. marginal land with no other good use, located on distribution feeders with plenty of capacity, co-located with substation or storage, etc.

**Risks/Cons:** As seen with Kingsbery, procurement may be lengthy, do not have full info on our own sites and would take risk on project development. May not be the most cost-effective sites. Does not provide any community partner benefit with customer-hosts.

### Customer Hosted Community Solar

#### Utility-Selected Sites, Single Developer through AE RFP

AE sets up a website through which customers may apply to host a solar array at their property, to be developed by the utility (similar to Dominion Virginia Power “Solar Partnership Program”).

AE will select sites based on selected criteria below, and issue an RFP for a solar developer to design, build and operate the selected arrays, and sell the power to AE under a PPA (with possible buy-out after year 6). AE will enter into a 25 year land or roof lease agreement with the hosts in return for a monthly bill credit [and/or provide them GreenChoice power at no extra cost to them for the amount of solar produced from their property; or give them a share of solar output], and recognize the host as a program partner in marketing materials.

#### Host Site Selection Criteria:

- |                                  |                          |
|----------------------------------|--------------------------|
| • Roof age and remaining life    | • Structural analysis    |
| • Roof composition and condition | • Space availability     |
| • Roof warranty provisions       | • Adequate sun intensity |

**Possible hosts:**

- Samsung
- Apple
- Freescale
- Seton
- LCRA

**Benefits:** Good relations and long-term contract with site hosts (likely large key account customers with substantial lobbying power). AE negotiates single PPA with single developer.

**Risks:** AE must do due diligence on many sites, may be difficult and expensive (e.g. to do engineering assessment). AE must go through PPA RFP process. Cost of land/roof lease, if any, may increase program costs significantly.

**Example:** Dominion Virginia Power program, "Solar Partnership Program":

[www.dom.com/business/dominion-virginia-power/ways-to-save/renewable-energy-programs/solar-partnership-program](http://www.dom.com/business/dominion-virginia-power/ways-to-save/renewable-energy-programs/solar-partnership-program)

**RFP for Customer-Hosted PPAs**

Issue call for proposals (RFP) for solar developers to bring forward their best PPA rates, under an otherwise standard contract (that AE would provide in advance), for projects within AE's service territory from which AE will buy power under 25 year contract (and/or with year 6 ownership flip / buyout). Projects must be between [500] kW and 2 MW, customer-sited, and developer must be able to show a long-term lease agreement or other cooperative agreement with the site host. AE will provide co-marketing opportunities for host (aka Solar Power Partner or Community Power Partner).

Projects will be selected by AE based on a competitive process, based on the following criteria:

- PPA Price offered – 25 year, no escalator [REDACTED]
- Visibility [REDACTED]
- Community Partnership value – Key Account or Non-Profit Host [REDACTED]
- Local installer (?) [REDACTED]
- Capacity (? – prefer few large projects than many distributed for admin reasons, or smaller to support community-integrated systems) [REDACTED]
- Rooftop vs Ground-mount (rooftop preferred)? [or require rooftop?]
- Interconnection Review: not on downtown network; capacity available on feeder (go/no go criteria)

AE will communicate the opportunity in advance, particularly with key accounts and other large property owners, and could provide a list of interested hosts to developers in order to pursue leads [or otherwise help play matchmaker].

Ideal hosts include non-profits, schools, and affordable housing providers that do not have the capital or credit to go solar themselves but would like to support solar and receive lease payments; REITs or other leased property owners who do not have enough common load to justify large solar array (or simply desire) but have large roofs with good solar exposure and would like lease payment or good PR; large box stores with more PV

potential than needed to cover their own loads; ground-mount locations with no other high-value use and plenty of capacity on local feeder with nearby loads.

**Potential locations/hosts:**

- Austin Housing Authority properties
- Foundation Communities properties
- Federal Customers (GSA, IRS, USPS, VA)
- Camp Mabry – 800 kW roof mount along MoPac; Fairgrounds; other State properties
- Target/SoCore – already developing solar on properties
- Samsung
- Flextronics
- Freescale
- LCRA
- Seton
- Apple
- Google
- HEB (Lakeline) – 2 large south-facing roofs
- AISD, PISD, Leander ISD – many of schools still without solar, standing seam roofs; parking lots without adjacent load

**Benefits:** AE does not need to identify sites or do extensive pre-qualification. Developers will bring turn-key projects to AE; AE reviews and scores projects, offers standard PPA contract (at different rates based on each proposal) to highest scoring project(s), and co-marketing with host. Developer takes all development risk (financing, land use, etc.). Minimal risk to AE during project development or if project falls through.

**Risks:** Unsure how readily developers will be able to find hosts (or vice-versa), particularly for non-greenfield projects. Developers may not be motivated to find projects/hosts if they don't have certainty that they can/will win the RFP. Unclear what level (if any) of lease payment will be necessary to motivate hosts, and how much that will inflate PPAs.

**Examples:** APS Community Power Project- said they had a flood of applications, developers had no problem finding hosts.

**Reverse Auction Mechanism**

Similar to an "RFP for Customer-Hosted PPAs" above, but with the first [8] MW at the lowest cost (with some price ceiling) that meet the minimum program requirements being selected as winning bids. Alternately, could provide a all winning bidders the same PPA rate based on the highest of the winning bids (clearing price).

**Benefits:** Creates competition amongst bidders, results in lowest cost PPAs, able to pass on savings to participants through lower subscription fee.

**Risks/Cons:** Contractors may not be motivated to find hosts and do legwork on project if not sure that they'll be able to provide competitive enough pricing and win the auction. AE has limited ability to select preferred sites; minimum requirements could be set in tariff, but wouldn't be able to select one site over another because it's

more visible, on a key account property, etc.

### **Standard Offer Contract (aka FIT)**

Identify standard offer price [REDACTED] that AE is willing to offer under 25 yr PPAs to anyone who meets our program requirements, first come, first-served, up to program cap (e.g. 8 MW, possibly in phases). Minimum project size is 1 MW (may be multiple roofs/hosts, aggregated), up to 2 MW (to avoid ERCOT transmission fees).

[Can we create actual “tariff” to avoid purchasing process? What class would this apply to, “community solar generators”?]

**Benefits:** Low administrative burden on contracting side. May be able to get Council approval in advance and/or for all projects, rather than one-off for each contract. Single PPA rate makes it possible to set CS subscription fee will clarity. Contractors know whether a project will pencil or not. Good relations and long-term contract with site hosts (likely large key account customers with substantial lobbying power).

**Risks/Cons:** May not achieve the lowest prices possible on PPAs, but limited quantity, and AE kept whole through subscription fee. AE has limited ability to select preferred sites; minimum requirements could be set in tariff, but wouldn't be able to select one site over another because it's more visible, on a key account property, etc.

### **Utility-Enabled Third-Party Program**

Allow third-party to develop CS projects and sign up participants who pay for the project (either upfront or through ongoing subscription fees), and then receive modified VOS credits through the CS program for their portion of production (e.g. church members develop and fund a project on a church roof). AE accepts the power onto the grid, and administers Community VOS mechanism to credit participants for their portion of the system's production. Participants pay subscription fee to third-party developer, who also markets the program.

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**Risks/Cons:** Many small sites and multiple developers may create administrative burden. Need to track production from each site individually, and assign to those project's participants' bills. Could look like wheeling, and might set a precedent for other third-parties to sell power to Austinites (...dereg...).

**Examples:** Colorado and Minnesota programs (Xcel), with developers such as the Clean Energy Collective and SunShares. California legislation will require half of CS capacity to be third-party programs.

**NOTES:**

**Lease payment rates:**

Assuming land is [REDACTED] in ATX, and developers can get commercial mortgage at [REDACTED], taxes and insurance, average cost of capital, taxes and insurance is about the same as the principal over 25 yrs.

At 5 acres/MW, land for ground-mounts would cost [REDACTED] for 25 yrs (no discount factor); rooftop would need to come in lower than that. At 1 kW/100 sq ft for rooftop, lease would be [REDACTED]

compared to minimum [REDACTED] retail space lease in N Austin. A customer with a 500kW PV potential could receive max [REDACTED] Or... receive [REDACTED] upfront as pre-pay lease, but would increase financing costs to developer]



# Community Solar Update

CHANGE GRAPIC TO VISUAL USED IN  
MY POWER TRANSFORMATION  
PRESENTATION AND ON THE COVER  
OF THE BROCHURE.

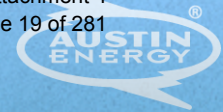
Also – need to change to the new standard  
PPT layout

Debbie Kimberly, Vice President-Customer Energy Solutions

Presentation to Solar Austin

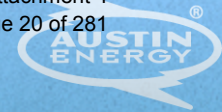
April 16, 2014





# Community Solar Overview

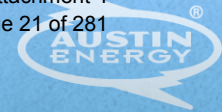
- Community Solar will provide access to solar energy for customers unable, or unwilling to install solar panels on their own homes or dwellings.
  - E.g. renters and homeowners/condo dwellers with shaded roofs,
  - Customers unable/unwilling to make the upfront investment in rooftop systems,
- Local solar photovoltaic projects will be developed to supply solar energy for this program.
  - Supporting Austin's Climate Protection Plan, local solar goals, and local economic development
- Allows participants to receive the benefits of solar power without actually owning the solar panels themselves.



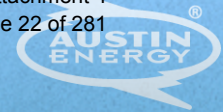
# Community Solar Timeline

- Community Solar RFP released Feb 24
  - For construction, operation and maintenance of up to 4 MW (AC) PV to be constructed at the Kingsbury site
  - PPA structure with AE as offtaker
- RFP closes May 14
- Expect ~6 weeks to review and begin negotiations; 6-10 weeks from RFP close to award
- Hope to break ground on site in mid-July
- Hope to build out in 500kW sections based on subscription demand
- Expected online date: Q2 2015









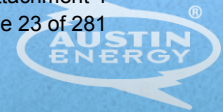
# Preliminary Program Design

- Residential only to start
- Portable within AE territory
- Not transferable to other customers/accounts
- Opt-in, and subscribers can leave the program at anytime

- Possible subscription options:

- Choice of a percent of customer's monthly bill (e.g. 25%, 50%, 75% or 100%)
- a monthly kWh block (e.g. in 250kWh increments)
- a capacity (kW) block (e.g. in 1 kW increments)

After this, insert a slide that engages audience discussion



# Program Design Models Under Consideration

## **Option 1: Fixed premium model**

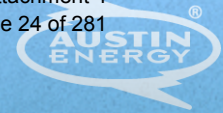
Community Solar subscribers sign up for a rate set at a constant premium over the regular Power Supply Adjustment (PSA).

## **Option 2: Variable cost model**

Community Solar subscribers sign up for a rate for the solar energy at a price reflective of the cost to AE for procuring the solar energy (adjusted annually based on portfolio of community solar PPAs) and also receive a credit at the prevailing Value of Solar Rate.

## **Option 3: Prepay model - this one is new. Suggest you modify and add in a point that speaks to the term/fixed issue**

Community Solar subscribers sign up to purchase a virtual share of the Community Solar Plant at a fixed price for 'X' years and receive a credit at the prevailing Value of Solar Rate. After the 'X' year term the subscriber continues to receive a credit at the prevailing Value of Solar



# Contact Us

## City of Austin - Austin Energy Customer Energy Solutions

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e. [debbie.kimberly@austinenergy.com](mailto:debbie.kimberly@austinenergy.com)

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# Thank You!





# Community Solar Program Design & Pricing

Danielle Murray, Manager, Solar Energy Services  
August, 2014

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# Community Solar Overview

- Community Solar will provide access to solar energy for customers unable to install solar panels on their own homes or dwellings.
  - Renters and homeowners/condo dwellers with shaded roofs
  - Customers unable to make the upfront investment in rooftop systems
- Local solar photovoltaic projects will be developed to supply solar energy for this program.
  - Supporting Austin's Climate Protection Plan, and local solar goals
- Allows participants to receive the benefits of solar power without actually owning/hosting the solar panels on-site





# Community Solar RFP Timeline

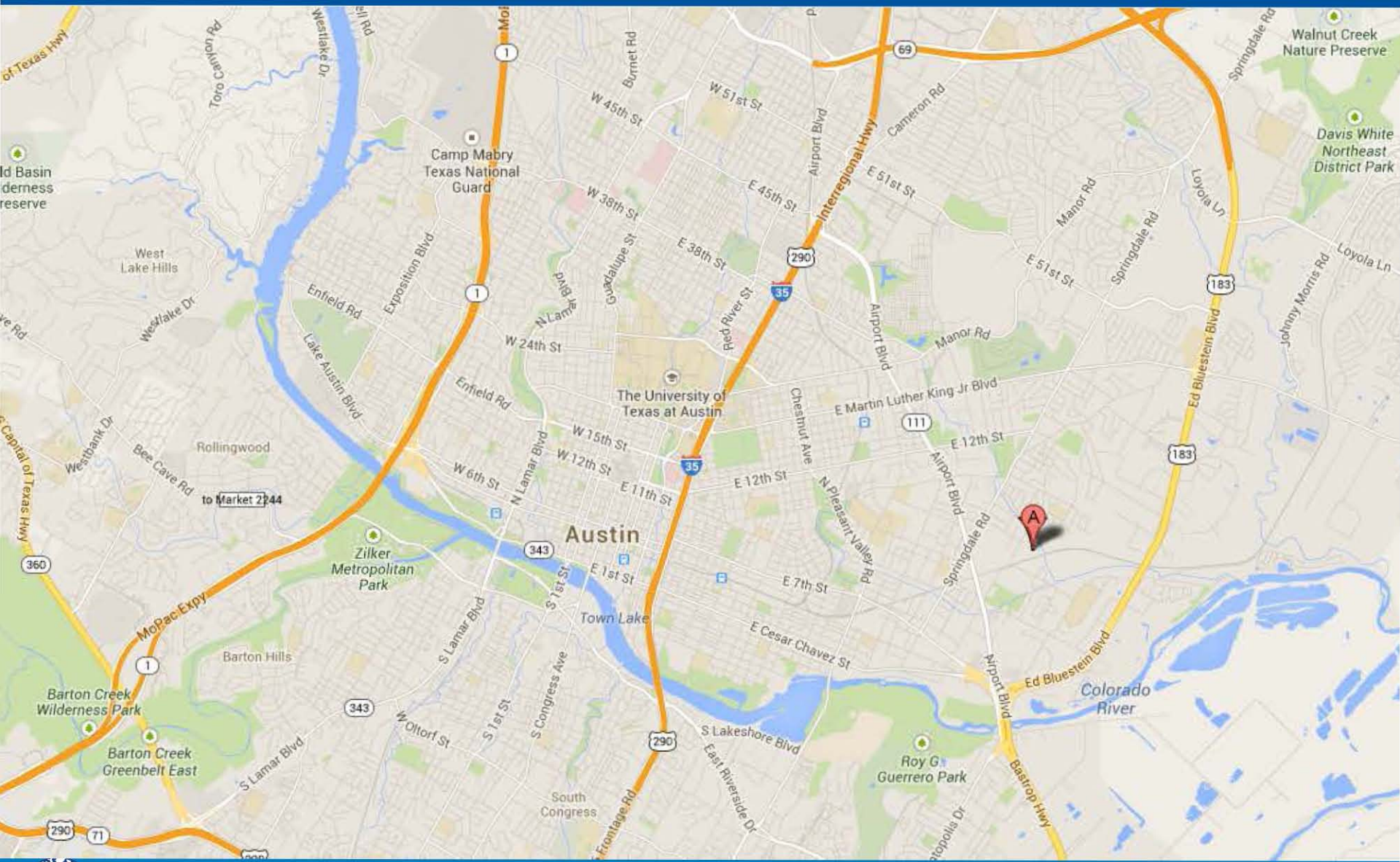
- 
- A large, light blue arrow pointing downwards, spanning the height of the list, indicating the chronological flow of the timeline.
- Community Solar RFP released Feb 24
    - For construction, operation and maintenance of up to 4 MW (AC) PV to be constructed at the Kingsbery site
    - PPA structure with AE as off-taker
  - RFP closed May 14
  - █ companies short-listed mid-July
  - Expect ~4-6 weeks negotiation with top respondent(s)
  - Contract approval at Council September 25
  - Public outreach, rezoning, final design/engineering
  - Break ground on site spring 2015; 3 month construction
  - Expected online date: July 2015 (earliest)







# Kingsbery Site







# Kingsbery Site

- Fenced perimeter
- Visitor Parking
- Educational Kiosk -or- Smart Utility Visitor Center?
  - Educate on solar power production
  - Acknowledge program participants
  - Provide array details
  - Display production in real-time



- Web cam on-site so that interested customers can view the installation as it occurs



# Preliminary Program Design

## Key Considerations:

- Easy to understand
- Cost recovery
- Meet customer desires
- Easy to integrate with billing
- Scalable
- Create attractive program





# Capacity-Based Subscription Model

- Participants subscribe in 1kW increments of solar capacity from the community solar project
  - Similar to owning a system on their own roof. Capped based on their total home electricity usage; right-sizing calculator to help them decide how much to subscribe to meet X% of their consumption.
- Participants pay a flat fee per kW each month (■■■■/kW), and receive ■■■■ kWh/mo/kW subscribed
- Subscribers receive modified “Value of Community Solar” rate for their production from the system
  - $VOCS = VOS - Tcos$
  - Like VOS, credits roll forward if not used



# Capacity-Based Subscription Calcs

- PPA [REDACTED]

- Subscription fee basis:

Total PPA cost [REDACTED]

- Production basis:

- 2015 VOCS:

VOS less T&D value [REDACTED]



# Opt-Outs, Portability and Transferability

- Participants will pay a deposit (e.g. \$50) to take part in the program, which will be returned to them (as a credit toward subscription fee) as long as they stay in the program 2 years
- Customers may opt-out at any time
  - if less than 2 years, will lose deposit
- Subscription is portable if the participant moves within AE territory
- Option: Customers may transfer their subscription to another customer if they leave the territory or choose to opt-out
  - Reduces admin burden on AE to find new subscribers
  - Customers may feel like they can still recoup long-term benefits (or pass them on to others) if they move away



# Participant's Cost-Benefit

Sample Subscription	1 kW-dc	1 kW-dc
Subscription Fee	[REDACTED]	[REDACTED]
VOCS Credit	[REDACTED]	[REDACTED]
Net Cost	[REDACTED]	[REDACTED]
CS Premium	[REDACTED]	[REDACTED]

- Initial premium to participant: [REDACTED]
  - Premium is [REDACTED] than GreenChoice
- Net premium will change based on annual VOCS
- Flat subscription fee provides long-term stability



# Pricing Comparison:

Kingsbery PPA rate		
Avg revenues from market sales of Kingsbery production		
Premium to participants (=Subscription - VOCS)		
Net (unrecovered) cost to AE		
<i>Comparison: 25 yr levelized cost of rooftop solar incentive</i>		



# Benefits of Capacity-Based Model

- Lowest cost option to meet local solar goals
- Easy to integrate into CC&B
- Easy for participants to understand; similar to rooftop solar
- Participants still pay regular residential rates for consumption
- Introduces idea of capacity-based fixed charge
- Keeps PPA rate confidential
- If VoS goes up, revenue from PPA sales into market go up as well; AE is protected
- Refundable enrollment fee deters participants from opting in and out of program
- At end of 10 year program, AE can let participants to re-up, or end program and rate base PPA







# Feedback Requested

- Should we cap participation, or allow up to 100% offset?
- Are you comfortable with a 10 year program?
- Do you feel that this can be communicated to stakeholders in an understandable and transparent way?
- Is it flexible enough to make adjustments as the program moves forward (and new projects are added, costs change, PSA changes, etc.)
- What level of premium (and or subsidy) are you comfortable with, and do you think will see robust uptake?
- Areas for continued Market Research?



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# Thank You!



# OLD SLIDES



# Subscription Models

## Fixed premium model

- Participants subscribe for [30%-100%] of their electric consumption to come from community solar
  - 30% cap aligns with residential consumption profile and coincident solar production; reinforces idea that sun isn't always shining; you can't be 100% solar powered without storage; – or –
  - 100% cap aligns with green choice; lets customers be 100% renewable; reduces number of customers AE needs to enroll.
- Community Solar subscribers receive solar at a fixed rate, the “Community Solar Adjustment” (CSA), with a [10-25] year lock
- CSA replaces the PSA for the portion of their consumption which comes from the Community Solar project



**CSA CALCULATION: PPA net of Avoided Costs**

CSA set as: [Community Solar Procurement Cost] + [costs and benefits of local, distributed solar (as determined currently through VoS Assessment)]

**Costs (Kingsbery):**

Expected PPA rate [redacted]  
Admin costs [redacted]

**Benefits (2015):**

Guaranteed fuel value [redacted]  
Plant O&M value [redacted]  
Capacity value [redacted]  
Transmission value [redacted]  
Enviro value [redacted]

**NET COST:** [redacted]

2015 VoS totals 10 cents; Community Solar benefits are [redacted] (no transmission savings);  
Est. value to utility for community solar [redacted]  
**CSA =** [redacted]





# Pricing Methodology

Participants will pay a fixed rate for their community solar consumption;  
that rate could be set through a variety of methods:

- **Option 1: PPA minus Utility Subsidy**
- **Option 2: PPA net of Avoided Costs replaces CSA**
- **Option 3: Capacity based subscription**

## Common Assumptions:

PPA Term = [REDACTED]

PPA rate = [REDACTED]

2015 PSA = [REDACTED]

Pricing Methods:	PPA minus AE Subsidy	PPA Net of Utility Avoided Costs	Capacity Subscription
Calculation Inputs	PPA rate reduced by solar incentive equivalent to [REDACTED] replaces PSA	PPA costs – (guaranteed fuel value + plant O&M value + capacity value) + PSA; replaces PSA	Pay [REDACTED] Receive VOCS for kWh produced by subscribed amount
Total “CSA” (Indicative, NOT FINAL)	[REDACTED]	[REDACTED]	Pays normal rates for consumption, receives VOCS [REDACTED]
Premium (over 2015 PSA)	[REDACTED]	[REDACTED]	[REDACTED]







# Kingsbery Community Solar Project

Karen Poff, Project Manager, Solar Energy Services  
March 9, 2016

# Community Solar Overview

- Community Solar will provide access to solar energy for customers unable to install solar panels on their own homes or dwellings.
  - Renters and homeowners/condo dwellers with shaded roofs
  - Customers unable to make the upfront investment in rooftop systems
- Allows participants to receive the benefits of solar power without actually owning/hosting the solar panels on-site



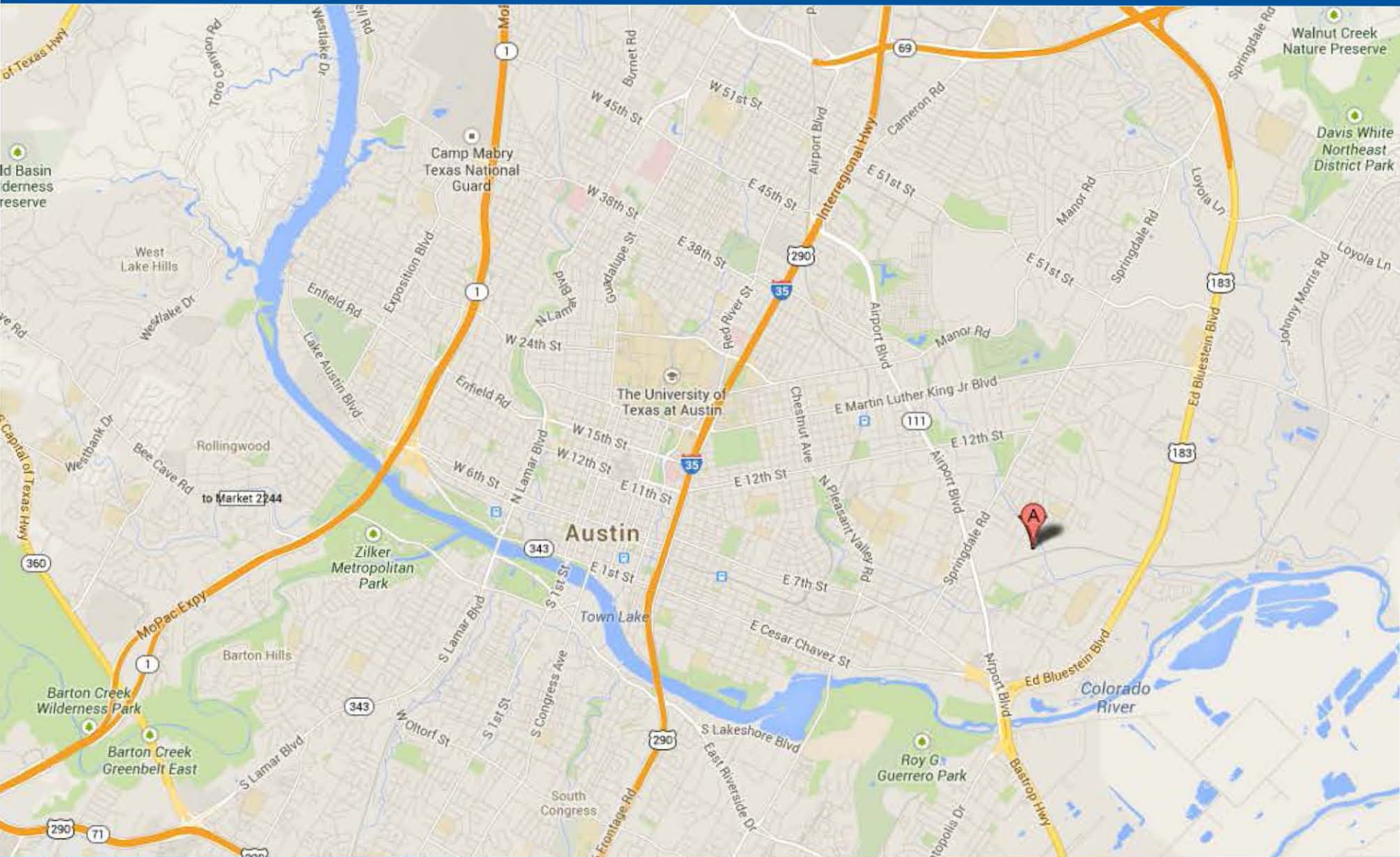
# Community Solar Overview

- Participants subscribe in 1kW increments of solar capacity from the community solar project
- Capacity Model Option: Participants pay a flat fee per kW each month and receive kWh/mo/kW subscribed
- Subscribers receive modified “Value of Community Solar” credit for their production from the system





# Kingsbery Site







# Kingsbery Site







# Kingsbery Renderings

- **2.0 MW-AC project**
- **Project Developer: Power Fin**
- **25 year PPA**
- **Currently in Site Plan Development Phase**
- **Completion: QTR 4 2016/QTR 1 2017**







**A decorative fence is proposed between the Community Solar Project and its nearest residential neighbors. The image also demonstrates what the view would have been with a chain-link fence in place.**



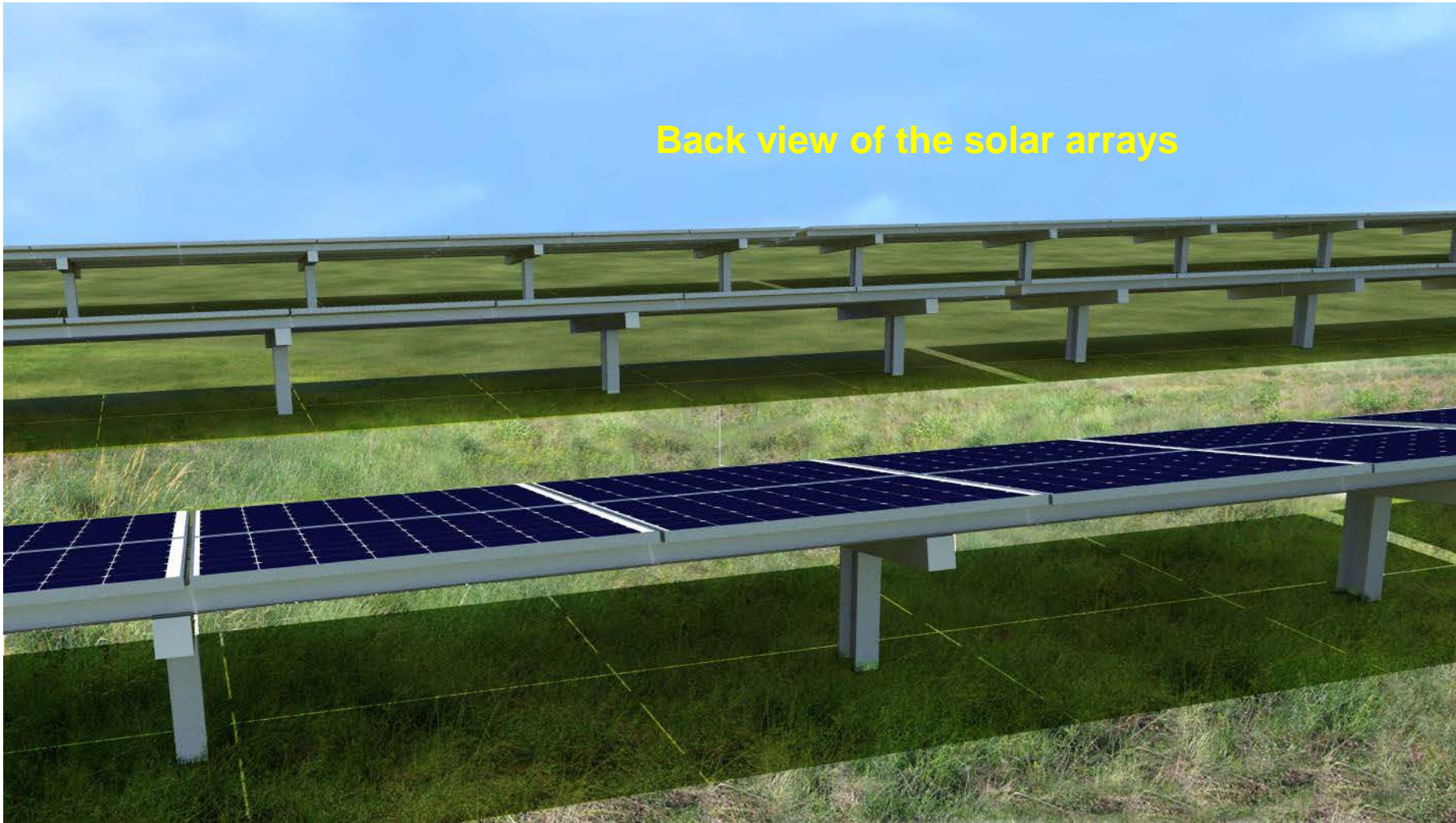
# Kingsbery Renderings



The Educational Area will bring new learning opportunities to site visitors. Placement of the Educational Area will be made with careful consideration of community feedback.



Back view of the solar arrays





# Community Benefits

- Supports City of Austin aggressive climate protection goals
- Renewable energy and Austin Energy's support for clean energy technology have helped diversify the economy in Austin.
- The Austin Technology Incubator estimates that the clean tech energy sector contributes \$2.5 billion to the region's economy and employs 20,000 people.
- The Kingsbery and Mueller battery storage projects are closely tied to each other (Austin Energy received a \$4.3 M SHINES grant).
- The Airport/Springdale area is being transformed from a former home to a toxic-polluting tank farm to being a leader for clean energy innovation.

# Community Benefits

- Currently parcel has low visibility and is home to garbage dumping and homeless camps
- Working with the Austin Independent School District, Capital Metro, Public Works and others to find ways to resolve pedestrian access issues for students attending Eastside Memorial High School. This issue was highlighted in the documentary “La Loma.”
- Educational opportunities for community and local schools.



# Approvals to Date

- Plan amendment and rezoning from the East MLK Neighborhood Contact Team in District 1.
- Plan amendment and rezoning from the Austin Planning Commission.
- Plan amendment and rezoning from the Austin City Council.
- Purchase Power Agreement with PowerFin from the Austin City Council.
- Purchase of a utility-scale battery storage unit from the Austin City Council.





**City of Austin - Austin Energy  
Customer Energy Solutions**

**Karen Poff**

**Project Manager, Solar Energy  
Services**

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# Thank You!

**From:** [Kimberly, Deborah \(Debbie\)](#)  
**To:** [Stogdill, Kurt](#)  
**Subject:** Community Solar  
**Date:** Wednesday, March 05, 2014 7:45:39 AM  
**Attachments:** [image001.png](#)

---

Kurt, I neglected to ask you about the community outreach plan for community solar. Are you working with someone in Mark's group to develop such and when will it be available? Would like to see a schedule soon, which I presume will allow for a series of neighborhood meetings, our messaging and the types of questions we anticipate getting.

**Debbie Kimberly** | VP, Customer Energy Solutions | Austin Energy

721 Barton Springs Rd. | Austin, TX 78704 | 512.322.6327



**From:** [Bart Rupert](#)  
**To:** [Yebra, Fred](#); [Libby, Leslie](#); [Kimberly, Deborah \(Debbie\)](#)  
**Subject:** Clean Energy Collective presentation  
**Date:** Tuesday, May 14, 2013 5:16:01 PM  
**Attachments:** [Clean Energy Collective Community Solar - Austin Energy.pdf](#)  
[CEC Mutual NDA.pdf](#)  
[image001.png](#)

---

All,

Thanks for your time today. Enclosed are the slides that we discussed during the online meeting. If you have any follow-up questions, just say the word. In the meantime, I'm also enclosing our mutual NDA so we can share a sample PPA per Fred's request.

Based on our discussions thus far and the research CEC has conducted, I am confident we can create an incredibly successful community solar program for Austin Energy.

I don't have Paul's e-mail address, but feel free to send this to him. Thanks everyone.

Best regards,

Bart Rupert | Vice President of Business Development  
Phone: 404-307-5379



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

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## MUTUAL NON-DISCLOSURE AGREEMENT

This Non-Disclosure Agreement (the "Agreement") is made this \_\_\_ day of \_\_\_\_\_, 20\_\_\_, shall be become effective upon the signed delivery to the Clean Energy Collective (the "Effective Date"), by and between the Clean Energy Collective, LLC, located at 401 Tree Farm Drive, Carbondale, CO 81623 and \_\_\_\_\_ located at \_\_\_\_\_.

For purposes of this Agreement, the terms "Receiving Party" and "Disclosing Party" shall include the party's agents, employees and representatives.

In the course of their dealings with each other and in order to engage in discussions and exchanges of information relating to the business and products of both parties, including but not limited to discussions of related technical and business initiatives, to determine whether the parties wish to enter into a business relationship for their mutual benefit ("Business Purpose"), the undersigned parties may, from time to time, disclose certain technical, business and other information, some of which may be Confidential Information, as that term is later defined in this Agreement. The parties hereby desire to establish and set forth their mutual obligations with respect to the use and disclosure of such Confidential Information. In consideration of the mutual disclosures, promises and obligations contemplated herein, the parties agree as follows:

- I. "Confidential Information" means any company proprietary information, technical data or trade secrets or know-how, including but not limited to business models, product plans, products, customer technical requirements, software, programming techniques, services, suppliers, supplier lists, customers, customer lists, customer technical requirements, markets, developments, inventions, processes, contracts, business structures, technology, designs, drawings, engineering, apparatus, techniques, hardware configuration information, marketing, forecasts, business strategy, or finances disclosed and identified by the parties as being Confidential Information, in writing, orally or by drawings or inspection of samples, parts or equipment.
- II. Notwithstanding the foregoing, "Confidential Information" shall not include information or disclosure that the Receiving Party can demonstrate:
  - A. Is now, or hereafter becomes, through no act or failure to act on the part of the Receiving Party, generally known or available to the public;
  - B. Was known by the Receiving Party before receiving such Confidential Information from the Disclosing Party;
  - C. Is received from a third party without restriction on disclosure and without breach of a nondisclosure obligation, except in the case of customer contracts;
  - D. Is independently developed by the Receiving Party without use of or reference to the Confidential Information by persons who had no access to the Confidential Information;
  - E. Was authorized for disclosure by the Disclosing Party.
- III. The Confidential Information shall be used solely for the Business Purpose and shall not be used for any other purpose. All Confidential Information supplied by a party, unless otherwise agreed to in writing, shall remain the property of the Disclosing Party.

- IV. Each party agrees:
- A. To hold the other party's Confidential Information in strict confidence subject to the terms of this Agreement;
  - B. Not to disclose such Confidential Information to any third party, except as specifically authorized herein or as specifically authorized by the other party in writing;
  - C. Not to disclose the nature of discussions or the proposed business relationship between the parties or the existence of this Agreement or of any of the terms and conditions contained herein without the prior written consent of the other party;
  - D. To use all reasonable precautions to prevent the unauthorized disclosure of the other party's Confidential Information;
  - E. Not to use any Confidential Information for any purpose other than to carry out the Business Purpose specific to the Disclosing Party.
- V. Each party may only disclose the other party's Confidential Information to its responsible employees and consultants who have a "need-to-know" such Confidential Information in order to carry out the Business Purpose, only if such persons are advised of the confidential nature of the disclosure and are bound by written agreement or by legally enforceable code of professional responsibility to protect against the disclosure of the Confidential Information, and in the case of non-employees, only upon specific written consent of the Disclosing Party, which is not provided for herein.
- VI. Each party may disclose the other party's Confidential Information if and to the extent that such disclosure is required by applicable law, provided that the Receiving party uses reasonable efforts to limit the disclosure by means of a protective order or a request for confidential treatment and provides the Disclosing Party a reasonable opportunity to review the disclosure before it is made and to interpose its own objection to the disclosure.
- VII. ALL CONFIDENTIAL INFORMATION IS PROVIDED "AS IS". EACH PARTY MAKES NO WARRANTIES, EXPRESS, IMPLIED OR OTHERWISE, REGARDING ITS ACCURACY, COMPLETENESS OR PERFORMANCE.
- VIII. Upon the request of the Disclosing Party, the Receiving Party will promptly return to the Disclosing Party all copies of the Confidential Information, will destroy all notes, abstracts and other documents that contain Confidential Information, and will provide to the Disclosing Party a written certification of an officer of the Receiving Party that it has done so.
- IX. Nothing in this Agreement shall be construed as granting any property or other rights (express or implied) to the Receiving Party, by license or otherwise, to any of the Disclosing Party's Confidential Information, except as specifically stated herein.
- X. Each party acknowledges that the covenants and agreements made in this Agreement are reasonable and are required for the reasonable protection of the parties and that the unauthorized use or disclosure of the other party's Confidential Information would cause irreparable harm to the other party. Accordingly, each party agrees that the other party will have the right to obtain an immediate injunction against any breach or threatened breach of this Agreement and to enjoin the other party from engaging in any activity in violation hereof, to enforce the specific performance obligations hereunder; and that no claim by the party against the other party or its successors or assigns will constitute a defense or bar to the specific enforcement of such obligations, as well as the right to pursue any and all other

rights and remedies available at law or in equity for such a breach. The prevailing party in any such action shall be entitled to recover, in addition to the relief granted, the costs and expenses of enforcement, including reasonable attorney's fees.

- XI. In addition to the protections provided to the parties herein, the parties agree that any contracts or materials provided by Clean Energy Collective are, and shall remain, the sole intellectual property of the Clean Energy Collective and will not be duplicated, modified or used outside of their intended Clean Energy Collective use.
- XII. This Agreement shall apply to all Confidential Information disclosed by one party to the other party on or after the Effective Date. The mutual obligations contained in this Agreement will remain in effect for the longer of two (2) years after the date of the last disclosure of Confidential Information hereunder or as long as any such information remains confidential, at which time this Agreement will terminate. As to specific Confidential Information which loses its confidential status, this Agreement shall terminate as to that Confidential Information at that time.
- XIII. No failure or delay by a party in exercising any right, power or privilege hereunder shall operate as a waiver thereof nor shall any single or partial exercise thereof preclude any other or further exercise of any right, power or privilege.
- XIV. This Agreement constitutes the complete and exclusive understanding reached between the parties with reference to the subject matter herein and supersedes all prior communications and agreements, whether oral or written. The terms and conditions set forth herein shall be modified, replaced, assigned or rescinded only in writing and signed by a duly authorized representative of each party. If one or more of the provisions in this Agreement are deemed void by law, the remaining provisions will continue in full force and effect. This Agreement will be construed and enforced according to the laws of the State of Colorado, U.S.A. without application of the principles of conflict of laws. This Agreement is not, however, intended to limit any rights that the parties may have under trade secret, copyright or patent laws which may apply to the subject matter of this Agreement both during and after the term of this Agreement.

Agreed:

for: Clean Energy Collective, LLC

  
Authorized Signature

Paul Spencer  
Printed Name

President  
Title

for: \_\_\_\_\_

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date



**From:** [Stogdill, Kurt](#)  
**To:** [Bierschbach, Erika](#)  
**Cc:** [Sweeney, William \(Pat\)](#); [Ritter, Stephanie](#); [Liner, Joe \(Matt\)](#); [Ferri, Jennifer](#); [Groce, Susan](#); [Kimberly, Deborah \(Debbie\)](#); [Stice, James \(Clayton\)](#)  
**Subject:** RE: Outstanding questions & issues on the community solar RFP  
**Date:** Wednesday, January 29, 2014 11:29:23 AM  
**Attachments:** [community solar final draft rfp - revised 4.docx](#)  
[Attachment #1- Purchase of Solar \(Photovoltaic\) Energy RFP Updated Package.doc](#)  
[Attachment #2- Community Solar Availability List for Professional Services.xls](#)  
[Attachment #3- TCAD Property ID 193744.pdf](#)  
[Attachment #4- Interconnection Guide for Customer Owned Power Production Facilities less than 10 MW\).pdf](#)

---

Hi All,

Hopefully we're getting close to issuing the RFP. I've attached the latest draft of the RFP and all of the relevant attachments. We have the requirements from DSMBR, so we should be good to go on that. Following is a list of outstanding requirements:

- Need to know how much clearance to allow for the substation, multiple transmission lines, access, etc... Will meet with David Sloan to confirm- then Real Estate group can stake off clearances on site and provide aerial map for mandatory site visit(s)
- Need to confirm dates of mandatory site visits- meeting space @ SCC
- Need to provide list of solicitation recipients to EMO- Can we use the City procurement commodity code list as well?
- Final review by EMO, Legal, ESD, Other...?

Erika also had a list of questions from a previous e-mail, answers follow below-

1. Who is authorized contact- Matt Liner w/EMO unless you give me another name
2. What is the interconnection guide referred to in section 3?- AE Interconnection Guide for Customer Owned Power Production Facilities (attached)
3. Have worked through metering with ESD and Regulatory affairs- AE will provide the settlement meter, it will not be an EPS meter, but it will provide settlement class data which will allow for data monitoring , SCADA, etc... There will also be a socket available for the contractor
4. We need to see/record output, also want to have output available for AE web-site for marketing as well- there is a substation on-site, so we already have backbone infrastructure handy
5. Section C- Do we need warranty requirements- We discussed this in our review sessions and it was generally thought to be a good idea, I'm certainly willing to listen to the input of EMO and EMO on that point- suggestions?
6. We also discussed this at length- some of this was based on us not knowing if EMO had a standard mix, I've changed the mix to weigh other factors a little more strongly to give us more flexibility- let me know if you think this will work
7. We will put together a review team, it will include EMO, ESD, Finance and Solar- EMO will negotiate the PPA
8. Execution of the PPA- Plan to work with EMO and Legal to do that

I need at least three things before I am ready to release the RFP-

1. Final review by Legal, EMO and ESD
2. Finalize dates/location for mandatory site visits
3. Vendor list- will provide interested parties Solar knows of, do we use the City list as well?

Please let me know what other steps I may have missed and what I can do to help with the launch. Is getting this issued on Friday a possibility?

Kurt

-----Original Message-----

From: Bierschbach, Erika

Sent: Friday, January 24, 2014 9:47 AM  
To: Stogdill, Kurt  
Cc: Sweeney, Pat; Ritter, Stephanie  
Subject: Outstanding questions & issues on the community solar RFP

Kurt,

I just received a copy of the latest RFP yesterday and found out AE was planning on putting it out potentially today or Monday. Not sure what the launch date is but we have some questions regarding the RFP and the process. Here are some questions that popped out just from our first pass. Let us know what your plans are so we can coordinate and nail down the proper process and expectations from each group.

1. Who will the authorized contact be delineated in Part 1. Section E. Non-Collusion, Non-Conflict of Interest, and Anti-Lobbying?
2. What is the Austin Energy Interconnection Guide referred to in Part 2. Section B. #2. Point of Delivery?
3. Under #3. Metering of the section referenced in the previous question, you indicate an ERCOT meter will be dedicated solely for the measurement of energy sold and purchased under the PPA. Is this an EPS (ERCOT Polled Settlement) meter or a different type of ERCOT meter? Do you understand this to be a requirement by ERCOT?
4. #4 Communication, are there telemetry needs/requirements for this site?
5. In Section C. Project Concept and Operation, we require panels to have a 25 year minimum warranty along with the inverters and bos components to have full maintenance support contracts for the term of the PPA. Is it necessary as an off taker to require this? As a business owner, could the proposer have more cost effective ways to guarantee the supply of our product that do not include long term blanket agreements that may come at a premium to them and therefore ultimately to us?
6. regarding the 100 point scoring basis, the 70 points allocated to evaluated cost may put you in a corner to choose someone you don't really want. there are other items that are driving this RFP than cost and if you are not able to allocate enough points to those softer targets then someone with a lesser quality design or facility with visitor center, etc. but has rock bottom price may be harder to get around through our own scoring design. Consider bumping up your other evaluation factors and bringing cost down a bit. Just a suggestion from experience.
7. who will evaluate the proposals and recommend proposers? who will negotiate the PPA?
8. who will execute this PPA? you will want to ensure that nothing gets into the PPA that is problematic to require but makes it past final signatures.

Let me know what you think. I am working from home today. Sheets of ice on Bee Cave and 360 still. I am including my numbers just in case.

Erika



**From:** [Stogdill, Kurt](#)  
**To:** [Ritter, Stephanie](#); [Kimberly, Deborah \(Debbie\)](#)  
**Subject:** RE: Austin Energy Community Solar RFP  
**Date:** Monday, March 03, 2014 6:01:11 PM

---

Hi Stephanie,

I will get you a better answer to the 4 MW question from Debbie.

Related to the limitation to City property, AE will NOT consider offers at other locations for this RFP.

AE, at its own discretion, may in the future choose to offer solicitations to enable bidders their own local sites, I believe one recently closed and has yet to be awarded.

Debbie,

We asked for up to 4 MW in the RFP, if they can add additional capacity above 4 MW on the existing site, are we willing to pay for it? I'm not sure about the efficacy of changing the RFP once it's issued, but I'm assuming we could.

Kurt

---

**From:** Ritter, Stephanie  
**Sent:** Monday, March 03, 2014 9:36 AM  
**To:** Stogdill, Kurt  
**Subject:** FW: Austin Energy Community Solar RFP

Please see below.

---

**From:** Paul Bachmuth [REDACTED]  
**Sent:** Friday, February 28, 2014 6:05 PM  
**To:** Ritter, Stephanie; Energy Supply  
**Cc:** Beth Schwartz; Justin McGeeney  
**Subject:** RE: Austin Energy Community Solar RFP

To Whom It May Concern:

This RFP appears limited to bids of up to 4 MW AC at the Austin Energy "Kingsbury" site:  
"Proposals must be for projects located and interconnected at Austin Energy's Kingsbury site described herein.

Will Austin Energy allow bidders the opportunity to provide bids for solar PV projects at other locations (that are both within the Austin City Limits and interconnecting on an Austin Energy – owned distribution wire)?

If so, would Austin Energy entertain offers of only up to 4 MW AC? Or, would AE entertain offers for projects up to but not larger than 10 MW AC?

If Austin Energy will not entertain bids for other locations within this current RFP, will Austin Energy run a subsequent RFP that will enable prospective bidders with their own "large local" Austin solar sites to bid those sites in for Austin Energy's consideration?

Thank you very much.

Best regards,

Paul

Paul M. Bachmuth | Director, Business Development | TradeWind Energy, Inc.

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

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**From:** Ritter, Stephanie [<mailto:Stephanie.Ritter@austinenergy.com>]  
**Sent:** Monday, February 24, 2014 12:05 PM  
**Subject:** Austin Energy Community Solar RFP

Austin Energy is soliciting proposals from companies qualified and experienced in the development, generation and dispatch of electrical energy produced from renewable solar energy resources in accordance with the attached RFP. The planned schedule is as follows:

Issue RFP: **February 24, 2014**

Mandatory Site Visit (Proposer must attend one): **Tuesday, March 18, 2014 or Wednesday, March 26, 2014**

Deadline for email questions will be 5:00 pm CT on **March 28, 2014**

RFP responses are due by 3:00 pm CT on **April 29, 2014**

Austin Energy will review proposals and arrive at a short list of proposals to consider for further evaluation. Short listed Proposers may be contacted to provide additional information and documentation regarding their proposal.

Proposers must submit their Proposal(s) electronically by the aforementioned deadline to [EnergySupply@austinenergy.com](mailto:EnergySupply@austinenergy.com). Proposal format and requirements are described in the RFP. In addition, Proposers must complete the Attachment 1 affidavit and submit with their Proposals.

During the RFP process, any and all questions regarding the RFP must be submitted to [EnergySupply@austinenergy.com](mailto:EnergySupply@austinenergy.com). Please note that any questions submitted after **March 28, 2014** will not be reviewed or answered.

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**Stephanie Ritter** | Market Analyst, Energy Supply & Risk Management | Austin Energy  
721 Barton Springs Rd. | Austin, TX 78704-1145 | 512.322.6412 (office)

# thinkEAST Community Solar Survey

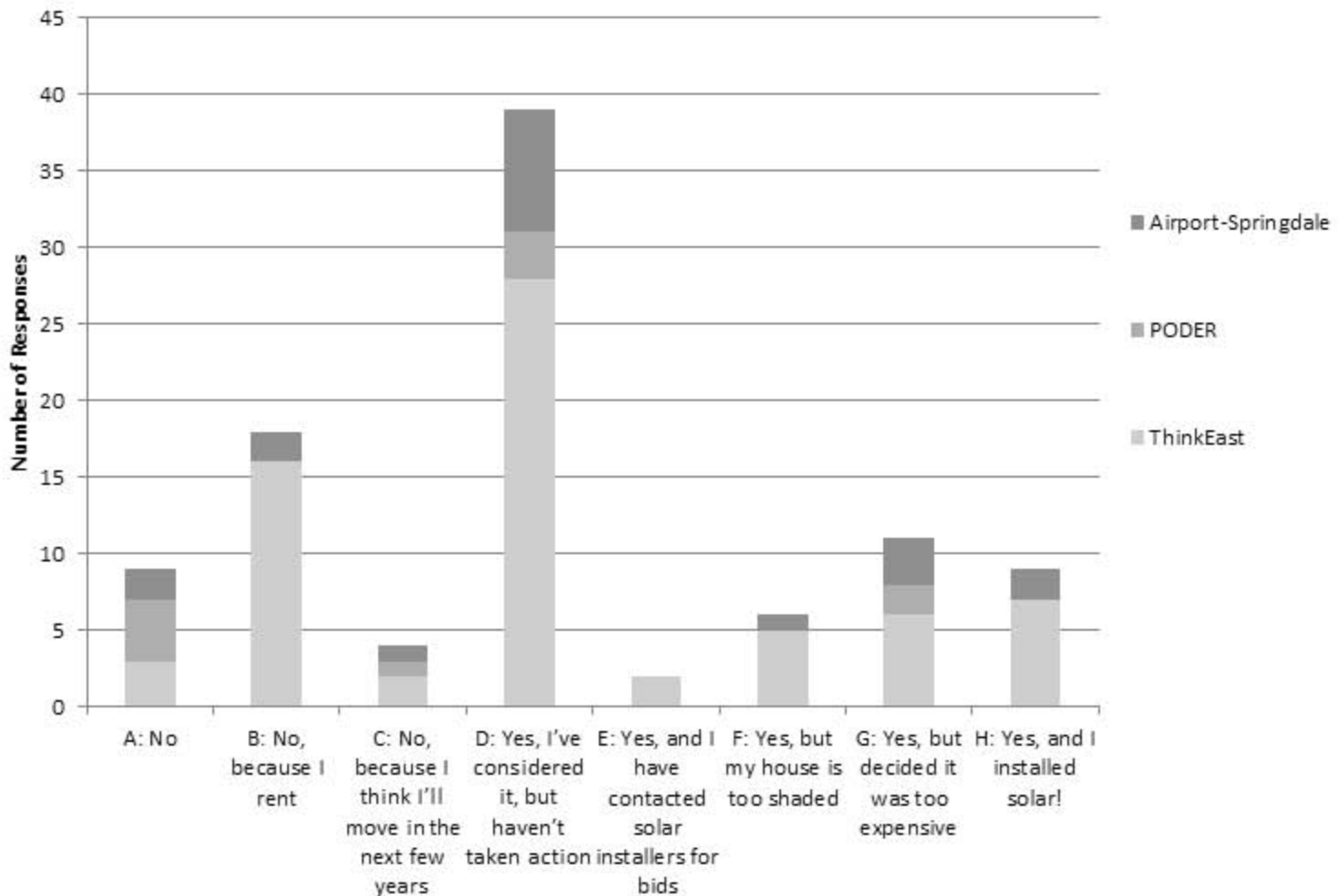
Responses Write-up through 7/9/15

# Events included in this analysis

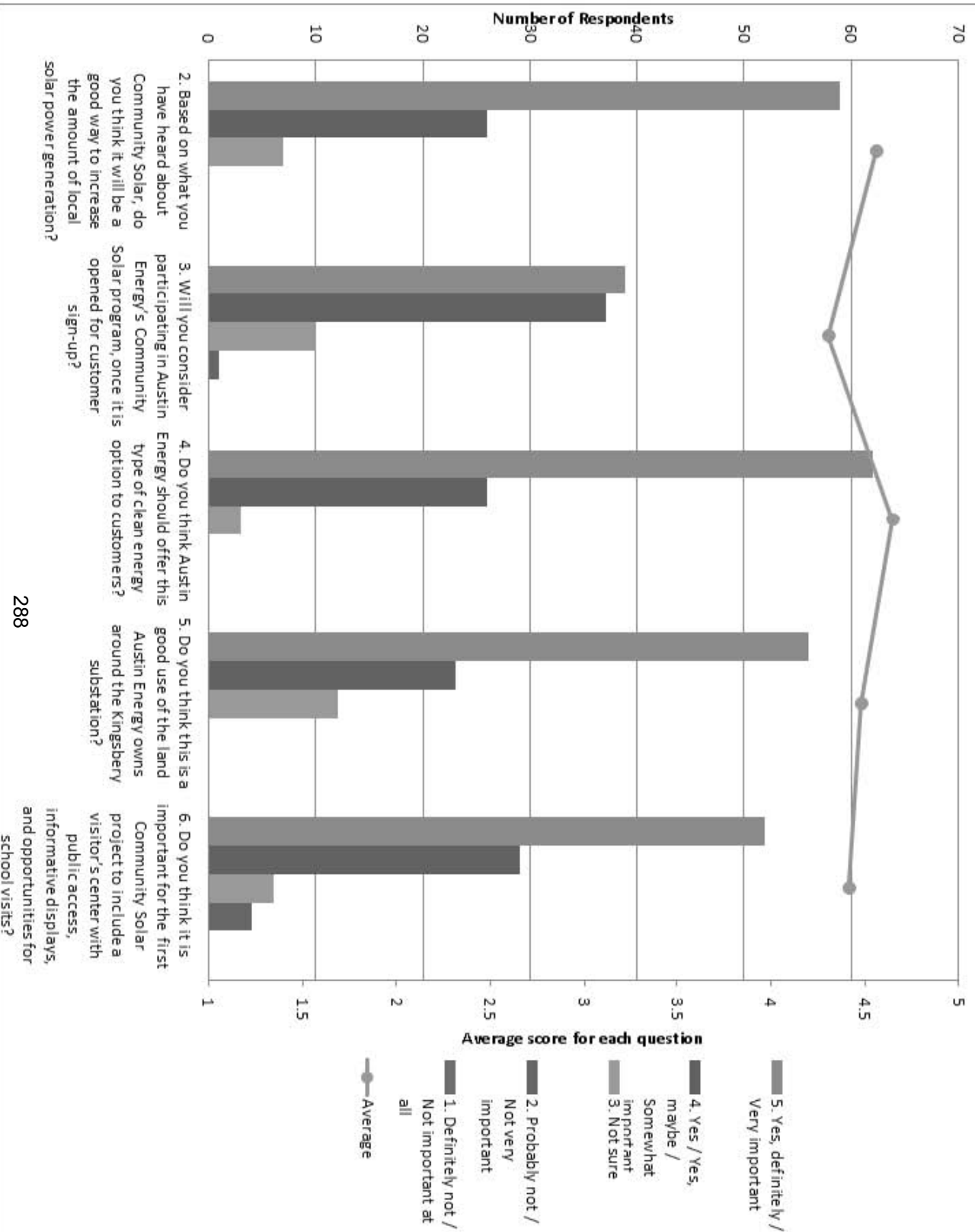
- thinkEAST
- PODER
- Airport-Springdale Neighborhood Association Meeting

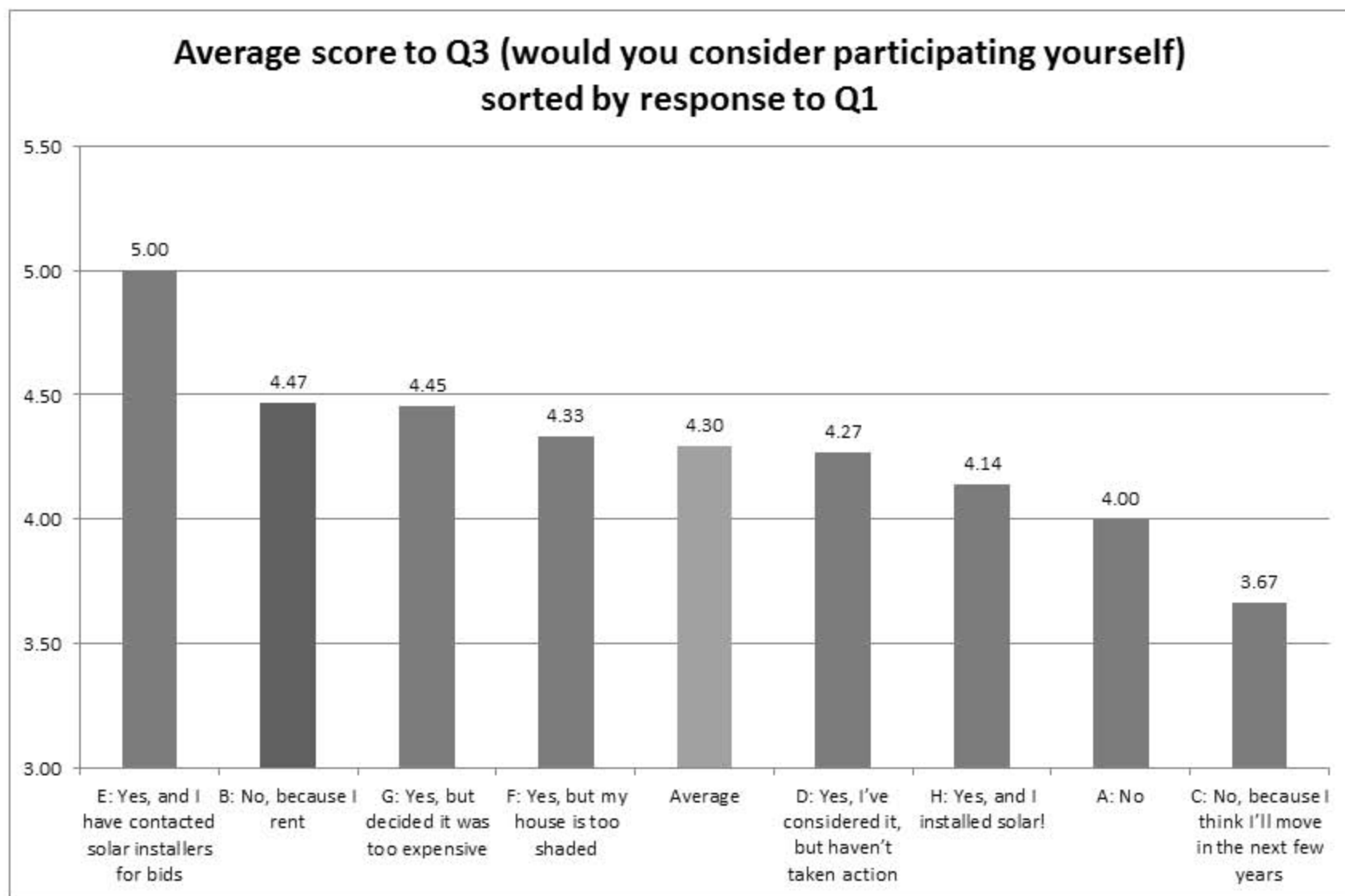


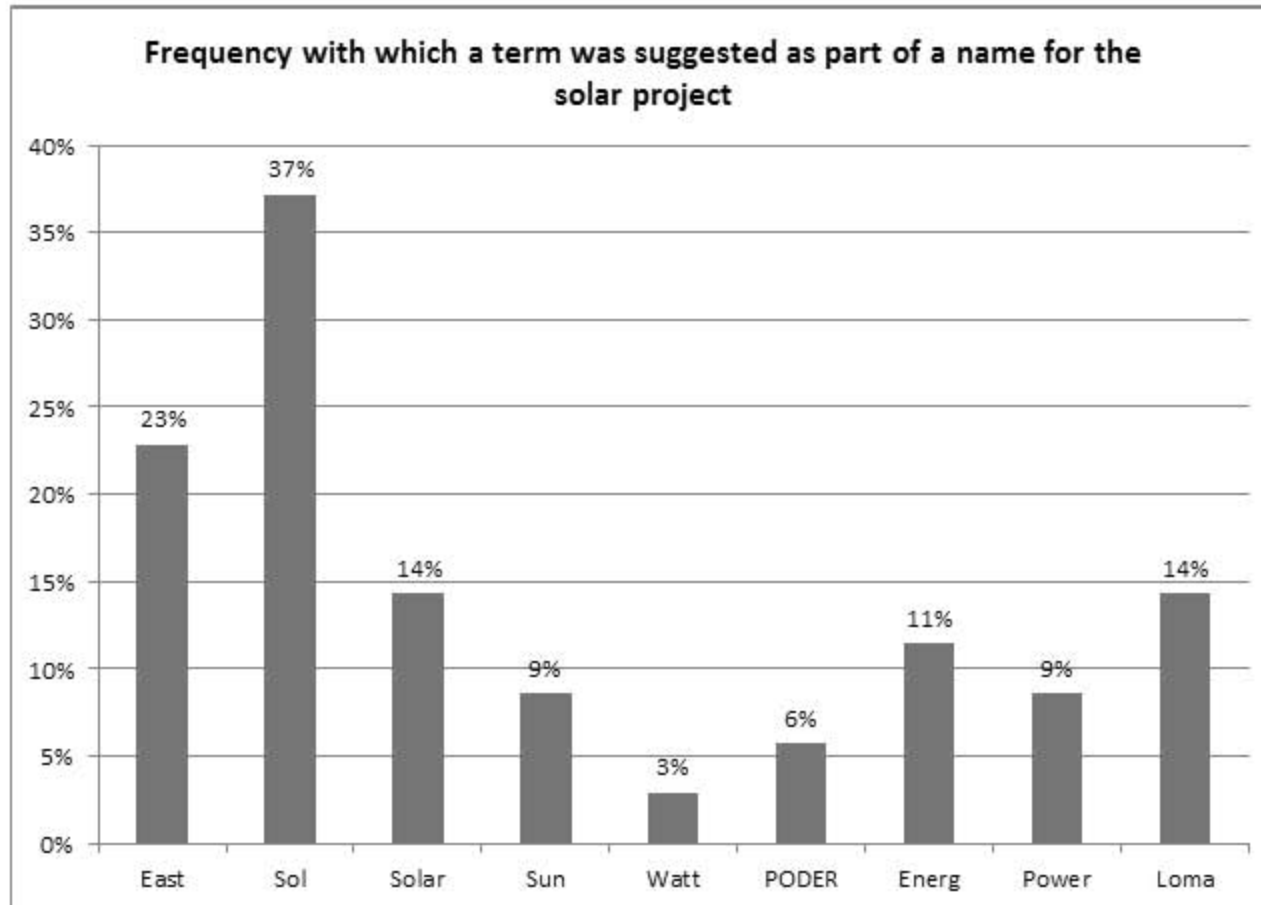
# 1. Do you live in a home where you have, or are considering having, solar installed on your own property?



## Scores for questions 2 - 6







# Comments

- **Visitor's center (mostly support for school visits, but also concerns about public access)**
  - "Homeschool/participation"
  - "YES"
  - Not sure if the visitor's center is a good idea "because of the location of the proposed site—not good access"
  - [One person circled "public access" and drew a map on the back of the proposed location of the visitor's center and the pedestrian connection]
  - [Two people circled "opportunities for school visits"]
- **Pedestrian walkway**
  - "Mixed use--safe walking/bike path"
  - "Light up and improve Boggycreek trail connectivity"
  - "Pedestrian/student access across property & reflection"
  - "Neighbor trail-bike connections; lighting"
  - Don't forget the kids trails to ESMLI
  - I agree [not to forget the kids trail to school!]
- **Competing concerns: improving housing, natural habitat, reflectivity**
  - "Clean energy resources are vital to any area. If there is no strategy to improve and alter current housing, it will not be as effective. Improved housing first."
  - "The land on the NW side of the railroad has several track of scrub woods that are important for local wildlife but could be incorporated into a solar community site"
  - "Will the solar panels reflect on planes & homes, etc?"
  - Protect the trees :)
- **Other uses for the land or locations for community solar project**
  - "Commission - interest in Del Valle Prison Solar" (comment by Brigid Shea)
  - "Put above shelter, neighborhood uses of shade area - basketball, ballet folklorico - already or Greenchoice"
  - Supports "combined use"
- **Affordability / economic impact**
  - "I am a volunteer working with Pete and don't live in the area. A sliding fee scale would be great. Gentrification is already an issue in the area and this should be taken into consideration. How will this affect property taxes? Also, how many local jobs will it create? How many are short-term and how many are long-term?"
  - "Think about a discount for CAP customers. Allow someone to donate a panel to local school or business. Give options for 5-year subscription"
  - "Just make it affordable"
- **Innovative Funding**
  - "Interested in crowd-source funding for solar, energy efficiency, water efficiency improvements along the lines of PACE but open to all levels of investors"

### **Austin Energy enters agreement to build Austin's first Community Solar Project**

AUSTIN, TX — Last week, Austin Energy entered a power purchase agreement with local solar firm [PowerFin Texas Solar Projects](#) to build a solar farm capable of producing up to 3.2 megawatts of clean, pollution-free power, in east Austin.

The project will provide power for Austin Energy's forthcoming "community solar" program, which will allow customers who are not able to install solar panels at their home to subscribe to energy from the sun. This includes renters, those with shady roofs, or anyone who doesn't want to install, pay for, and maintain a system at their own property. The program will be open to Austin Energy residential customers.

In addition to producing solar power, the project will include battery storage and educational components. This will be one of the first projects in the country to combine utility-scale solar with utility-scale energy storage, located right at the distribution feeder, which will enable smoother solar integration onto the grid and improve power quality.

"We want this site to be a hub for clean energy innovation in Austin," said Danielle Murray, Austin Energy Solar Energy Services Program Manager. "Not only is this an opportunity to provide solar to a wider number of Austinites, it's also an opportunity to showcase the evolving smart grid and utility of the future, and provide educational opportunities to the community and local schools."

The solar farm will be constructed adjacent to Austin Energy's Kingsbery substation, northeast of Springdale Road and Airport Boulevard. Because it will be built on land owned by Austin Energy and distribution and substation infrastructure are already in place, the cost for the solar energy produced is lower than what it would have been otherwise.

"We're excited to work with PowerFin, a local company that has extensive experience in solar project development," said Murray, "and to bring the benefits of solar development to Austin, including not just clean power, but green jobs."

The project will be one of more than 50 in 17 states in the U.S. often referred to as shared renewables or community solar, according to the Solar Energy Industries Association. Shared renewable energy projects enable customers to share the benefits of one local renewable energy plant, specifically a solar plant in the case of community solar.

Details of the pricing and program offering for customers are still being developed. Austin Energy estimates that the project will be completed in the summer of 2016. Austin Energy expects to develop more community solar sites around Austin to meet demand as customers sign up for the program.





# Kingsbery Community Solar Project

Danielle Murray, Manager, Solar Energy Services

Springdale-Airport Neighborhood Association Meeting

July 9, 2014



CLEAN, AFFORDABLE, RELIABLE ENERGY & EXCELLENT CUSTOMER SERVICE



# Community Solar Overview

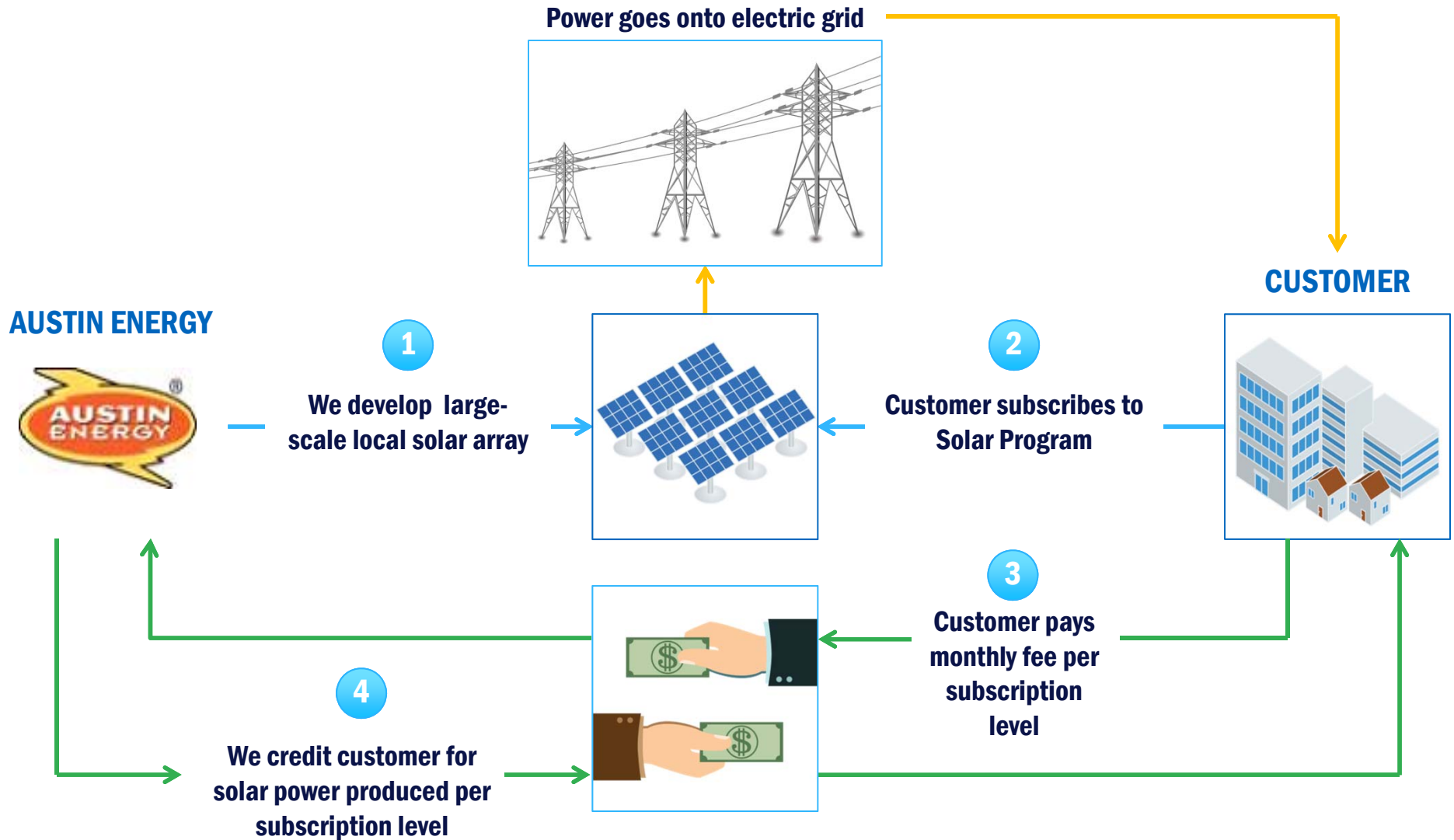
- Community Solar will provide access to solar energy for customers unable to install solar panels on their own homes, including:
  - Renters and homeowners with shaded or north-facing roofs
  - Customers unable to make the upfront investment in rooftop systems
- Local solar photovoltaic projects will be developed to supply solar energy for this program.
  - Supporting Austin's Climate Protection Plan and local solar goals
- Allows participants to receive the benefits of solar power without actually owning/maintaining the solar panels on-site
- Lowers cost of solar by installing large, centralized projects that can provide power to many homes, rather than individual rooftop systems







# How does Community Solar work?





# Clean Energy for East Austin

- Austin's first Community Solar project is proposed at Austin Energy's Kingsbery Substation
- The project would be ~2,300 kilowatts (kW), enough to power about 500 homes, with a solar array approximately the size of 20 football fields
- Austin Energy is also installing a 1.6 megawatt (MW) energy storage project at the Kingsbery substation that will work with the community solar project to improve grid reliability and power quality in the neighborhood





# Kingsbery Project Timeline



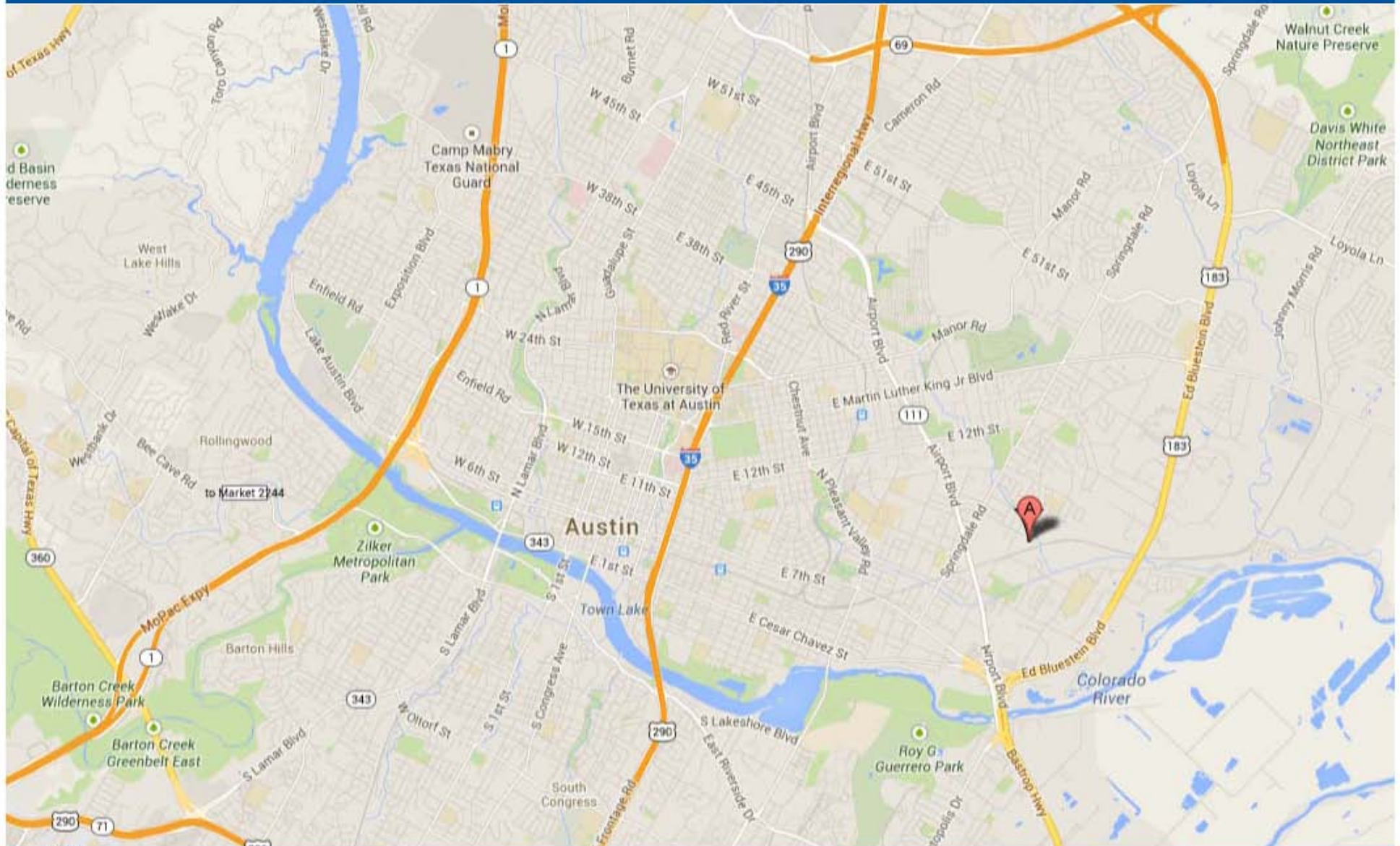
- Community Solar RFP released Feb 2014
  - For construction, operation and maintenance of up to 4 MW-ac PV to be constructed at the Kingsbery site
  - Power Purchase Agreement (PPA) structure with AE
- Top 3 vendors identified July 2014
- Approval from Council to enter contract in August 2014
- Signed PPA with PowerFin late May 2015
- Community engagement and land use approvals June-Nov 2015
- Break ground on site spring 2016, summer construction
- Expected online date: fall 2016







# Kingsbery Site

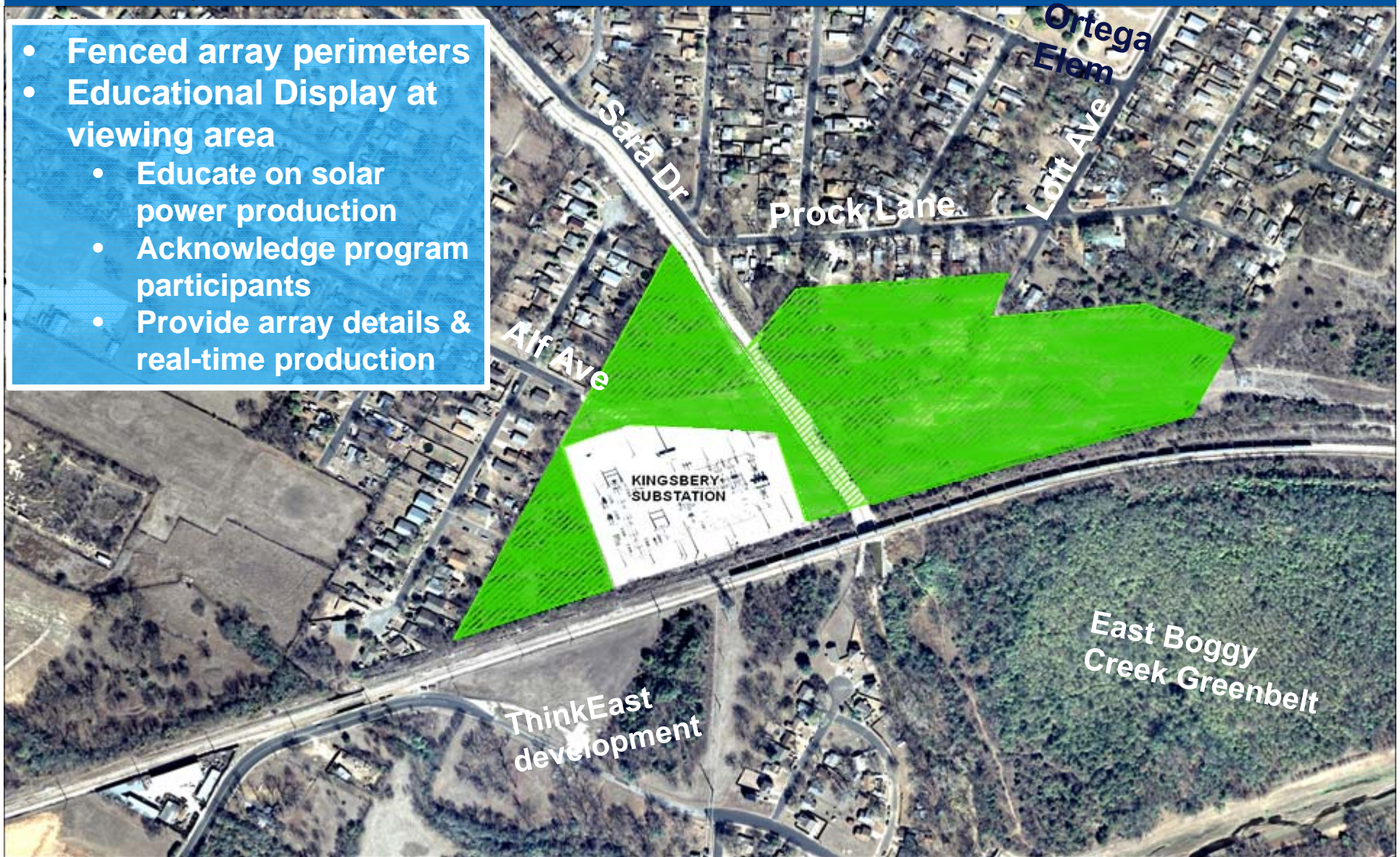






# Kingsbery Site

- Fenced array perimeters
- Educational Display at viewing area
  - Educate on solar power production
  - Acknowledge program participants
  - Provide array details & real-time production

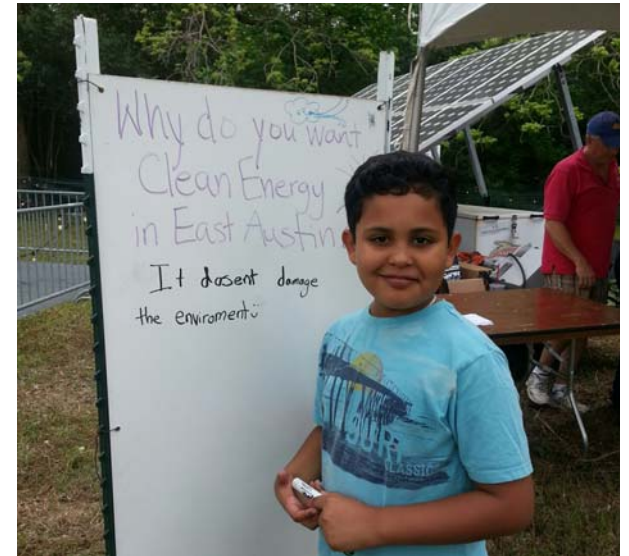






# What are the local benefits?

- The community solar project will bring clean energy to a neighborhood that has suffered from years of dirty fossil fuel pollution
- Educational opportunity for students and residents
- Job opportunities during land preparation, construction, and operation



Solar power is clean, quiet, and safe – that's what we call a great neighbor!

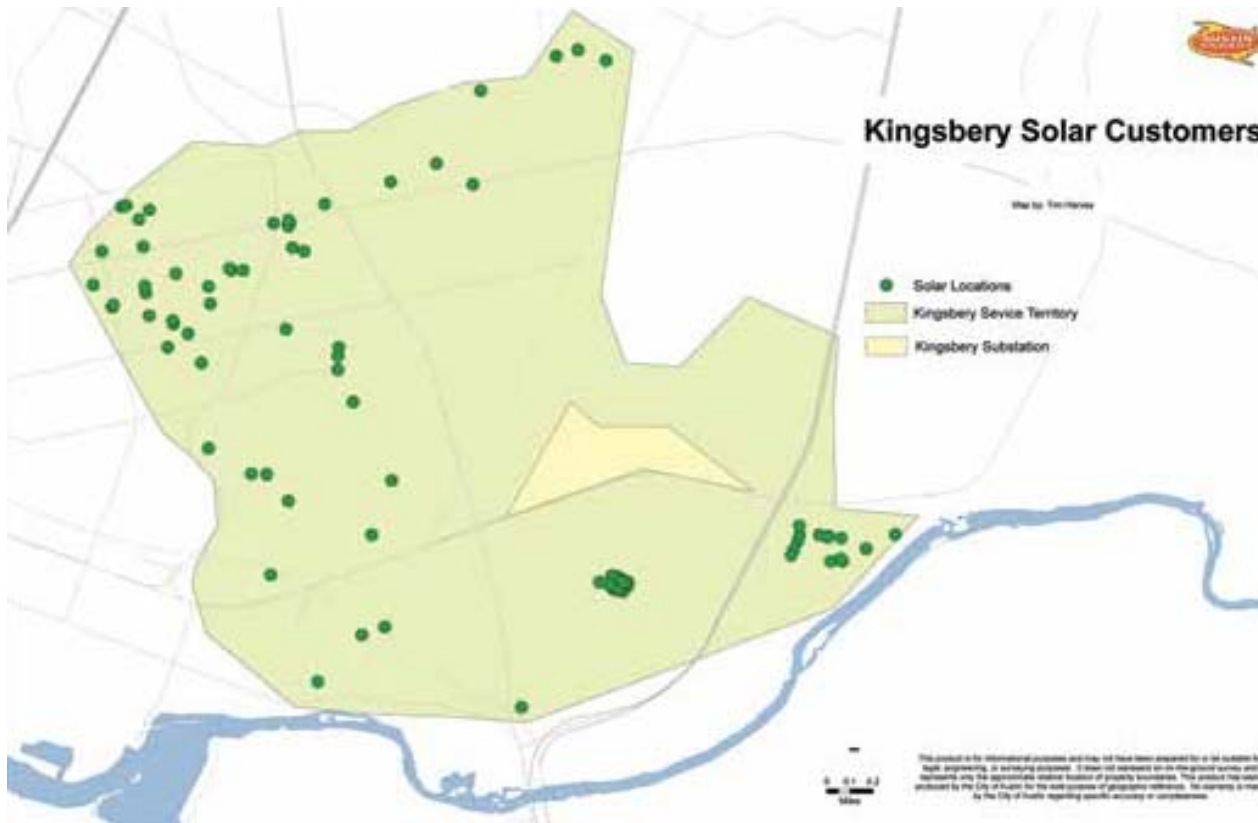
- Improved site security and public safety





## What are the local benefits?

- Improved power quality for the area served by the Kingsbery Substation thanks to innovative combination of solar + energy storage project



### Kingsbery Substation Service Area



# Questions? Comments? Suggestions?

**We need  
your input!**

What do you  
think Austin  
Energy needs to  
know about  
the site?

Would you like  
the opportunity  
to visit the project  
and learn more  
about solar energy  
and smart grid  
technologies?

Why do  
you want  
clean energy in  
East Austin?

What should  
we name the  
community  
solar project?





**City of Austin - Austin Energy  
Customer Energy Solutions**

**Solar Energy Services**

721 Barton Spring Rd.

Austin, Texas 78704-1194

p. 512.322.6055

e. [danielle.murray@austinenergy.com](mailto:danielle.murray@austinenergy.com)

**Twitter**



@austinenergy

**Facebook**



[facebook.com/austinenergy](https://facebook.com/austinenergy)

# Thank You!



## Community Solar Survey

Q1 Have you ever thought about investing or have invested in solar energy by purchasing PV panels for your home?

- ☐ Yes, I have invested -Go to question 2 and skip question 3
- ☐ Yes, I thought about investing but haven't done so - Skip question 2 and go to question 3
- ☐ No - Skip questions 2 and 3 and proceed to question 4

Q2 Of the following concepts, which concepts motivated you to invest in solar energy? Please check all that apply.

- ☐ To save money
- ☐ To lower my electric bill
- ☐ To protect the environment
- ☐ To make money
- ☐ It was the right thing to do
- ☐ To set an example for my neighbors
- ☐ To reduce US dependence on foreign oil
- ☐ To be self-sufficient in energy production
- ☐ Other, please specify \_\_\_\_\_

Q3 Of the following concepts, which prevented you from purchasing a rooftop solar system? Please check all that apply.

- ☐ Would have to obtain financing
- ☐ It would detract from my homes appearance
- ☐ I would have to cut down one or more trees
- ☐ Orientation (southern) of roof not suitable
- ☐ Cannot obtain the desired return on my investment
- ☐ Would take too long to recover my investment
- ☐ Overall maintenance and repair would be costly or time consuming
- ☐ I might not own my home long enough to make worthwhile
- ☐ I lease or rent my home
- ☐ Other, please specify \_\_\_\_\_

Q4 Austin Energy is considering offering its customers a new way of participating in a solar power program, under the umbrella term of 'community solar.' Under a Community Solar program, customers subscribe so a portion of their electric consumption will come from a solar energy facility. The power generated from the facility results in each subscriber receiving a proportional benefit based on their investment in the facility. In Austin Texas, a 1 kilowatt (kW) block of a solar facility (roughly 4 solar panels) produces a monthly average of 108 kilowatt hours (kWh) of the energy. The cost of these kW blocks is added to the customer's monthly bill, and the value of the energy produced by these purchased blocks of solar power is deducted from the customer's monthly bill.



Based on the previous program description please check all that apply.

- ☐ The description easy to understand.
- ☐ The concept interesting.
- ☐ I would request additional information based on the description.
- ☐ This something that Austin Energy should consider offering.
- ☐ This type of program increase your satisfaction with Austin Energy
- ☐ All of the above.
- ☐ Not inclined to participate
- ☐ Other, please specify \_\_\_\_\_

Q5 The cost of these kW blocks is added to the customer's monthly bill, and the value of the energy produced by these purchased blocks of solar power is deducted from the customer's monthly bill. What premium per month (the difference between the cost of the solar blocks and the value of the energy produced) would you be willing to pay to participate in Community Solar?

- ☐ \$5/month per 1 kW block
- ☐ \$10/month per 1 kW block
- ☐ \$15/month per 1 kW block
- ☐ \$20/month per 1 kW block
- ☐ \$25/month per 1 kW block
- ☐ Not inclined to participate
- ☐ Other, please specify \_\_\_\_\_

Q6 Community Solar programs often offer different subscription levels. Please answer the following questions based on the above concept.

I am likely to subscribe to a Community Solar subscription that covers ...

- ☐ 25% of my average monthly usage.
- ☐ 50% of my average monthly usage.
- ☐ 75% of my average monthly usage.
- ☐ 100% of my average monthly usage.
- ☐ Not inclined to participate
- ☐ Other, please specify \_\_\_\_\_

Q7 Community Solar programs often require an initial deposit, which is credited back to you after one or two years as long as you stay in the program.

Would you take part in the Community Solar if it had an initial deposit of...

- ☐ \$50 deposit refunded after one year
- ☐ \$75 deposit refunded after one year
- ☐ \$100 deposit refunded after one year
- ☐ \$50 deposit refunded after two years
- ☐ \$75 deposit refunded after two years
- ☐ Not inclined to participate
- ☐ Other, please specify \_\_\_\_\_

# **Data Analytics and Business Intelligence**

## **Community Solar Survey**

### **Summary Report - December 17, 2014**

Prepared by  
Rebecca Baise

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# Summary

357 completed surveys were received and analyzed for this report.

The Community Solar survey was well received and respondents were excited about this program. The results of the survey indicate Austin Energy should proceed with program development and rollout. Recommendations compiled by the Data Analytics group include:

- a. Ensure program messaging makes it clear Multi-Family residents are eligible to participate in this program.
- b. The premium for this program (subscription fee – credit) should not exceed \$5 per subscribed kW.
- c. Respondents prefer required deposits not be held longer than 1 year. Some respondents stated they preferred deposits returned to participants as a refund and not applied as a credit to utility bill.
- d. Marketing and education strategies will work best if targeted to specific audiences, based on the demographics and responses of the survey respondents.

## Survey Highlights:

69% of respondents would subscribe to 1 or more kW blocks.

33% of respondents would subscribe to 5 kW blocks or more.

It appears there is an opportunity to grow the number of subscribed blocks through education.

52% of respondents indicated they would pay between \$5-\$15 per kW block.

The majority reported closer to \$5.

59% of respondents indicated it was important to very important that the credit generated by the solar panels be greater than the subscription fee paid each month.

48% of respondents indicated the credit received would need to be equal to the subscription fee.

The balance between the credit and the subscription fee is critical for program success.

74% of respondents thought a reasonable deposit would be between \$25- \$100.

77% felt the deposit should be held no more than a year before being refunded.

19% of respondents said they were likely to subscribe to Community Solar if the deposit was held for three years.

Investigation is needed to see if the Community Solar deposit could be handled differently than the utility deposit.

80% of respondents stated they would not want personal recognition if they participated.

However, some respondents were interested in recognition that would help promote the program to others. Window clings such as those used in GreenChoice could be well received.

### Demographics:

96% personally pay for the electric utility service

Participation in other AE programs:

44% Air conditioning rebates

34% Home Performance with Energy Star

27% Power Partner Thermostat

24% Appliance Efficiency Program

21% Refrigerator recycling

11% subscribed to Green Choice, 40% unsure

43% of Green Choice subscribers have subscribed 1 to 3 years

39% of Green Choice subscribers have subscribed 4 to 7 year

Research indicates that participation in one program often leads to participation in subsequent programs. Rebate participants could be a key demographic for the initial launch.

## **Supplemental:**

### **Drivers for adoption of customer sited solar**

- 81% save money/make money
- 88% reduce the amount of coal and nuclear fuel used to generate electricity
- 56.3 % hedge against future prices
- 94% tax incentives and rebates that help defray the costs of your purchase of solar panels
- 38% set an example for my neighbors
- 69% reduce US dependence on foreign oil.
- 69% be self-sufficient in energy production

### **Barriers to adoption of customer sited solar**

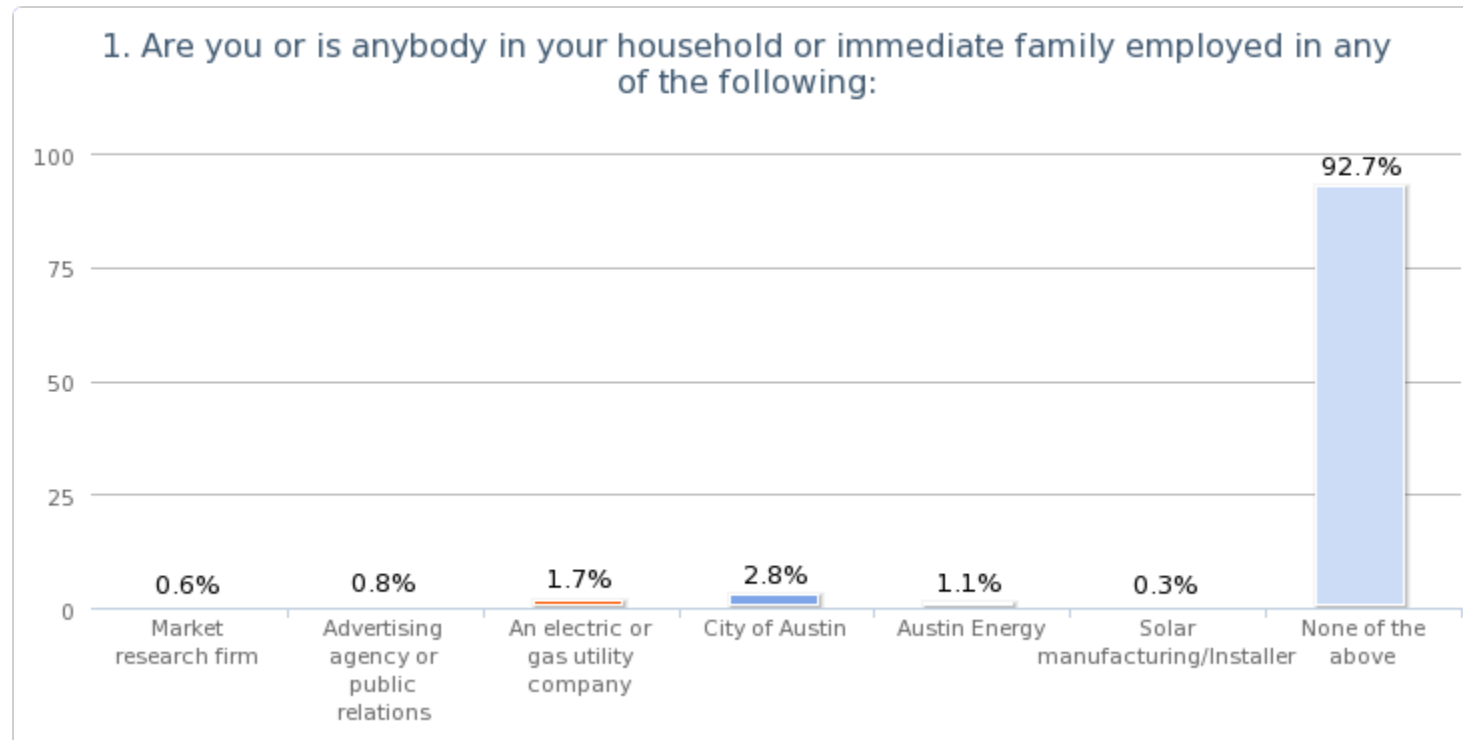
- 67% large upfront cost
- 29% take too long to recover investment
- 24% need to obtain financing
- 13% overall maintenance and repair would be costly and time consuming
- 13% my roof is shaded/ I would have to cut down one or more trees
- 10% orientation of the roof not suitable (no southern exposure)
- 51% Other



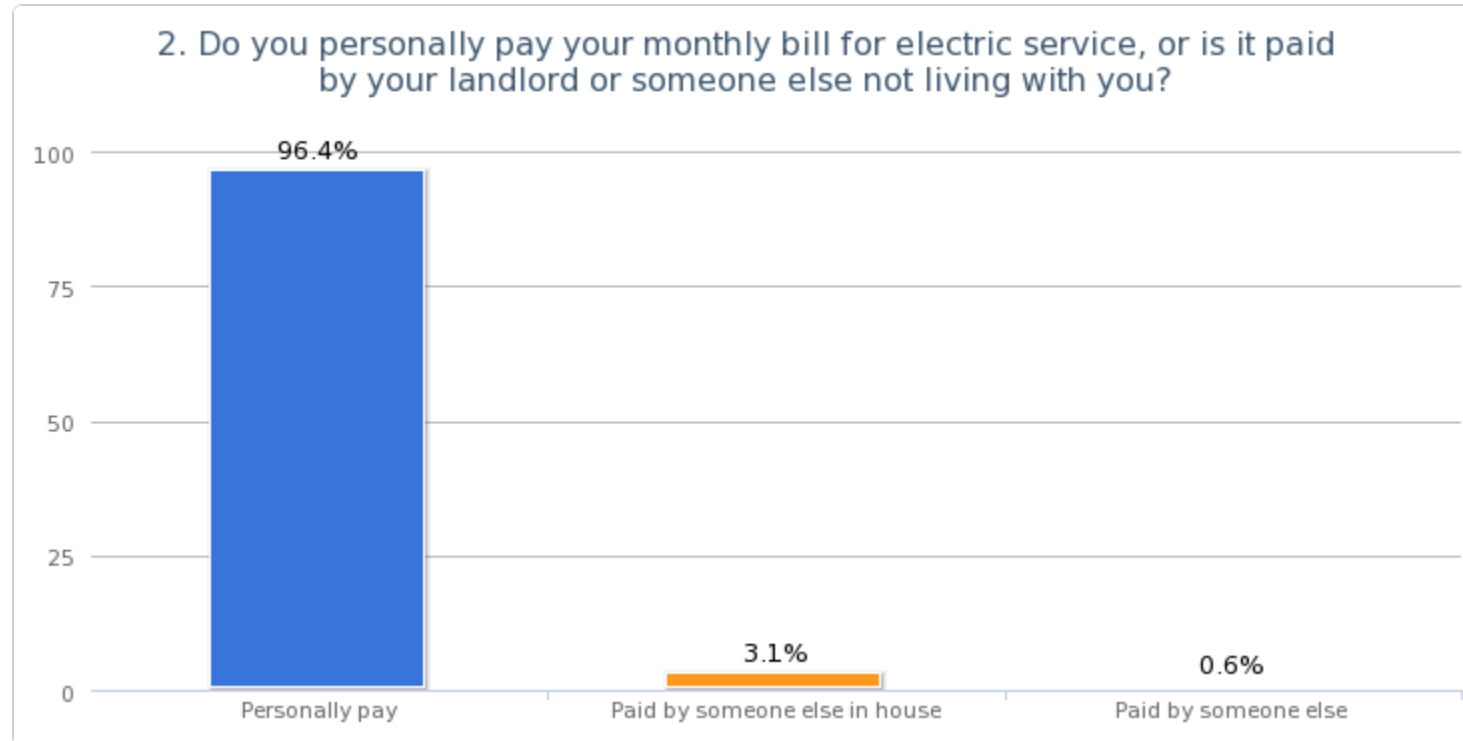
When reading this report, please keep in mind:

1. Response counts for questions vary and results from custom routing are based on responses to previous questions.
2. Many questions allowed participants to select multiple responses. The responses to those questions will add up to more than 100%.
3. Many questions asked participants to specify when they selected “Other” as a response. If “Other” was specified, the responses have been included. If “Other” was not selected and not specified, no additional responses are provided.
4. It is beneficial to read and review the responses for “Other”. These open ended responses provide additional insight into the survey participants that add value beyond the response percentages.
5. Elements of this report can be copied.

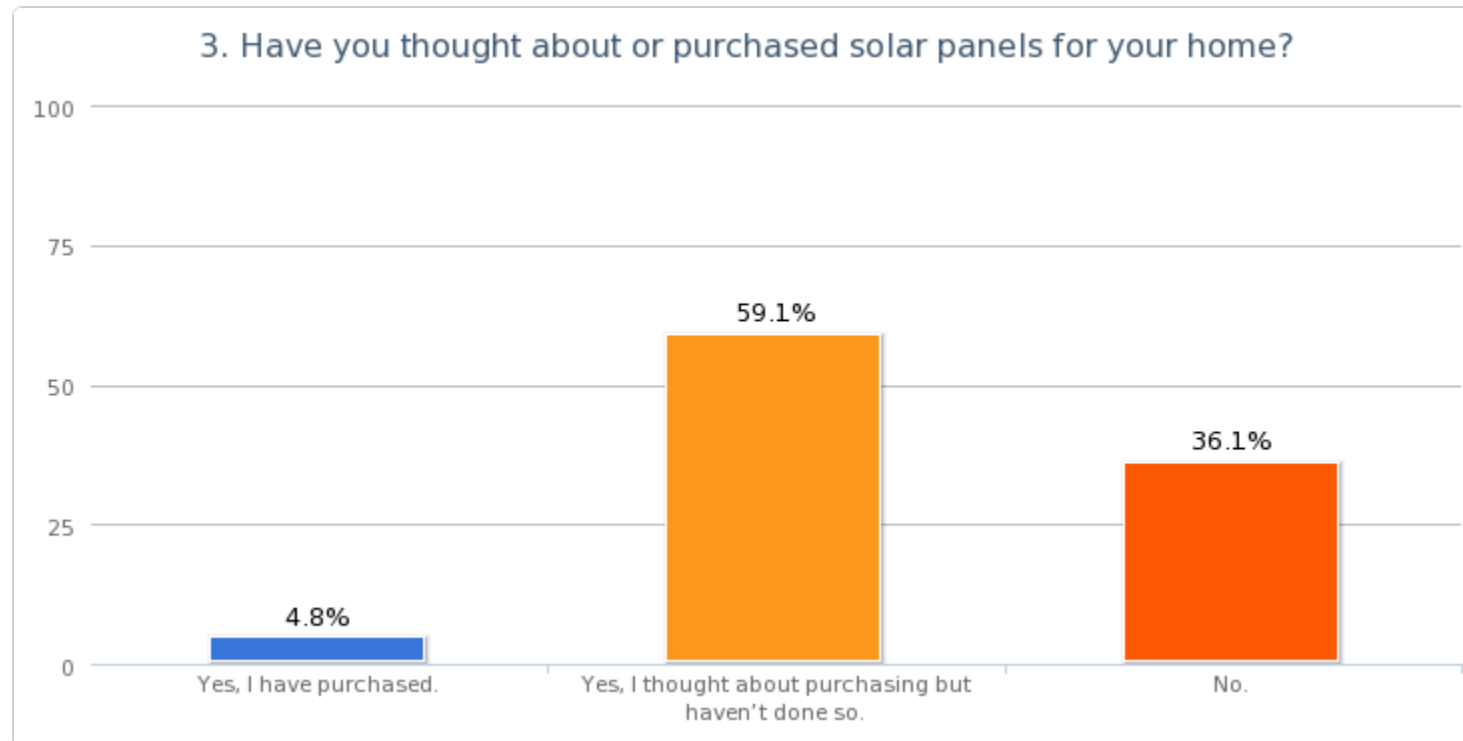
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Total Responses	357
Market research firm	2
Advertising agency or public relations	3
An electric or gas utility company	6
City of Austin	10
Austin Energy	4
An electrician or contractor who has installed solar panels.	0
Solar manufacturing/Installer	1
None of the above	331



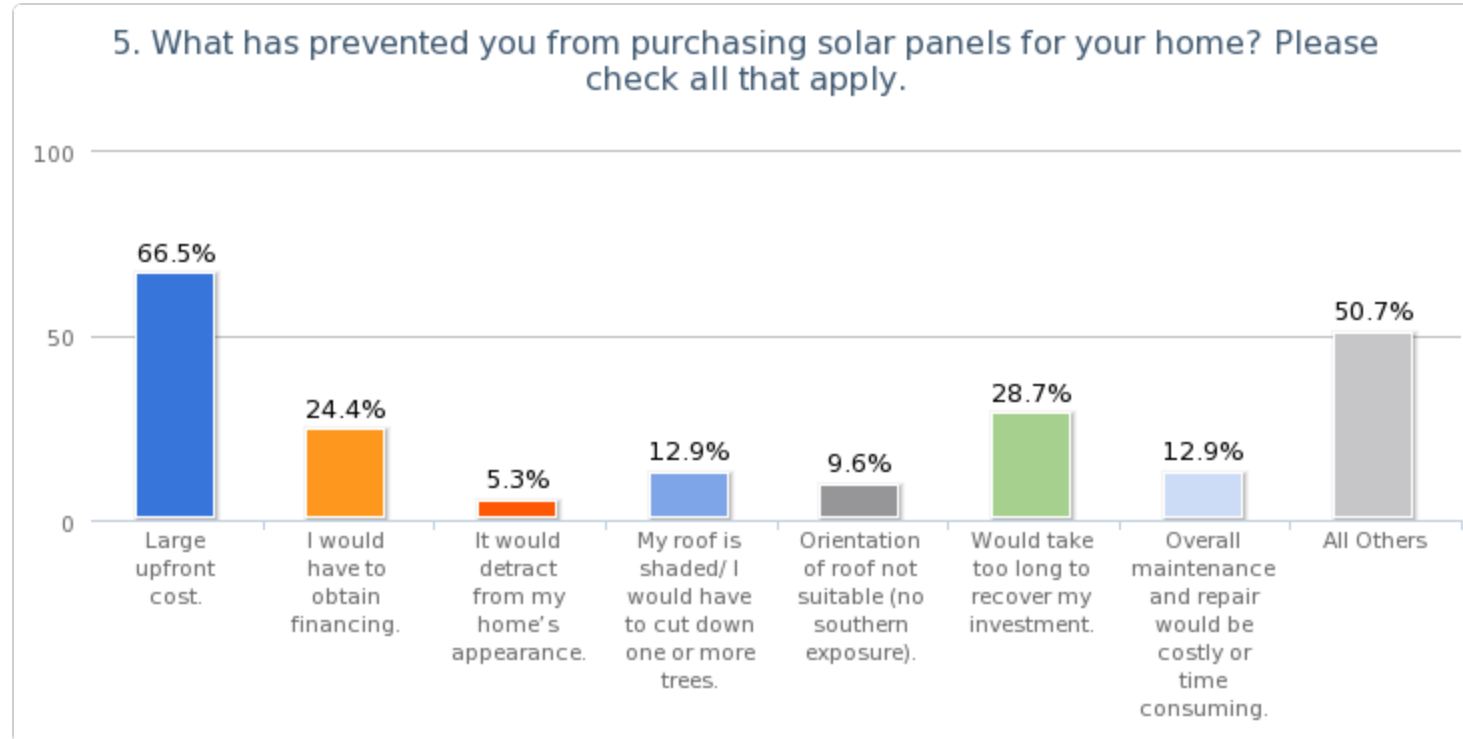
<b>Total Responses</b>	<b>359</b>
Personally pay	346
Paid by someone else in house	11
Paid by someone else	2



<b>Total Responses</b>	<b>357</b>
Yes, I have purchased.	17
Yes, I thought about purchasing but haven't done so.	211
No.	129

**4. Where 1 is not important at all and 10 is very important, how important were the following in your decision to purchase solar panels for your home?**

	Not Important At All 1	2	3	4	5	6	7	8	9	Very Important 10	Responses
To save money / to make money.	6.3% 1	0.0% 0	0.0% 0	0.0% 0	12.5% 2	0.0% 0	0.0% 0	6.3% 1	0.0% 0	75.0% 12	16
To reduce the amount of coal and nuclear fuel used to generate electricity.	6.3% 1	0.0% 0	0.0% 0	0.0% 0	6.3% 1	0.0% 0	0.0% 0	18.8% 3	6.3% 1	62.5% 10	16
To hedge against future prices.	6.3% 1	0.0% 0	6.3% 1	6.3% 1	18.8% 3	0.0% 0	6.3% 1	12.5% 2	0.0% 0	43.8% 7	16
Tax Incentives and Rebates that help defray the cost of your purchase of solar. panels	0.0% 0	0.0% 0	0.0% 0	0.0% 0	0.0% 0	0.0% 0	6.3% 1	0.0% 0	12.5% 2	81.3% 13	16
To set an example for my neighbors.	37.5% 6	6.3% 1	6.3% 1	6.3% 1	6.3% 1	0.0% 0	0.0% 0	25.0% 4	0.0% 0	12.5% 2	16
To reduce US dependence on foreign oil.	12.5% 2	6.3% 1	0.0% 0	0.0% 0	6.3% 1	6.3% 1	0.0% 0	18.8% 3	0.0% 0	50.0% 8	16
To be self-sufficient in energy production.	12.5% 2	6.3% 1	0.0% 0	0.0% 0	0.0% 0	6.3% 1	6.3% 1	25.0% 4	6.3% 1	37.5% 6	16
Other	80.0% 8	0.0% 0	0.0% 0	0.0% 0	10.0% 1	0.0% 0	0.0% 0	0.0% 0	0.0% 0	10.0% 1	10





<b>Total Responses</b>	<b>157</b>
Large upfront cost.	139
I would have to obtain financing.	51
It would detract from my home's appearance.	11
My roof is shaded/ I would have to cut down one or more trees.	27
Orientation of roof not suitable (no southern exposure).	20
Would take too long to recover my investment.	60
Overall maintenance and repair would be costly or time consuming.	27
I might not own my home long enough to make it worthwhile.	31
I lease or rent my home.	28
I live in an apartment or condo.	29
Other	18

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Austin Energy is considering offering its customers a new way of obtaining solar power, through a program called 'Community Solar'. Community Solar energy will be generated from a large solar array located in Austin. This program allows participating customers to select the amount of solar energy they want included in their home's energy mix. Participant's solar energy will replace an equal amount of energy produced by Austin Energy's standard fuel mix of coal, natural gas, renewables and nuclear fuels.

In this program, there is a fixed monthly subscription fee. The monthly subscription fee is offset by a monthly credit on your bill for the solar energy produced by the solar panels.

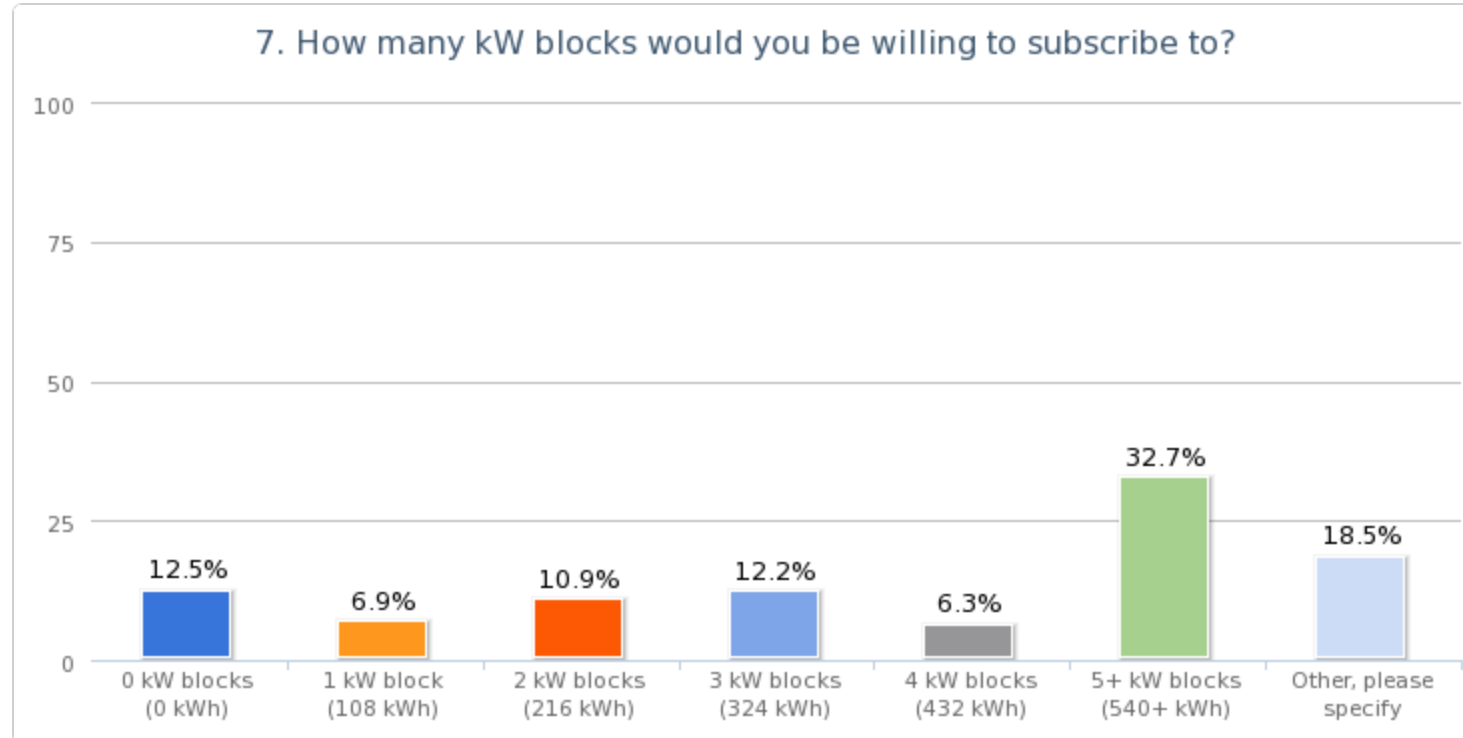
**6. Based on the paragraph above, where 1 is strongly disagree and 10 is strongly agree, please tell us how much you agree with the following statements.**

	<b>Strongly Disagree 1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>Strongly Agree 10</b>	<b>Responses</b>
<b>The description is easy to understand.</b>	<b>3.5%</b> 11	<b>2.5%</b> 8	<b>3.5%</b> 11	<b>6.3%</b> 20	<b>10.4%</b> 33	<b>8.2%</b> 26	<b>16.8%</b> 53	<b>19.9%</b> 63	<b>11.7%</b> 37	<b>17.1%</b> 54	<b>316</b>
<b>I would request additional information based on the description.</b>	<b>5.0%</b> 16	<b>2.2%</b> 7	<b>0.6%</b> 2	<b>2.5%</b> 8	<b>5.4%</b> 17	<b>2.2%</b> 7	<b>7.9%</b> 25	<b>13.6%</b> 43	<b>17.7%</b> 56	<b>42.9%</b> 136	<b>317</b>
<b>This is something that Austin Energy should consider offering.</b>	<b>2.9%</b> 9	<b>1.0%</b> 3	<b>0.6%</b> 2	<b>1.3%</b> 4	<b>8.0%</b> 25	<b>6.7%</b> 21	<b>11.2%</b> 35	<b>8.6%</b> 27	<b>17.3%</b> 54	<b>42.5%</b> 133	<b>313</b>
<b>This type of program increases your satisfaction with Austin Energy.</b>	<b>5.1%</b> 16	<b>2.2%</b> 7	<b>1.3%</b> 4	<b>2.6%</b> 8	<b>12.5%</b> 39	<b>7.3%</b> 23	<b>10.2%</b> 32	<b>10.9%</b> 34	<b>13.4%</b> 42	<b>34.5%</b> 108	<b>313</b>
<b>I will likely participate in Community Solar.</b>	<b>7.7%</b> 24	<b>2.6%</b> 8	<b>2.6%</b> 8	<b>2.6%</b> 8	<b>16.5%</b> 51	<b>6.8%</b> 21	<b>13.5%</b> 42	<b>12.3%</b> 38	<b>11.9%</b> 37	<b>23.5%</b> 73	<b>310</b>

In this program, participants subscribe to the amount of solar energy they want to include in their home's energy mix. Subscriptions are available in kW blocks. A 1 kW subscription will replace approximately 108 kWh of your home's energy mix with solar energy.

The average Austin Energy residential customer residing in a single family home uses 1339 kWh per month.

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Total Responses	303
0 kW blocks (0 kWh)	38
1 kW block (108 kWh)	21
2 kW blocks (216 kWh)	33
3 kW blocks (324 kWh)	37
4 kW blocks (432 kWh)	19
5+ kW blocks (540+ kWh)	99
Other, please specify	56

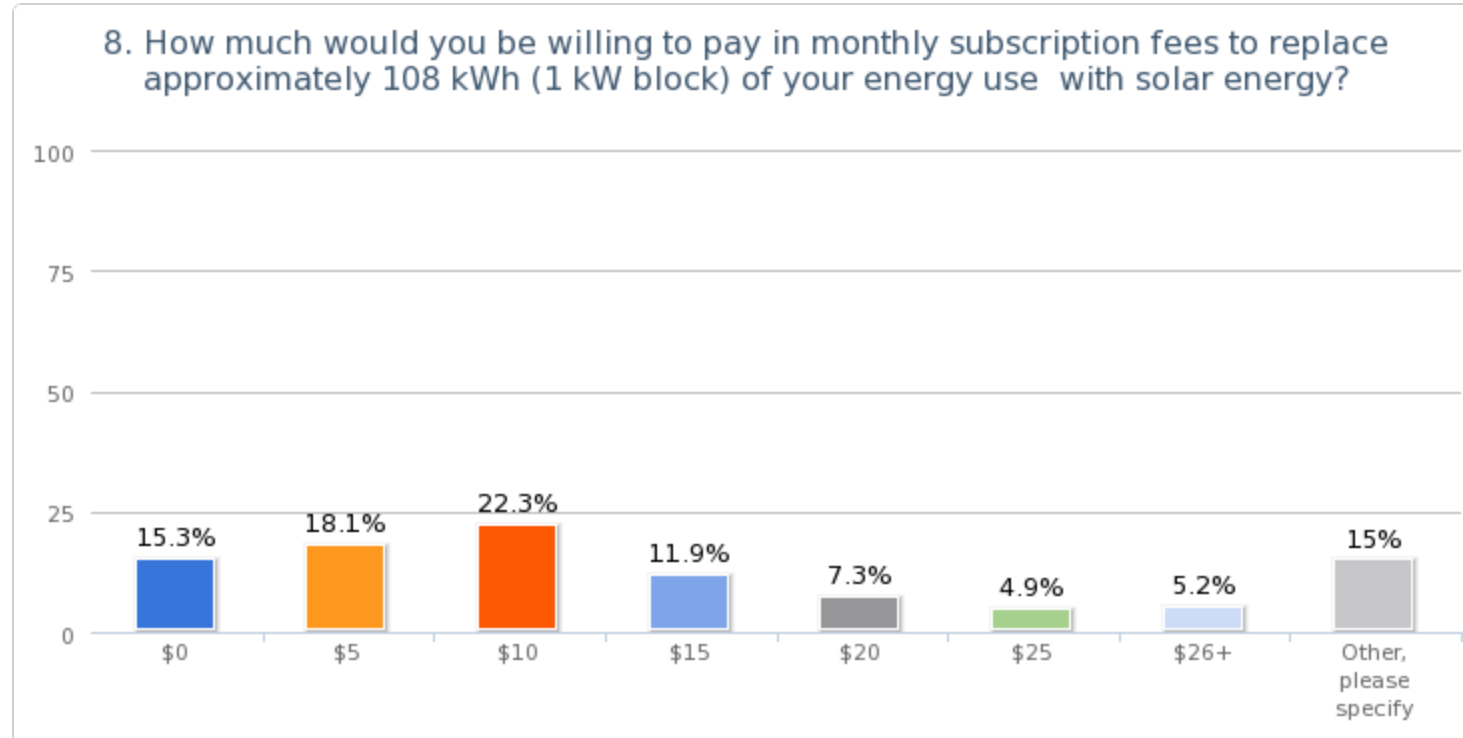
Open-Text Response Breakdown for "Other, please specify"	Count
10	1
100% of my average monthly usage	1
10kW	1
12	1
1339 kWh	1
80% of my average consumption	1
?	1
All I can get if it's free	1
As much as permitted as well as what I'm financially capable.	1
At least 5 + but would consider higher kW blocks.	1
Cannot choose without any info about potential cost/fee	1
Depends on the payback/savings	1
Didn't you see how other solar farms are not working and losing money?	1
Don't know how to decide.	1
Don't know.	1
I do not know	1
I don't know depends on cost.	1
I don't really understand this, would need it broken down.	1
I have no idea	1
I live in an apartment	1
I live in an apartment, and so would have no choice regarding this :(	1
I need more info before I can say, cost?	1
I own and live in a condominium. It would have to be done in conjunction with the other owners.	1
I would have to know cost before subscribing	1



Open-Text Response Breakdown for "Other, please specify"	Count
I'd need to know more to be able to answer this question	1
It depends on cost. There is no mention of cost differences.	1
It depends on pricing	1
NO CLUE	1
U rent and I am not eligible, but it is a great idea.	1
Unknown	1
Unknown, pricing and credit treatment are important factors not discussed	1
What does it cost?	1
Would need to research	1
as much as possible	1
depends on cost	1
depends on the cost	1
depends on the price	1
don't know	1
don't know yet	1
hard to tell not enough info here	1
I will not live long enough to realize the benefit.	1
No idea	3
No idea what I'd be subscribing to	1
No idea what this means	1
None	1
Not sure	1
Possibly all	1
Unknown	1

Open-Text Response Breakdown for "Other, please specify"	Count
Well isn't the cost a big part of this, how would I Know?	1
Whatever is not covered by my current solar array on the house	1
Whole dependent on cost	1
Is there a disadvantage to the solar versus the current mix? If not, I don't see why I wouldn't subscribe to as near my full usage as possible.	1
Not sure what my usage is for new apartment. Apartment is also why I would not consider installing solar. I can't. This should be an option for future surveys. Not all customers are homeowners.	1
If the average household uses 1339kw why wouldn't we just subscribe to 12 blocks to cover the full average	1

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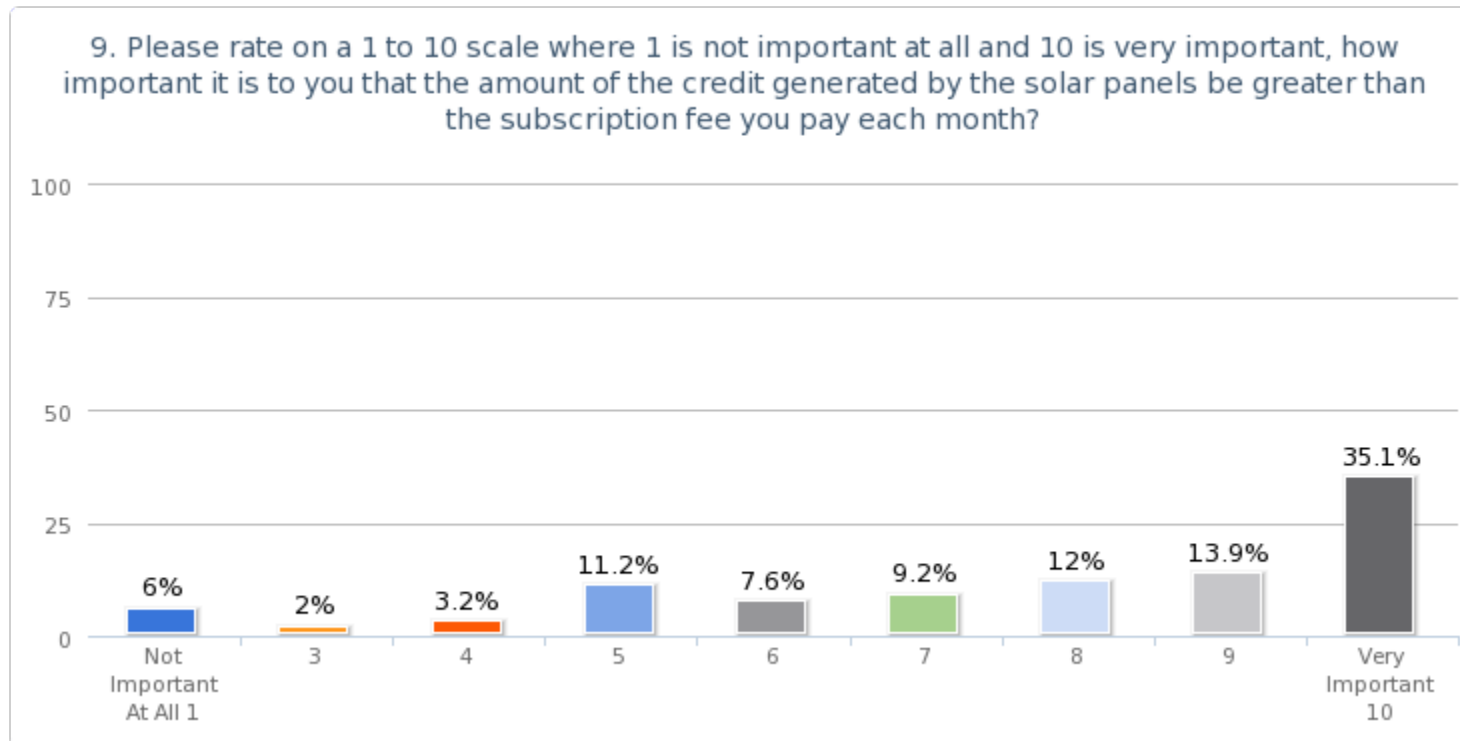


Total Responses	287
\$0	44
\$5	52
\$10	64
\$15	34
\$20	21
\$25	14
\$26+	15
Other, please specify	43

Open-Text Response Breakdown for "Other, please specify"	Count
25	1
?	1
Again, cannot select without any info about potential for offsetting. How MUCH would be offset?	1
Depends on offset	1
Depends on the payback/savings	1
Depends upon costs. This is very unclear if there is a savings or additional cost.	1
I do not know	1
I don't understand need more info	1
I have no idea	1
I have no idea what the \$ value would be, I	1
I need more information before deciding.	1
I need to know what 1 kW block does?	1
I would need more information. Am I saving the same amount off of my current bill??	1
I would need to do more research,	1
I would need to understand the cost difference more that I do from this info	1
I'm too confused by the math on this. I'm willing to pay a BIT more for solar than I pay now.	1
Is it a one to one offset?	1
Less than what I normally pay per kW	1
Not sure	1
This only another way to collect money.	1
What's 1kWh cost normally?	1
Don't know yet	1
I do not know enough about the value of a kW block to determine what I would be willing to pay	1
I don't really know how to put this into the context of my regular bill	1

<b>Open-Text Response Breakdown for "Other, please specify"</b>	<b>Count</b>
It would depend on the offset and how it would compare to the regular cost of power.	1
need more info first	1
need to know more	1
no idea what I pay now per block	1
none	1
not sure	2
Not sure how many I use now. I live in an apartment. So I am just guessing at this point	1
unknown	3
unknown factors	1
unsure	2
we can't afford for our monthly bill to go up anymore, but support this idea	1
whatever it costs traditionally	1
Would have to know and compare price-- we have a limited budget, if we had a higher income, we would support it without question.	1
Depends on how it offsets my current bill - if there isn't more than a 50% reduction - it isn't worth my while...	1
There should be a sliding scale more kWh blocks should cost less with base cost not to exceed \$25/block	1

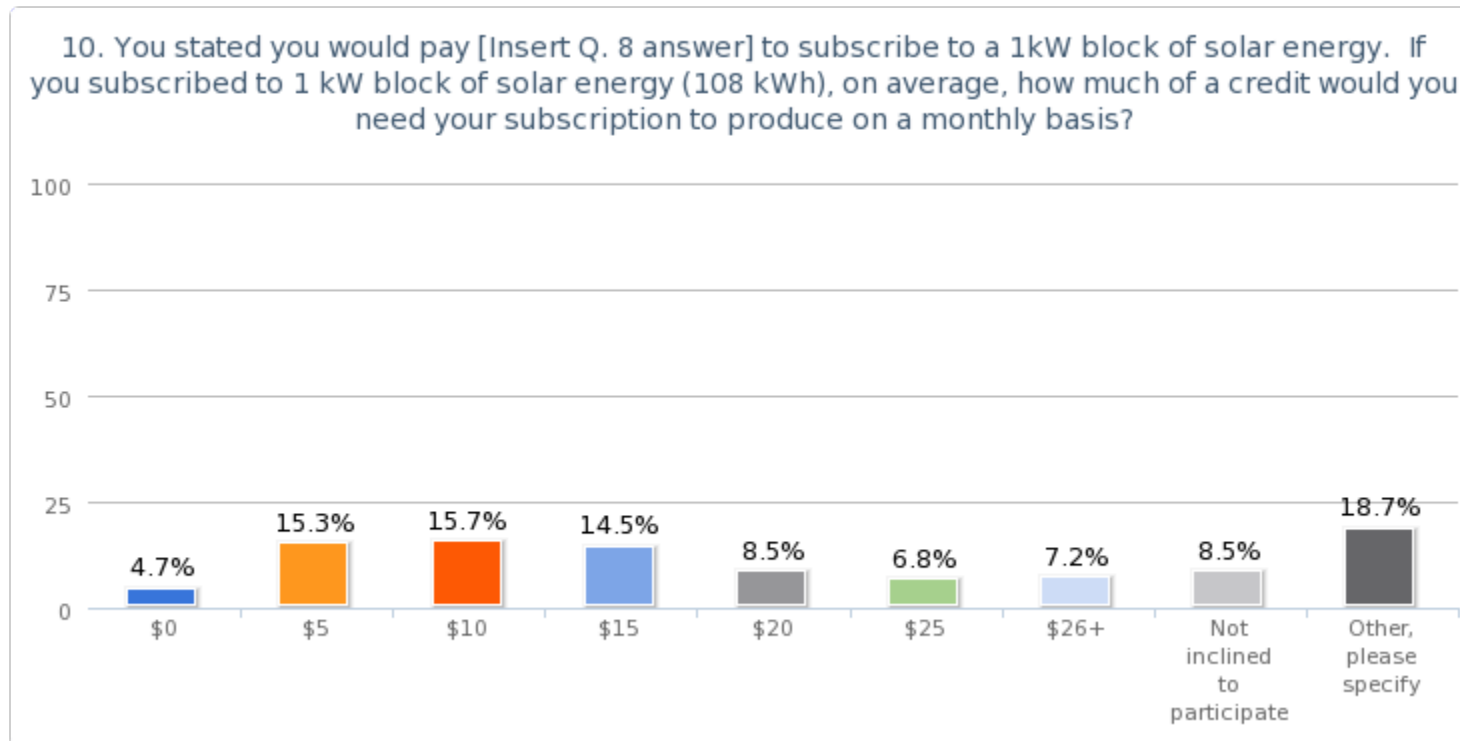
In this program, there is a fixed monthly subscription fee. The monthly subscription fee could be offset by a monthly Community Solar Credit on your bill for the solar energy produced by the solar panels.





Total Responses	289
Not Important At All 1	21
2	0
3	7
4	9
5	35
6	19
7	29
8	36
9	36
Very Important 10	97

In this program, there is a fixed monthly subscription fee. The monthly subscription fee could be offset by a monthly Community Solar Credit on your bill for the solar energy produced by the solar panels.



<b>Total Responses</b>	<b>260</b>
\$0	16
\$5	37
\$10	40
\$15	37
\$20	26
\$25	16
\$26+	20
Not inclined to participate	23
Other, please specify	45

Open-Text Response Breakdown for "Other, please specify"	Count
whatever it costs traditionally	1
\$100	1
12	1
4	1
50%	1
At least half of the subscription fee.	1
Equal to cost	1
Equal to the subscription fee	1
I am unclear on amounts at this time	1
I can't tell from this	1
I have no idea	1
I have no idea what you're asking but I'm sure that I would want a lot of credit.	1
I have questions	1
I would need to do more research	1
I'm confused.	1
It would need to be a net cost savings.	1
More than the cost of the subscription fee	1
U rent and am not eligible.	1
Would need to offset subscription price - as long as doesn't increase my bill, I'm all for it	1

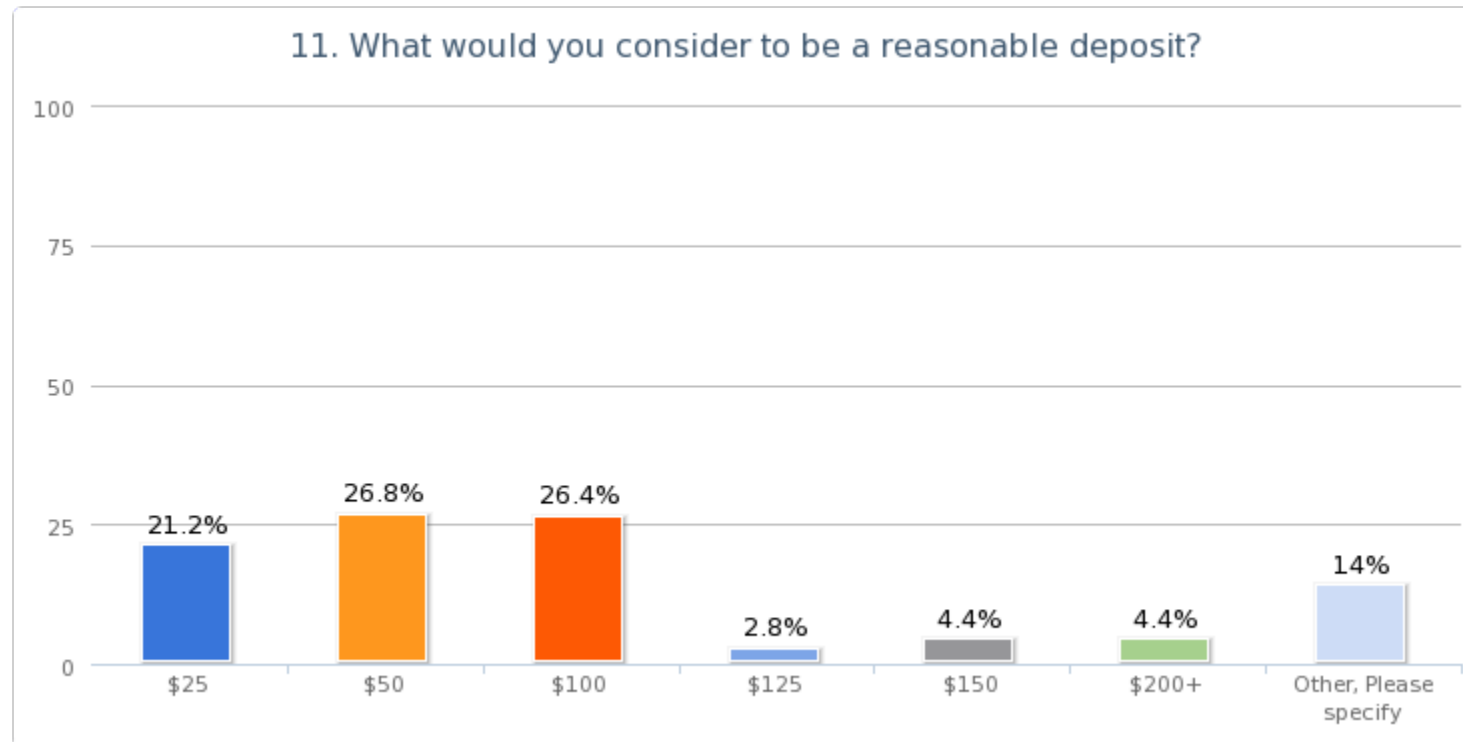
Open-Text Response Breakdown for "Other, please specify"	Count
again, i can't say. do not have enough knowledge to make an informed/educated guess	1
as much as possible	1
at least \$5	1
don't have enough info	1
don't know	2
don't have enough info to know	1
don't know yet, need more research	1
enough to offset the subscription fee	1
equal	1
equal amount	1
I don't know. I would have to have more info.	1
I will be dead by the time I realize some benefit.	1
More information needed.	1
need more info first	1
need more information	1
not sure	1
one to one	1
same or more than monthly fee	1
uncertain	1
unknown	1
unknown factors	1
without my bill in front of me, I would	1
Please check out other solar farms. Just heard on TV that they are not producing enough energy and now they want a government bailout...and who pays for that...US...	1
Again, I have no idea what I currently pay for these units, all I look at is total bill. You're not presenting me a question I can answer without doing a lot of	1

Open-Text Response Breakdown for "Other, please specify"	Count
work looking at bills and calculating.	
Confused... Am I paying (my electric bill + a subscription fee) - (credit)? I would hope for a credit that was close to the fee amount. E.g. \$20 credit, \$25 fee	1

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The Community Solar program will likely require a minimal deposit to participate. The deposit would be refunded at a later date.



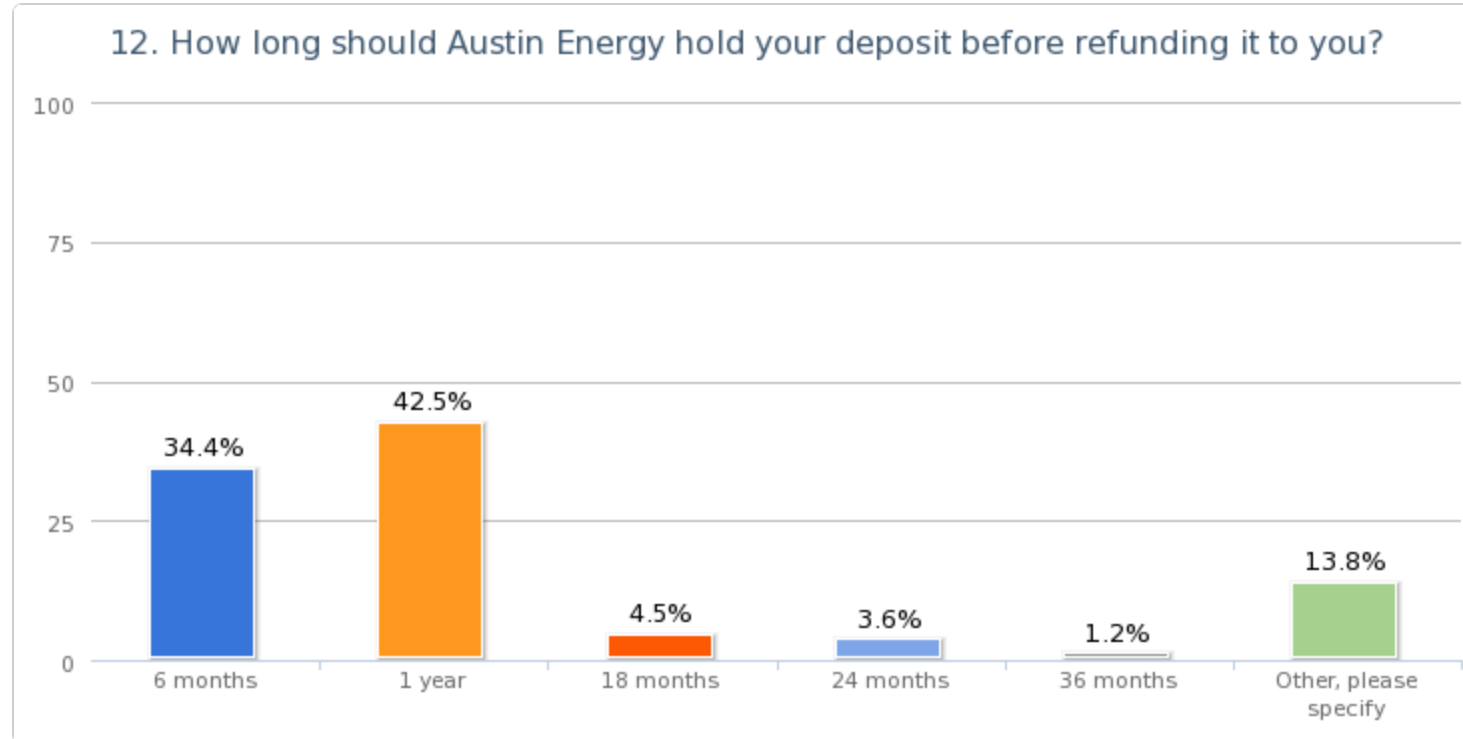
Total Responses	250
\$25	53
\$50	67
\$100	66
\$125	7
\$150	11

\$200+	11
Other, Please specify	35

Open-Text Response Breakdown for "Other, Please specify"	Count
\$0. I'm a long-term paying customer	1
0	7
0.00	1
?	1
Don't participate...	1
Don't trust to give you money you claim you will return later	1
I rent and am not eligible	1
I will probably be leaving in May, so maybe \$50	1
It depends on the cost savings.	1
There shouldn't be a deposit if you have a good credit rating	1
Unsure based on available data	1
Zero	1
already have a deposit there	1
don't have enough info	1
n/a	1
Need more information first.	1
none	3
none this is a bad idea	1
not sure need more information	1
nothing	1
sorry not interested	1

Open-Text Response Breakdown for "Other, Please specify"	Count
unknown factors	1
Uncertain. would depend on timing of deposit and refund	1
What does the deposit pay for?	1
zero	1
I'd rather pay around \$50 but if it was that big of a savings I would figure out how to do a larger deposit.	1
I hate deposits with Austin Energy because they are returned as 'credits' to your account instead of in a check	1

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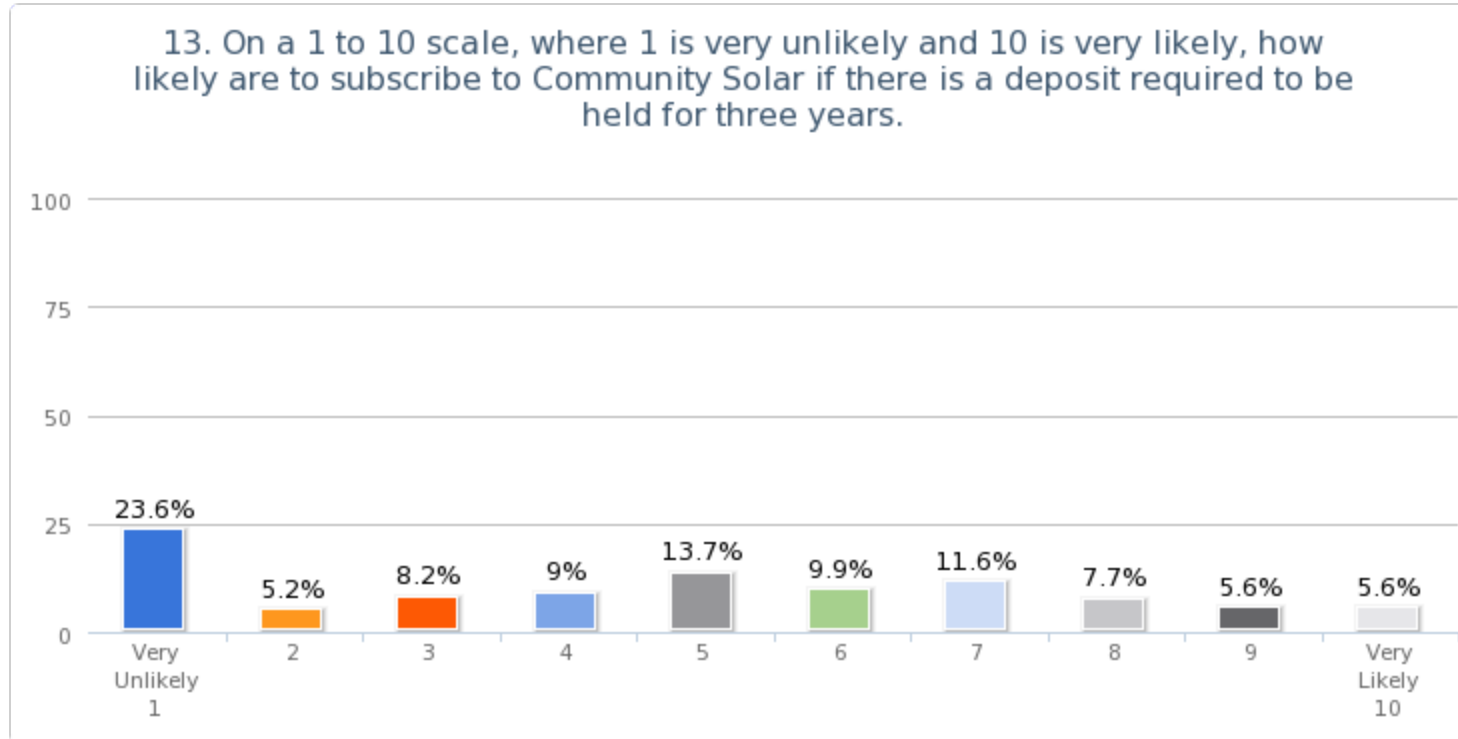
Total Responses	247
6 months	85
1 year	105
18 months	11
24 months	9
30 months	0
36 months	3
Other, please specify	34

Open-Text Response Breakdown for "Other, please specify"	Count
0	7
9 months	1
Depends on the total savings/ROI	1
Don't participate	1
If it's over \$50 then please return it in	1
It depends on the cost savings	1
N/A	1
Not sure	1
Should be based on credit rating	1
They shouldn't charge one.	1
When I move	1
Again - don't trust you will return, so the shorts amount of time possible.	1
Depends on why deposit would be necessary and how much the deposit was for.	1
do not take more money for this at all	1
don't care	1
don't have enough info	1
n/a	2
need more information first.	1
no deposit	2
one month	1
should be immediate	1
should not have a deposit	1
unknown	1
what does the deposit pay for	1

Open-Text Response Breakdown for "Other, please specify"	Count
will not participate	1
I think 2 months is more reasonable but I think I wouldn't mind a longer period of time if that was needed to make the program work.	1

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<b>Total Responses</b>	<b>251</b>
Very Unlikely 1	60
2	13
3	21
4	21
5	36
6	24
7	29
8	19
9	14
Very Likely 10	14

In this program you have the opportunity to participate in Community Solar by subscribing to kW blocks from a large community solar array. A proximately 4 panels make up a 1 kW block. The subscription fee for a 1 kW block could be \$12 per month.

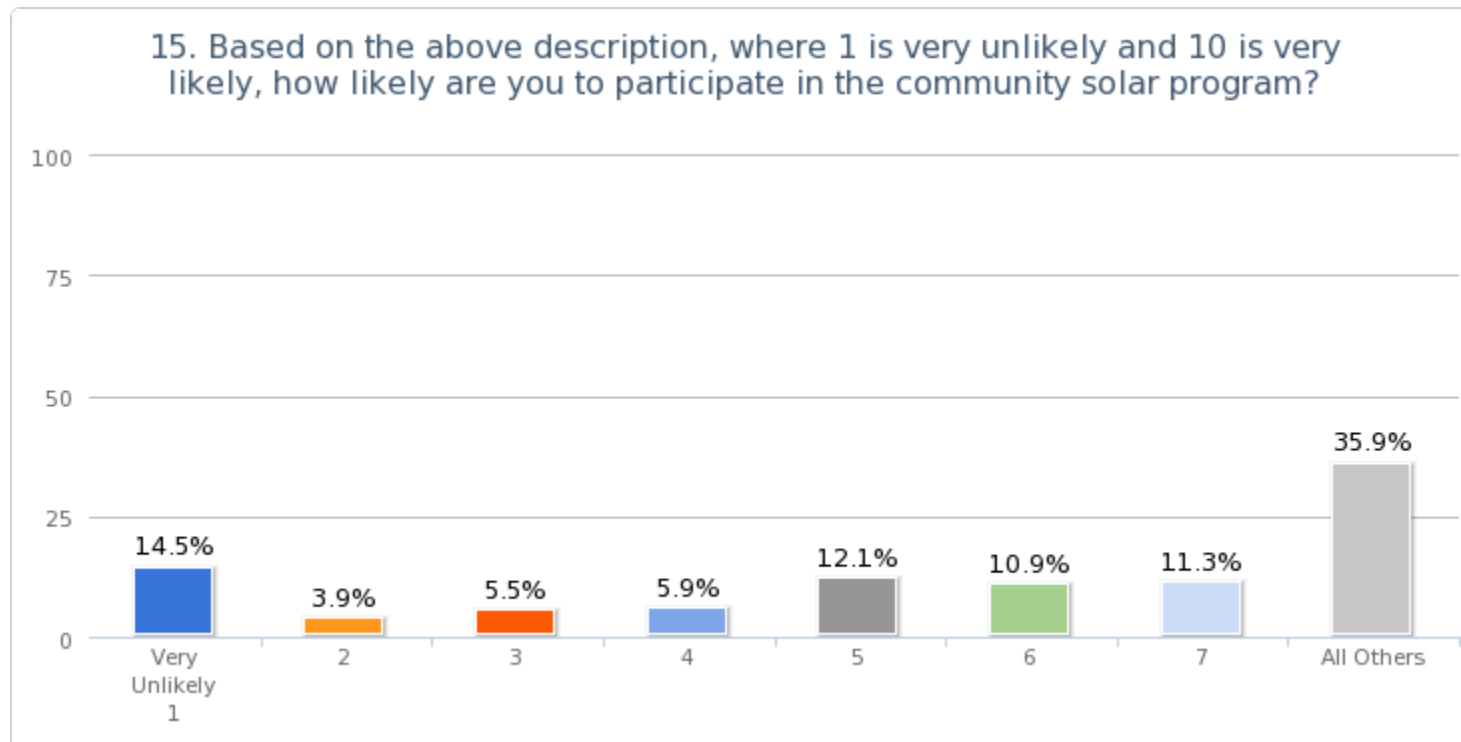
A 1 kW block, over a year, could produce an average 108 kWh monthly. The amount of kWh produced by the solar panels could be credited back to your account at \$0.085 per kWh.

In this example, the average credit for a 1 kW block would be \$9.18 per month.

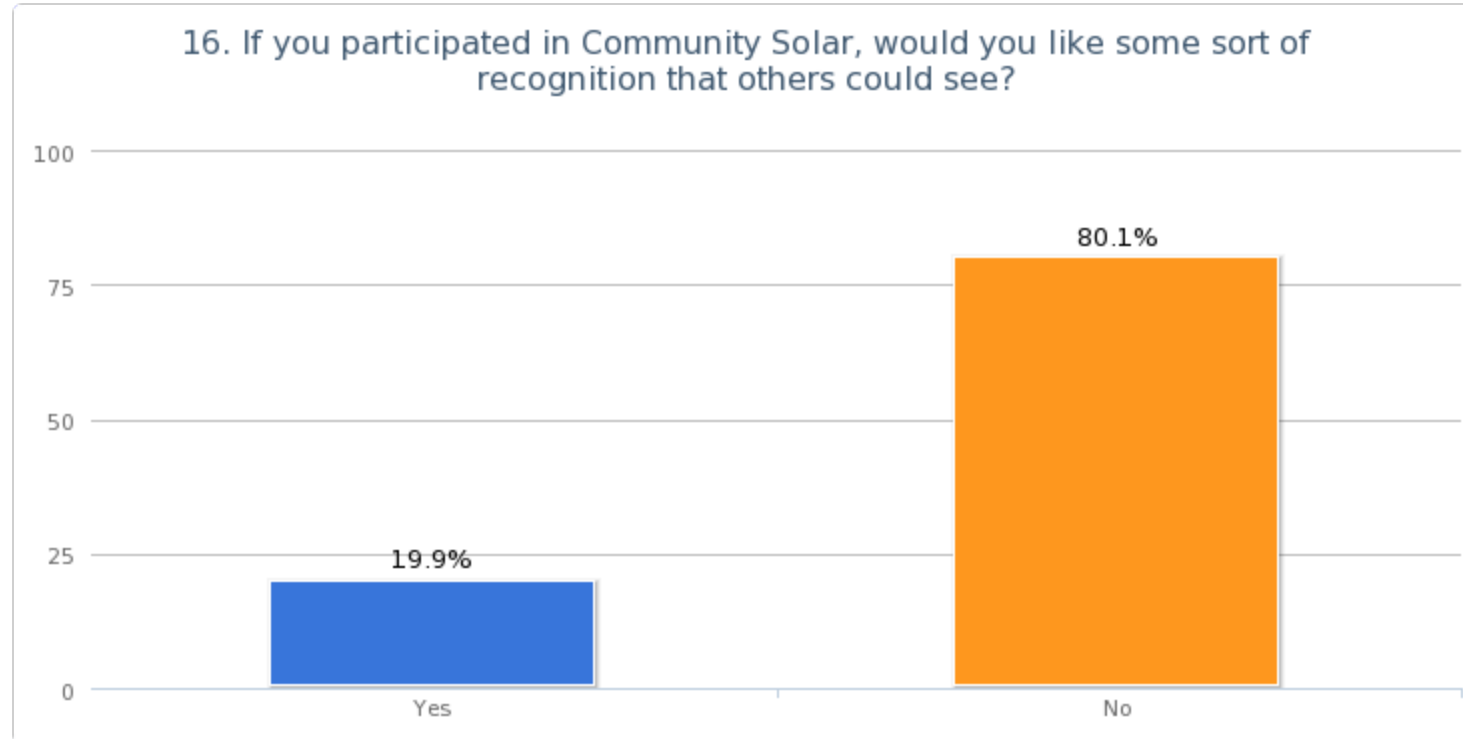
**14. Based on the paragraph above, where 1 is strongly disagree and 10 is strongly agree, please tell us how much you agree with the following statements.**

	Strongly Disagree 1	2	3	4	5	6	7	8	9	Strongly Agree 10	Responses
The description is easy to understand.	6.3% 16	4.0% 10	6.0% 15	7.1% 18	7.9% 20	7.9% 20	13.9% 35	21.0% 53	9.9% 25	15.9% 40	252
I would request additional information based on the description.	8.3% 21	2.8% 7	4.7% 12	2.8% 7	6.7% 17	4.3% 11	8.3% 21	12.2% 31	15.4% 39	34.6% 88	254
This is something that Austin Energy should consider offering.	7.6% 19	1.2% 3	1.2% 3	3.2% 8	11.6% 29	6.0% 15	6.4% 16	13.9% 35	15.5% 39	33.5% 84	251
This type of program increases your satisfaction with Austin Energy.	8.0% 20	0.8% 2	2.8% 7	3.2% 8	15.1% 38	8.8% 22	6.8% 17	10.0% 25	13.1% 33	31.5% 79	251
I will participate in Community Solar.	10.7% 27	4.4% 11	3.6% 9	4.8% 12	14.7% 37	10.7% 27	8.3% 21	12.7% 32	9.9% 25	20.2% 51	252

Initially the difference between the subscription fee and the Community Solar Credit could result in you paying more on your utility bill. The subscription fee will remain fixed over time, while the Community Solar Credit is calculated annually and could increase over time as the cost of other fuels (primarily natural gas) increase, or decrease if other fuel costs decrease.



<b>Total Responses</b>	<b>256</b>
Very Unlikely 1	38
2	10
3	14
4	15
5	31
6	28
7	29
8	42
9	17
Very Likely 10	32



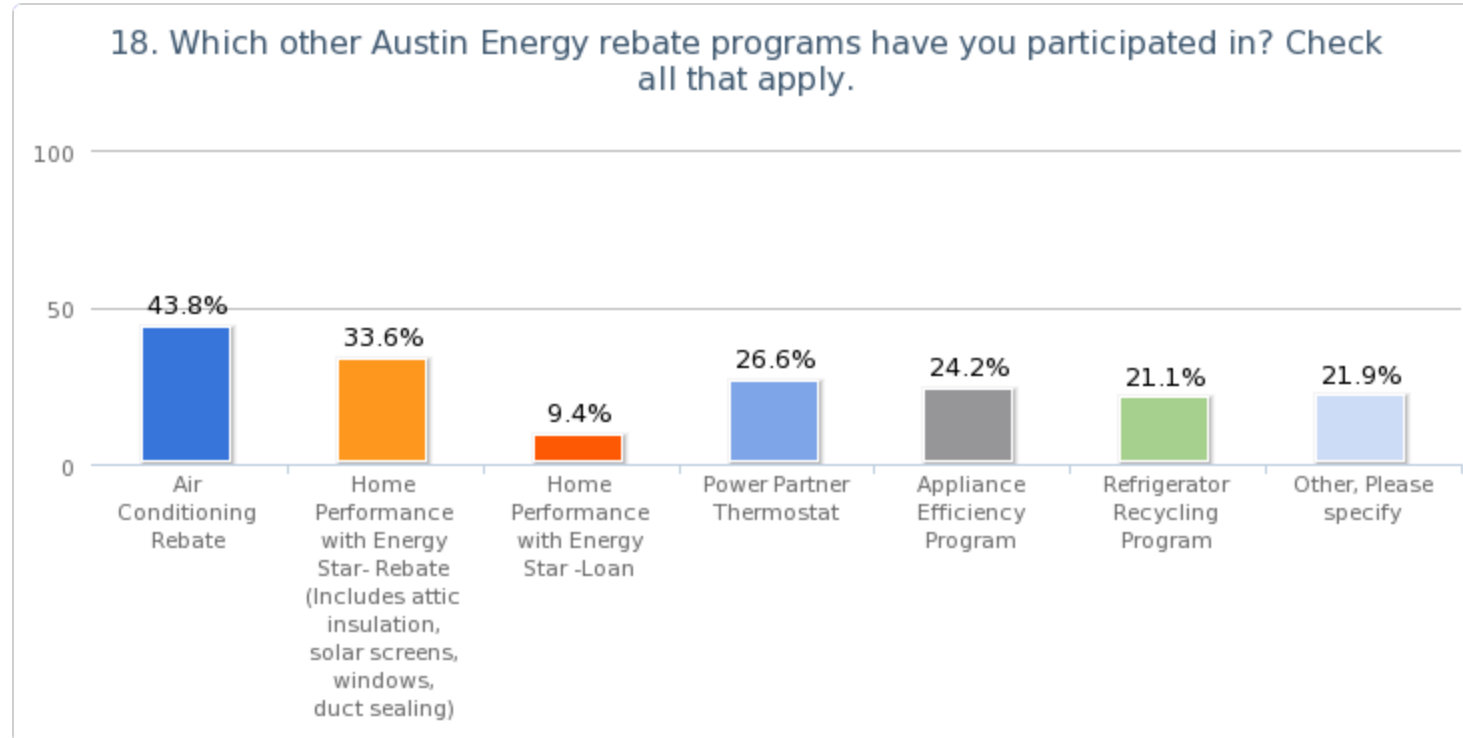
<b>Total Responses</b>	<b>256</b>
Yes	51
No	205



## 17. How would you like to be recognized?

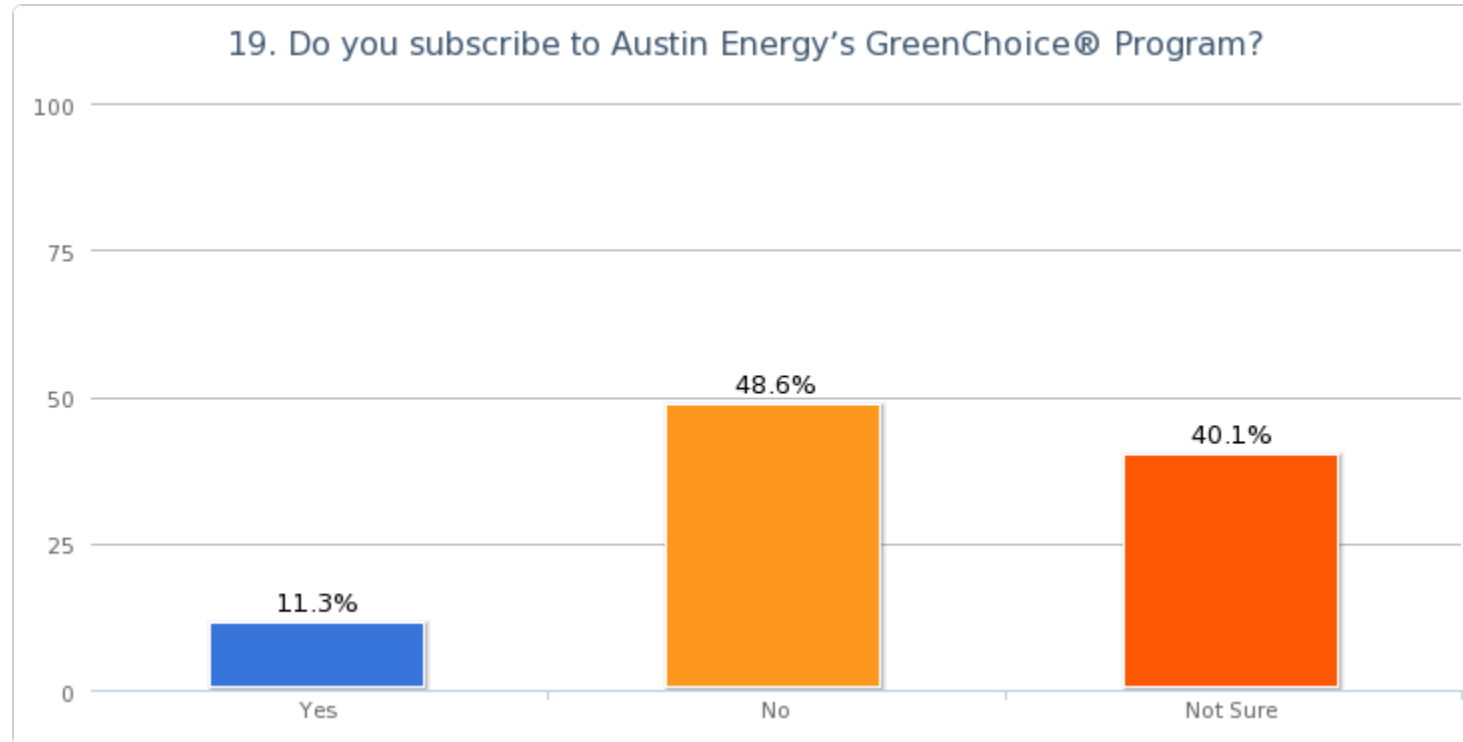
Count	Response
1	3213
1	A sign.
1	A small yard sign of the sort that the security companies use.
1	A thank you
1	Airplane banner
1	As a participant
1	Green Tag on the Utility Meter
1	I don't know
1	I don't really care, but a cute sign/window sticker/bumper sticker could help build enthusiasm
1	In a way that would promote participation by others.
1	Link to Facebook/Twitter
1	Plaque/sign in the front yard
1	Sign out front
1	Signage
1	Signage for front of house
1	Signage for home.
1	Signage. A cool t-shirt
1	Small yard sign/bumper sticker
1	Tax Savings
1	Window Sticker?

Count	Response
2	Yard sign
1	anything to pretend I'm helping the environment
1	in a poll showing saved energy.
1	newsletter
1	sign for yard or window
1	small sign/decal
1	some way that would help promote the program
2	sticker
1	t-shirt
1	unknown
1	Would need to think of it.
1	Yard sign, decal?
1	Yard sign? Window sticker?
1	Maybe something subtle and cute that stuck in the ground in the front yard? Some way to almost advertise to other people so as to get other people interested.
1	Personal recognition isn't important to me, but spreading the word is. Maybe you can offer bumper stickers or have some social media campaign that lets people announce when they sign up.

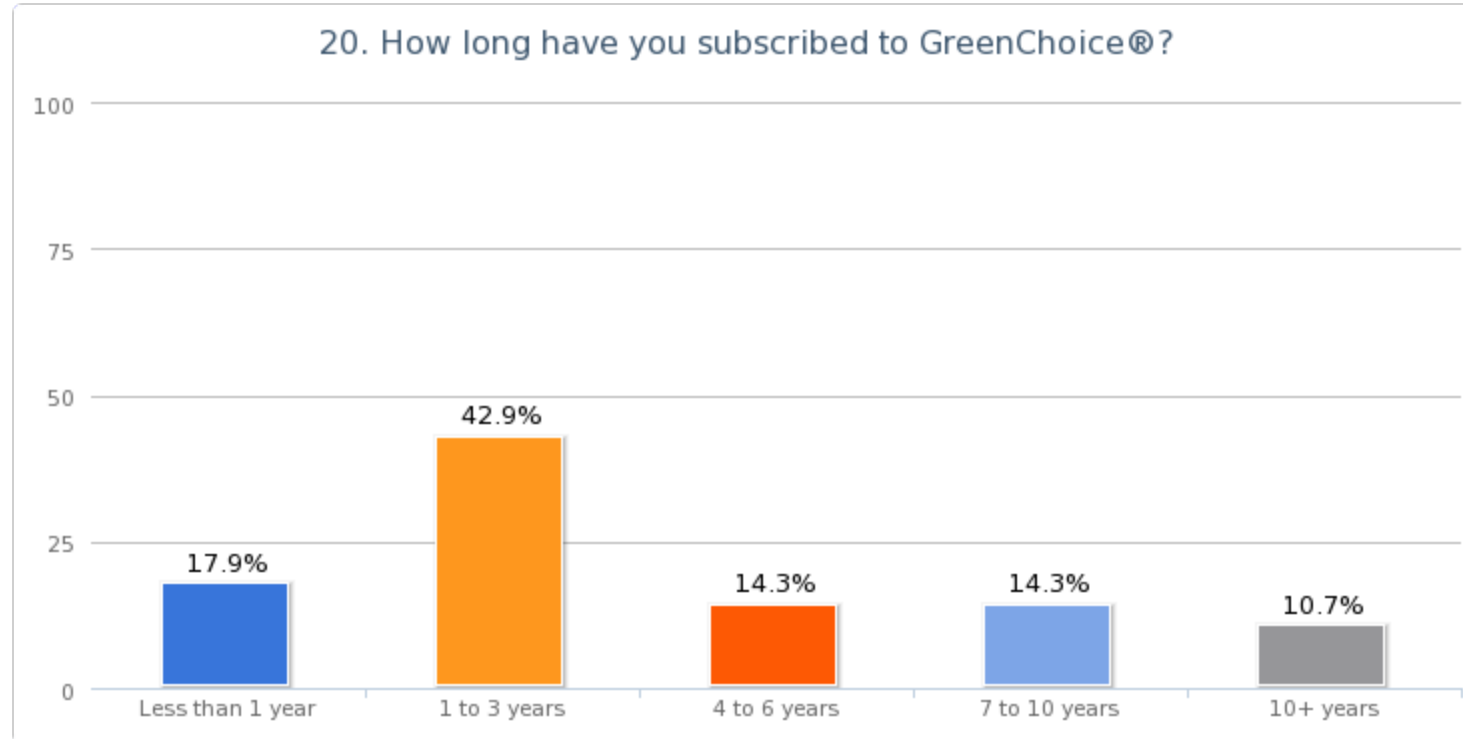


Total Responses	231
Air Conditioning Rebate	56
Home Performance with Energy Star- Rebate (Includes attic insulation, solar screens, windows, duct sealing)	43
Home Performance with Energy Star -Loan	12
Power Partner Thermostat	34
Appliance Efficiency Program	31
Refrigerator Recycling Program	27
Other, Please specify	28

Open-Text Response Breakdown for "Other, Please specify"	Count
Composting	1
Everything!!!!	1
Home EV Charging	1
I purchase energy efficient appliances at replacement time	1
I tried to participate with the Nest rebate, but the Austin Energy site wouldn't let me.	1
NEST	1
Nest Thermostat	1
Nest thermostat	1
None	1
None.	1
Solar	1
Toilet replacement	1
Maybe PP Thermostat? not sure	1
n/a	2
n/a	1
none	4
none of these are available for apartment residents	1
none--i do not own a home in Austin	1
pool pump	1
rain water harvesting	1
solar hot water	1
toilet replacement & shower head	1
unknown	1
water saving with lawn care	1

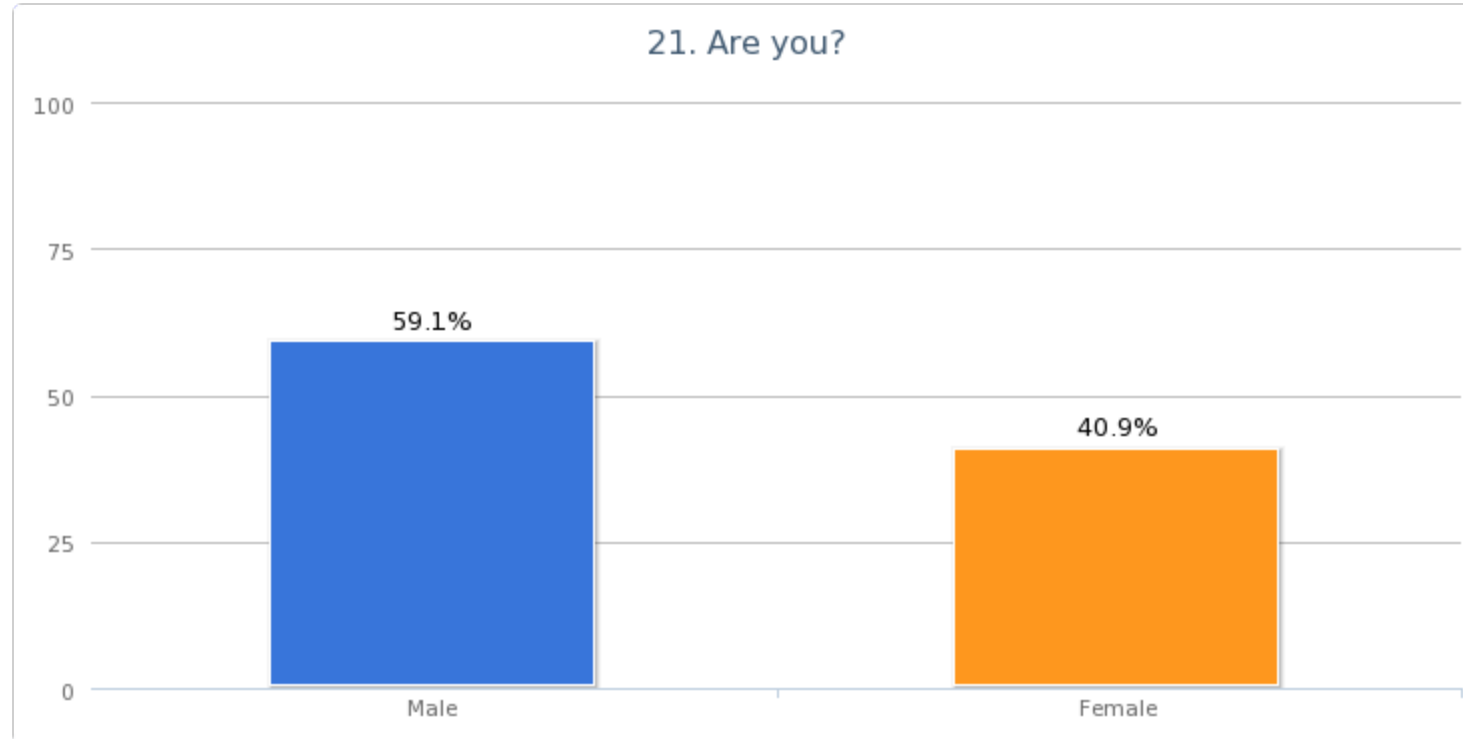


<b>Total Responses</b>	<b>257</b>
Yes	29
No	125
Not Sure	103

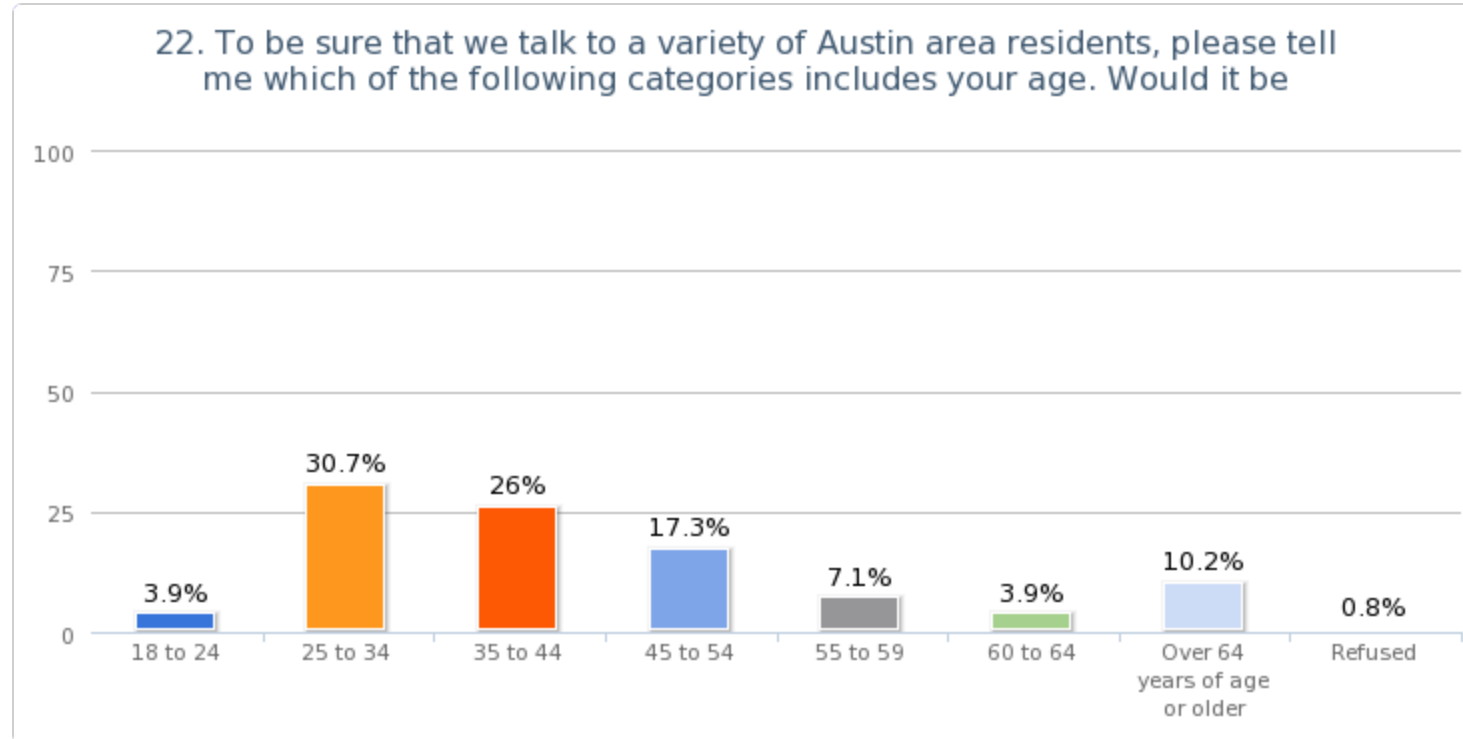


Total Responses	28
Less than 1 year	5
1 to 3 years	12
4 to 6 years	4
7 to 10 years	4
10+ years	3



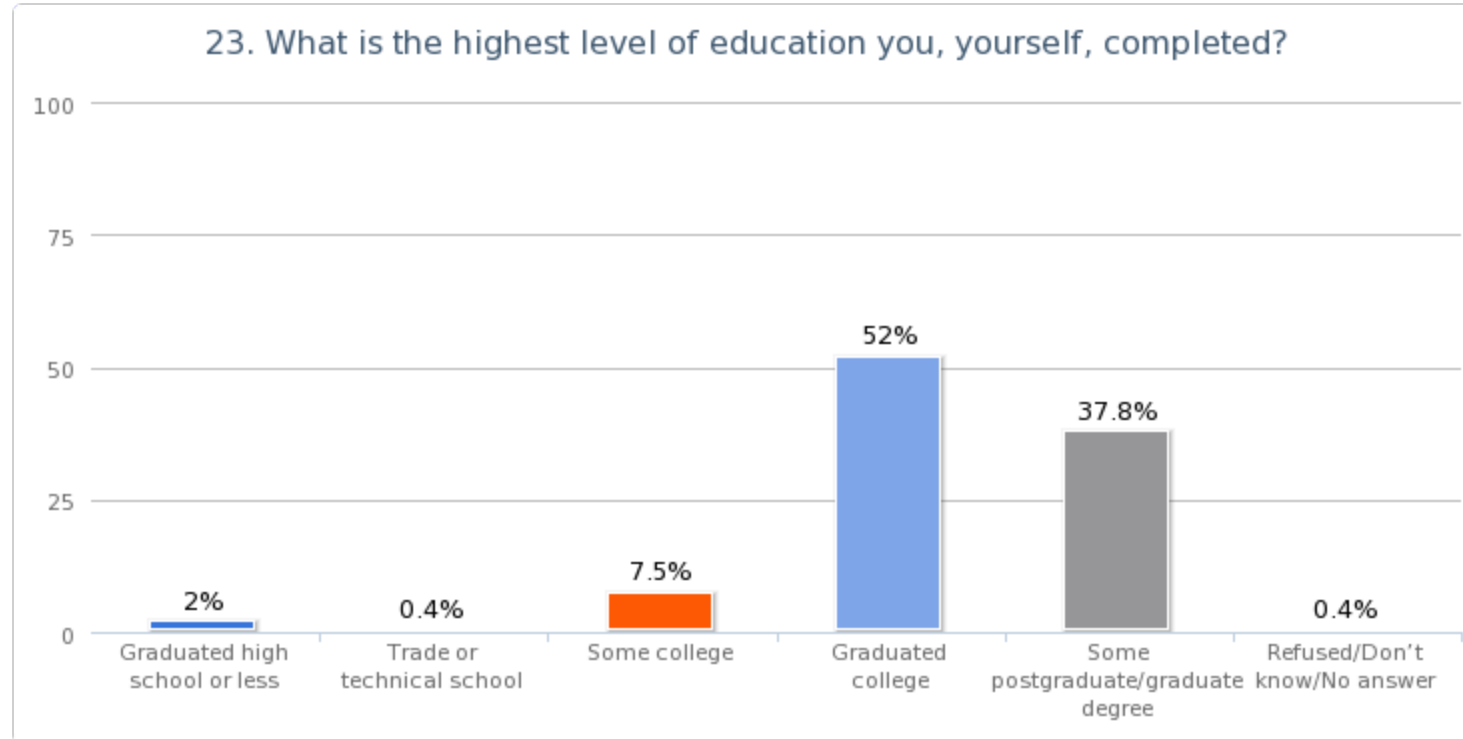


Total Responses	Count
Male	150
Female	104

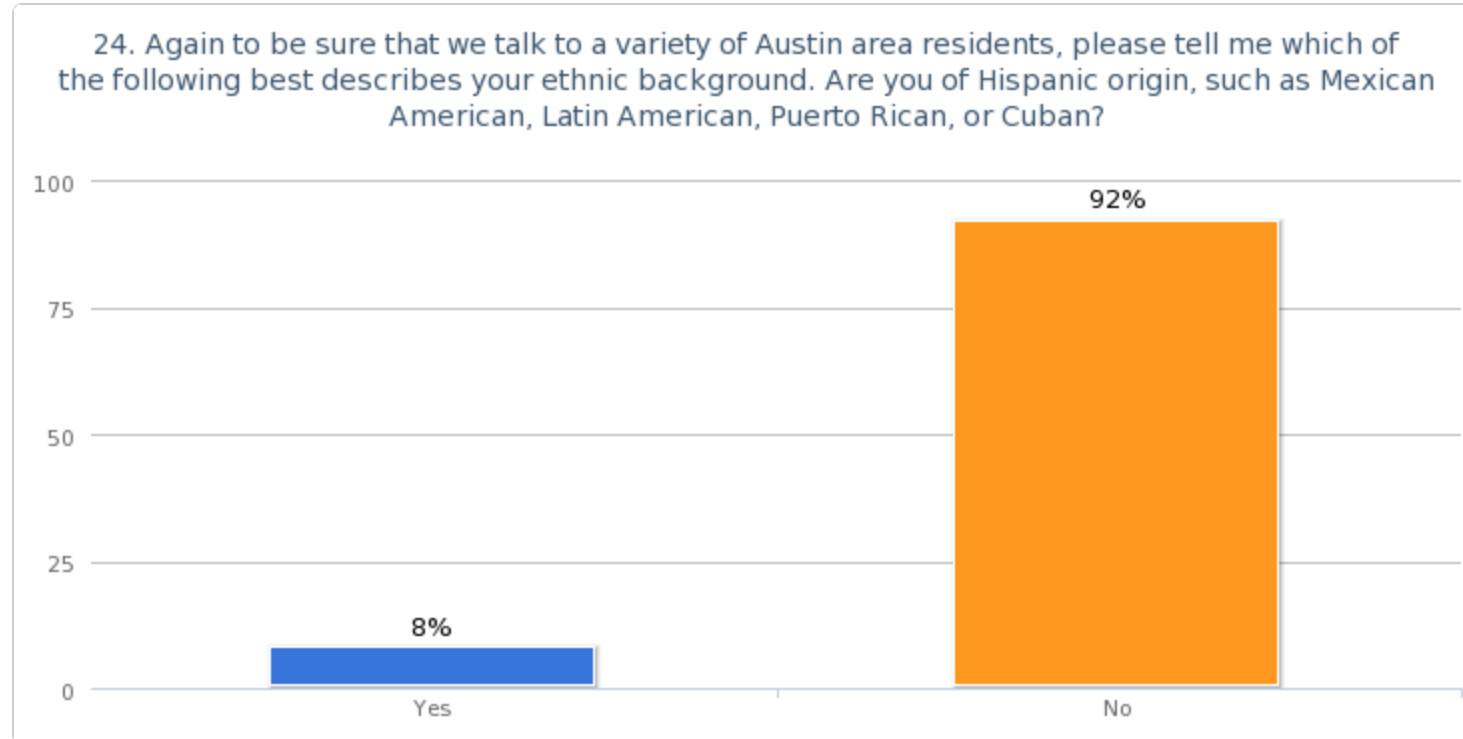


<b>Total Responses</b>	<b>254</b>
Under 18	0
18 to 24	10
25 to 34	78
35 to 44	66
45 to 54	44
55 to 59	18
60 to 64	10
Over 64 years of age or older	26
Refused	2

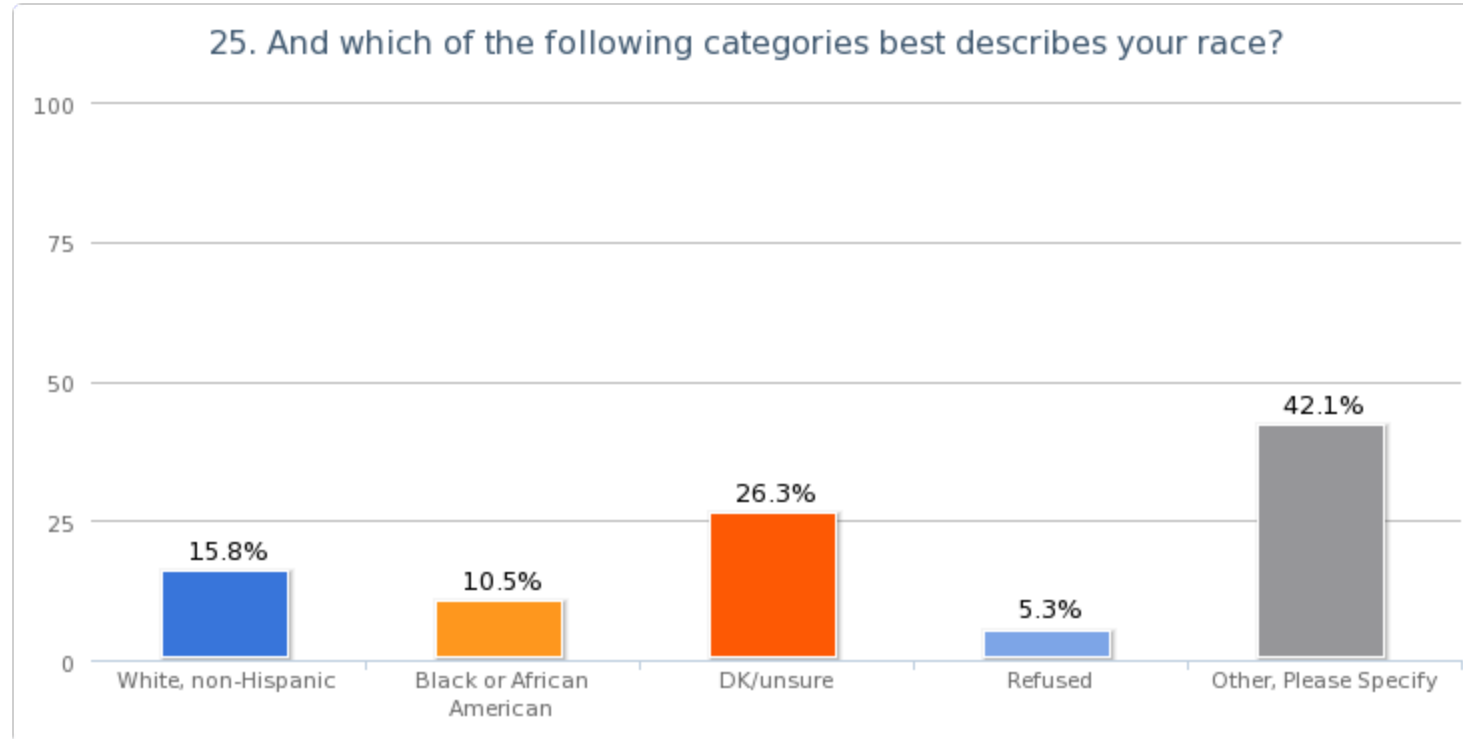
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Total Responses	254
Graduated high school or less	5
Trade or technical school	1
Some college	19
Graduated college	132
Some postgraduate/graduate degree	96
Refused/Don't know/No answer	1



<b>Total Responses</b>	<b>250</b>
Yes	20
No	230

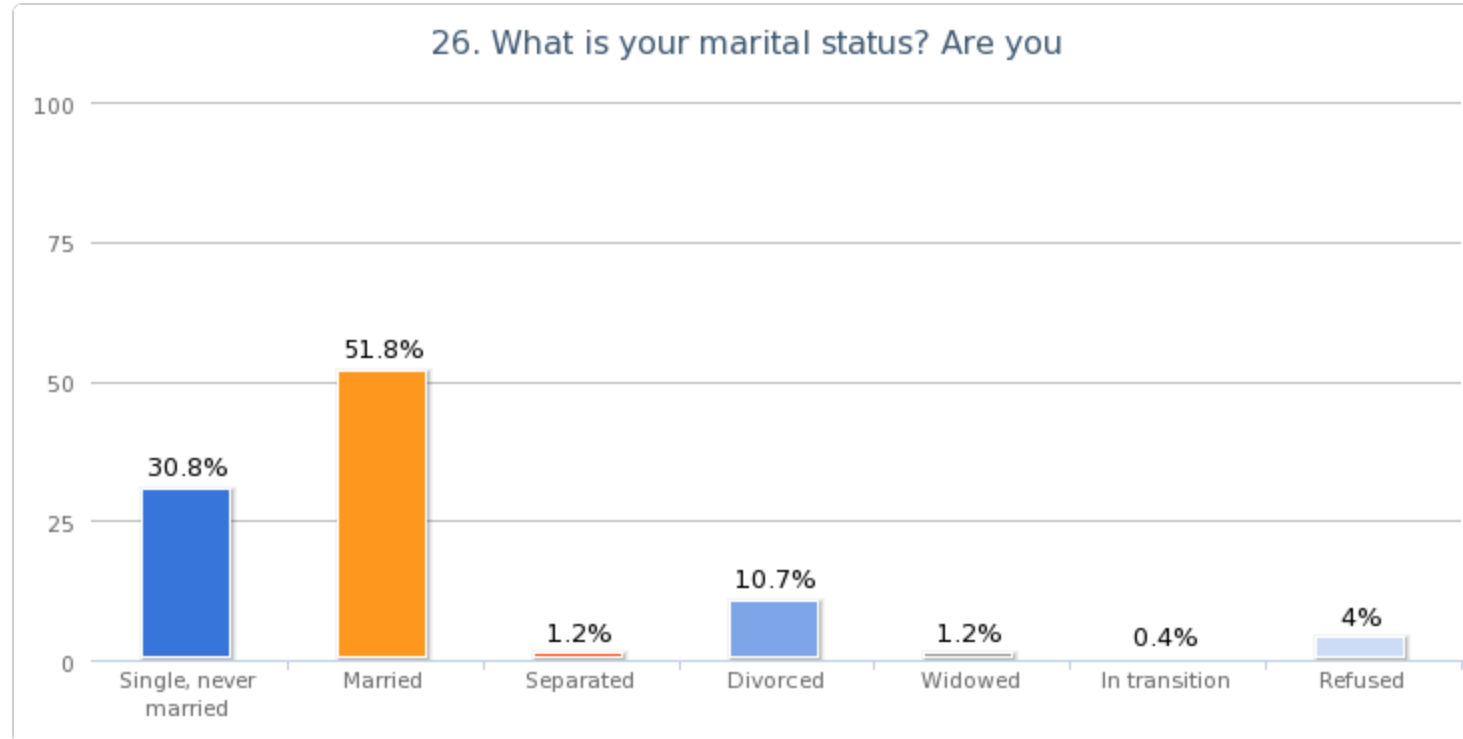


<b>Total Responses</b>	<b>19</b>
White, non-Hispanic	3
Black or African American	2
Asian, Pacific Islander	0
Aleutian, Eskimo, or American Indian	0
DK/unsure	5
Refused	1
Other, Please Specify	8



Open-Text Response Breakdown for "Other, Please Specify"	Count
Hispanic	2
Mexican American	1
Mix of Hispanic and Middle Eastern	1
Puerto Rican	1
confusing question, I just told you I was Hispanic	1
Latino	1
white, his	1

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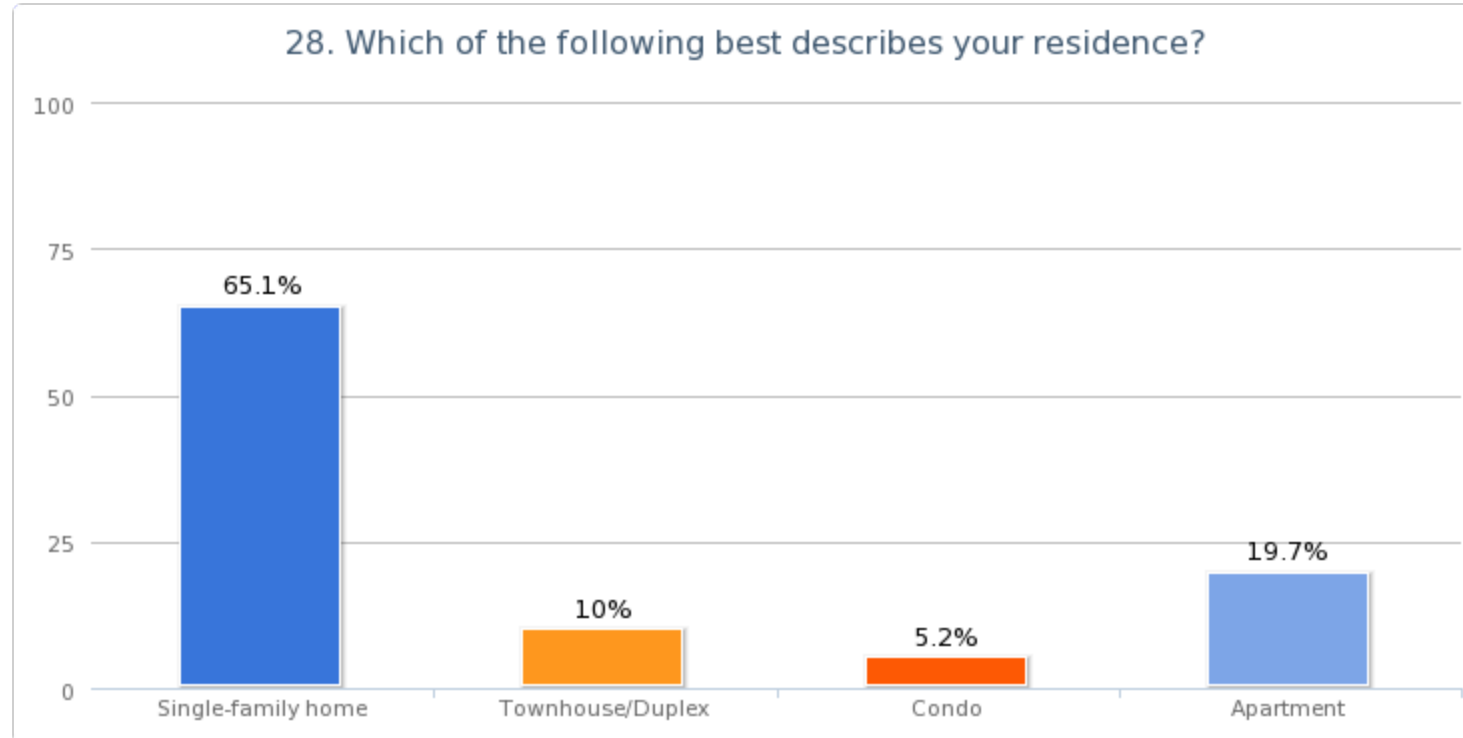
Total Responses	253
Single, never married	78
Married	131
Separated	3
Divorced	27
Widowed	3
In transition	1
Refused	10

## 27. What is the zip code for your home?

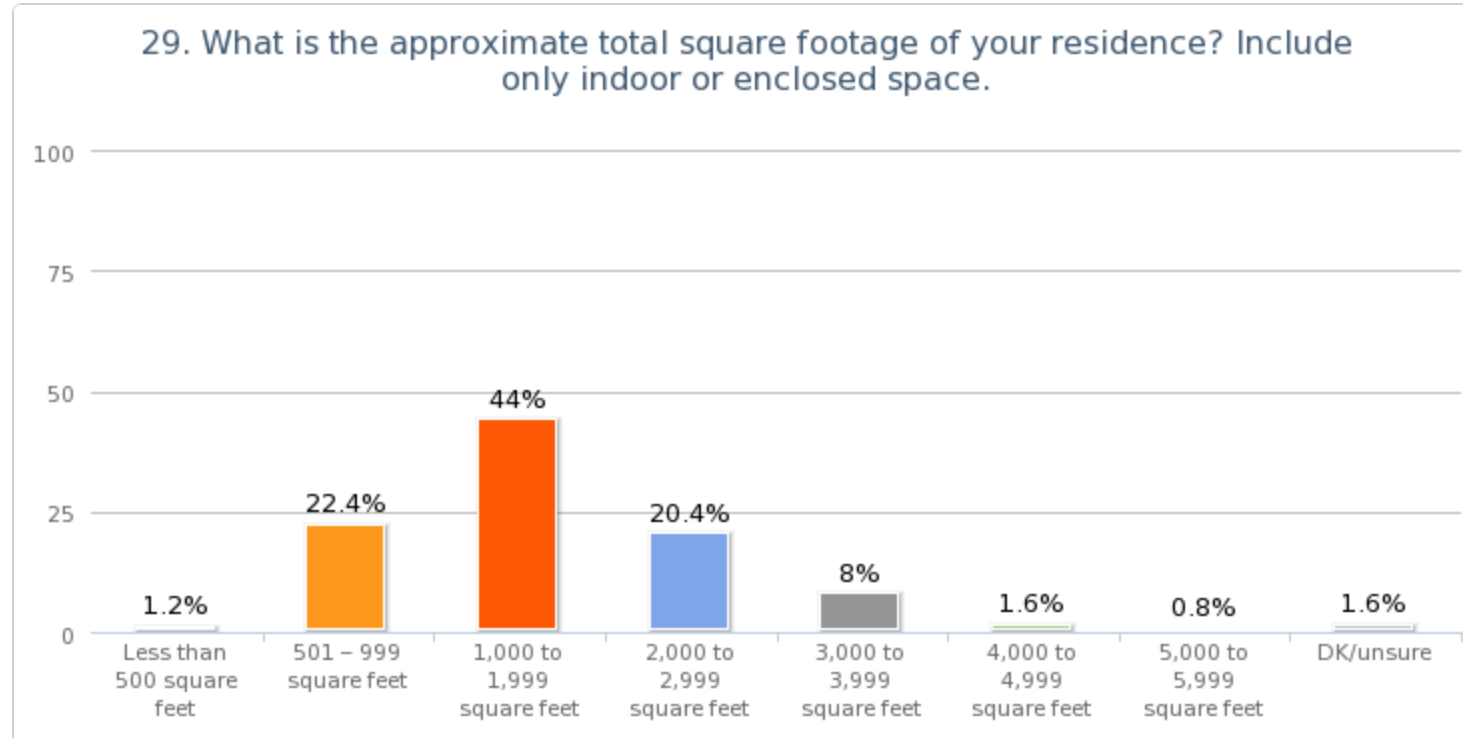
Count	Response
5	78702
10	78703
30	78704
2	78705
1	78721
14	78723
1	78727
2	78728
19	78731
6	78732
6	78733
10	78735
1	78736
1	78738
1	78741
24	78745
13	78746
2	78747
25	78748
1	78749

Count	Response
9	78751
1	78752
2	78753
6	78756
17	78757
2	78758
29	78759

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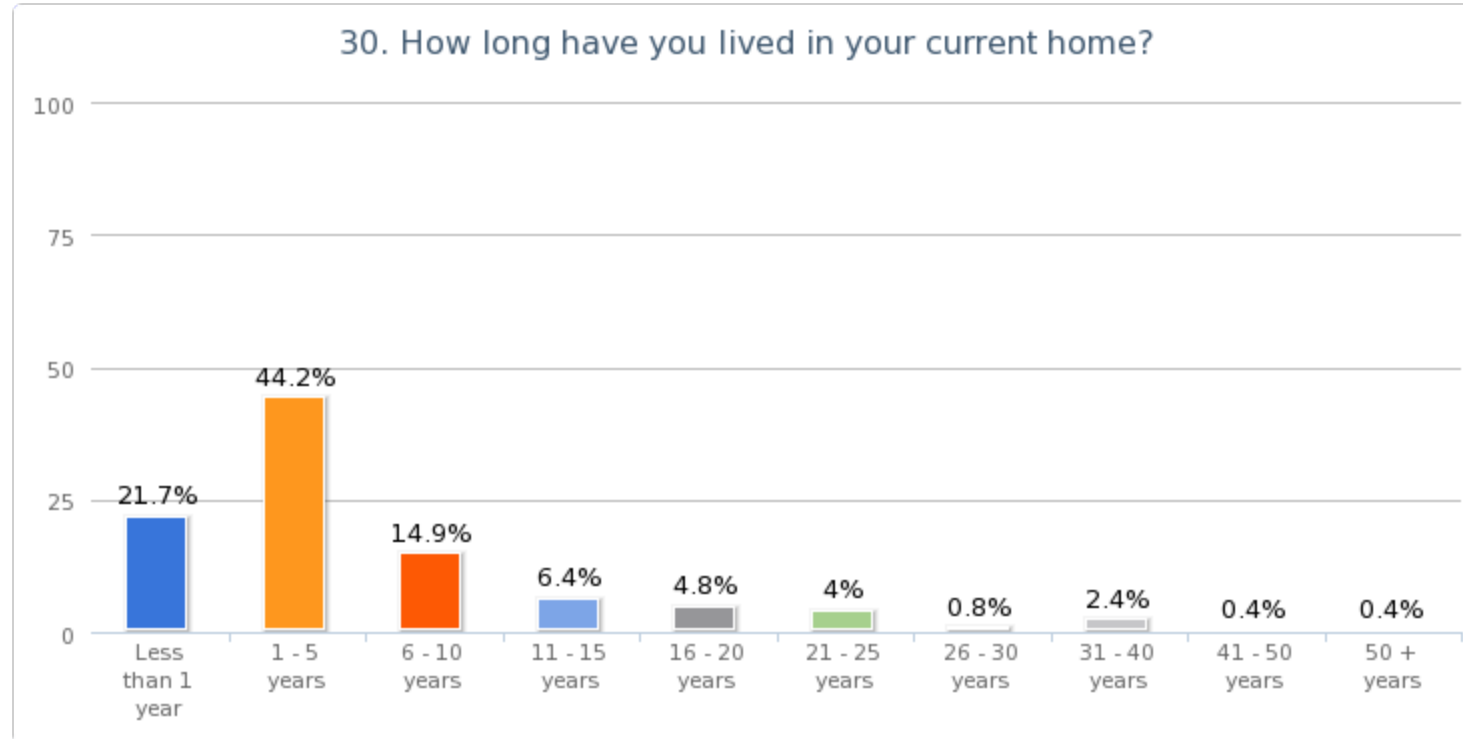
<b>Total Responses</b>	<b>249</b>
Single-family home	162
Townhouse/Duplex	25
Condo	13
Apartment	49
Other Please Specify	0





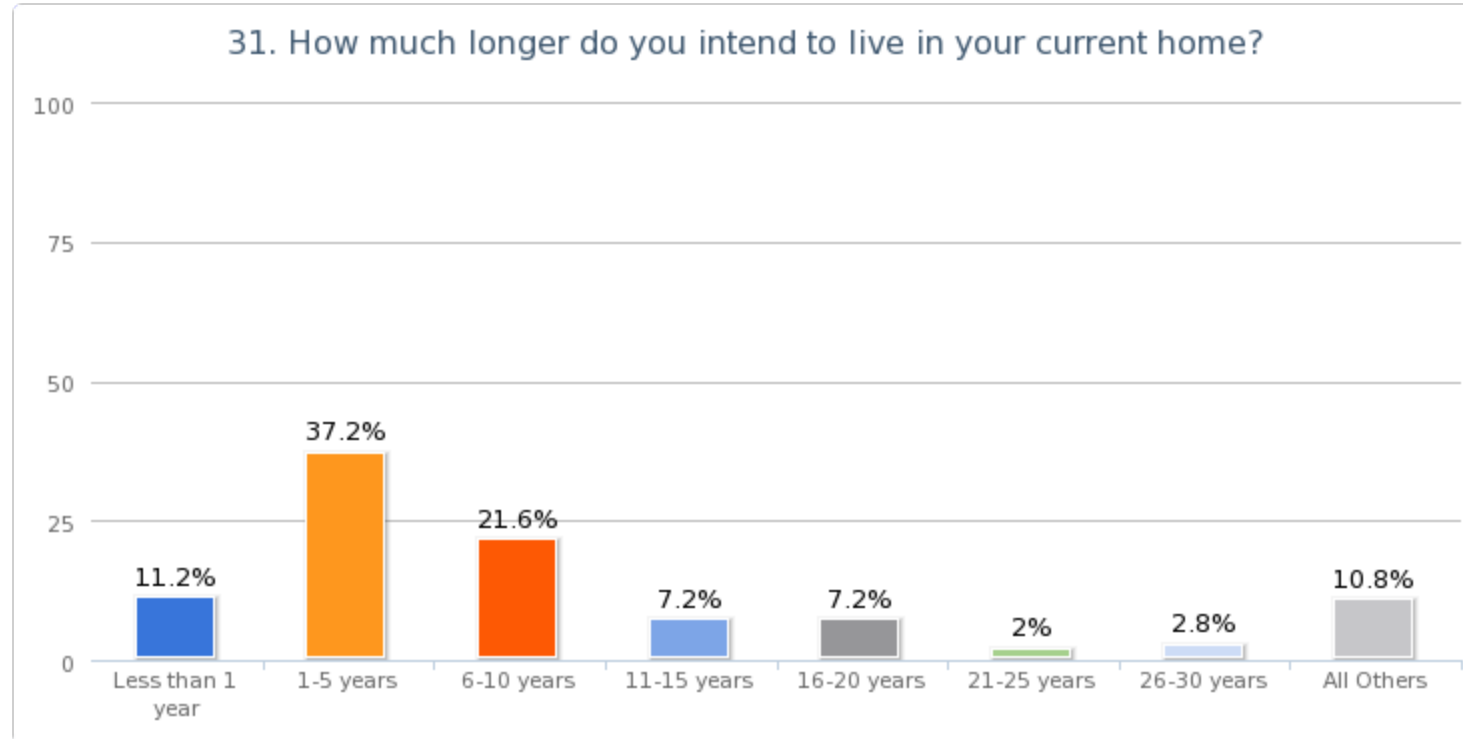
<b>Value</b>	<b>Count</b>
Less than 500 square feet	3
501 – 999 square feet	56
1,000 to 1,999 square feet	110
2,000 to 2,999 square feet	51
3,000 to 3,999 square feet	20
4,000 to 4,999 square feet	4
5,000 to 5,999 square feet	2
6,000 or more square feet	0
DK/unsure	4

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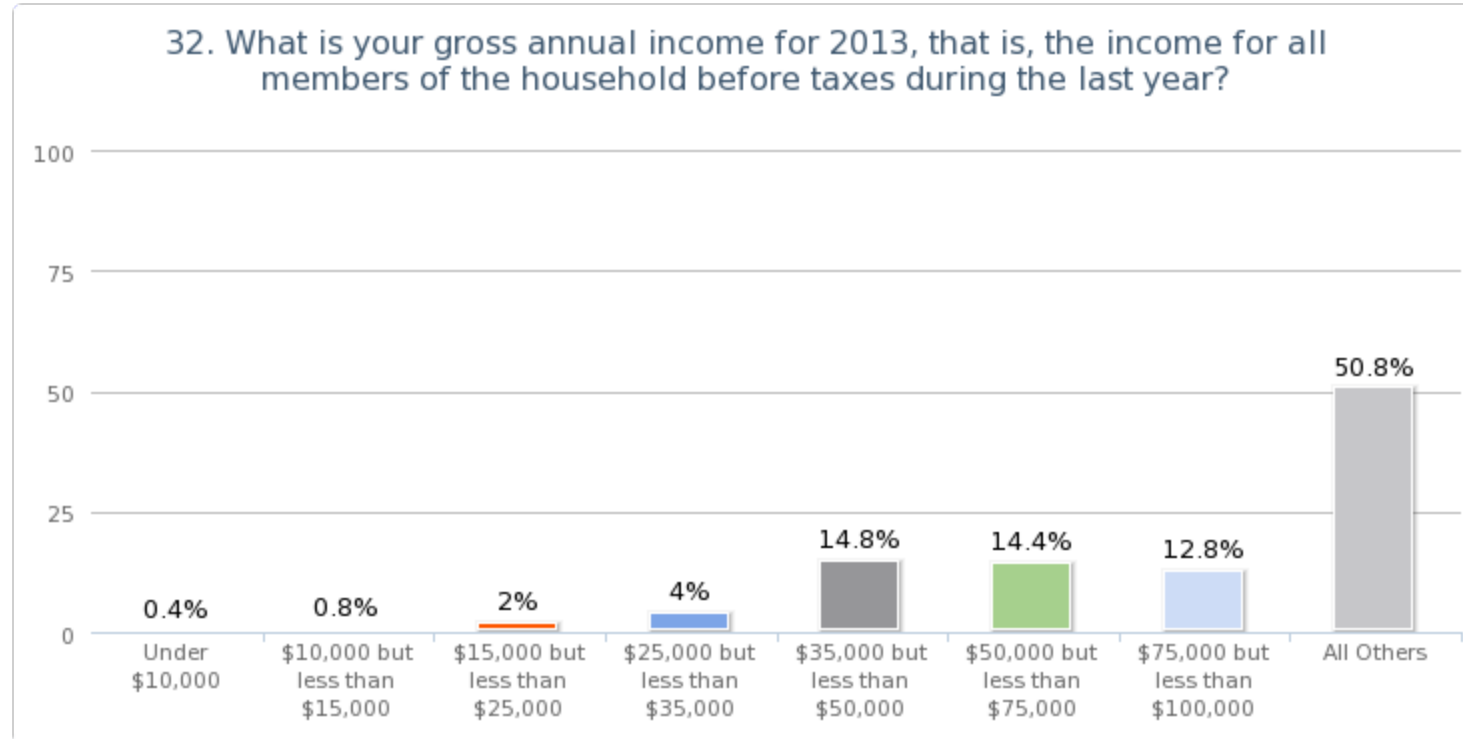
Value	Count
Less than 1 year	54
1 - 5 years	110
6 - 10 years	37
11 - 15 years	16
16 - 20 years	12
21 - 25 years	10
26 - 30 years	2
31 - 40 years	6
41 - 50 years	1
50 + years	1
Refused	0

CONFIDENTIAL



Value	Count
Less than 1 year	28
1-5 years	93
6-10 years	54
11-15 years	18
16-20 years	18
21-25 years	5
26-30 years	7
31-40 years	6
41-50 years	1
50+ years	12
Refused	8

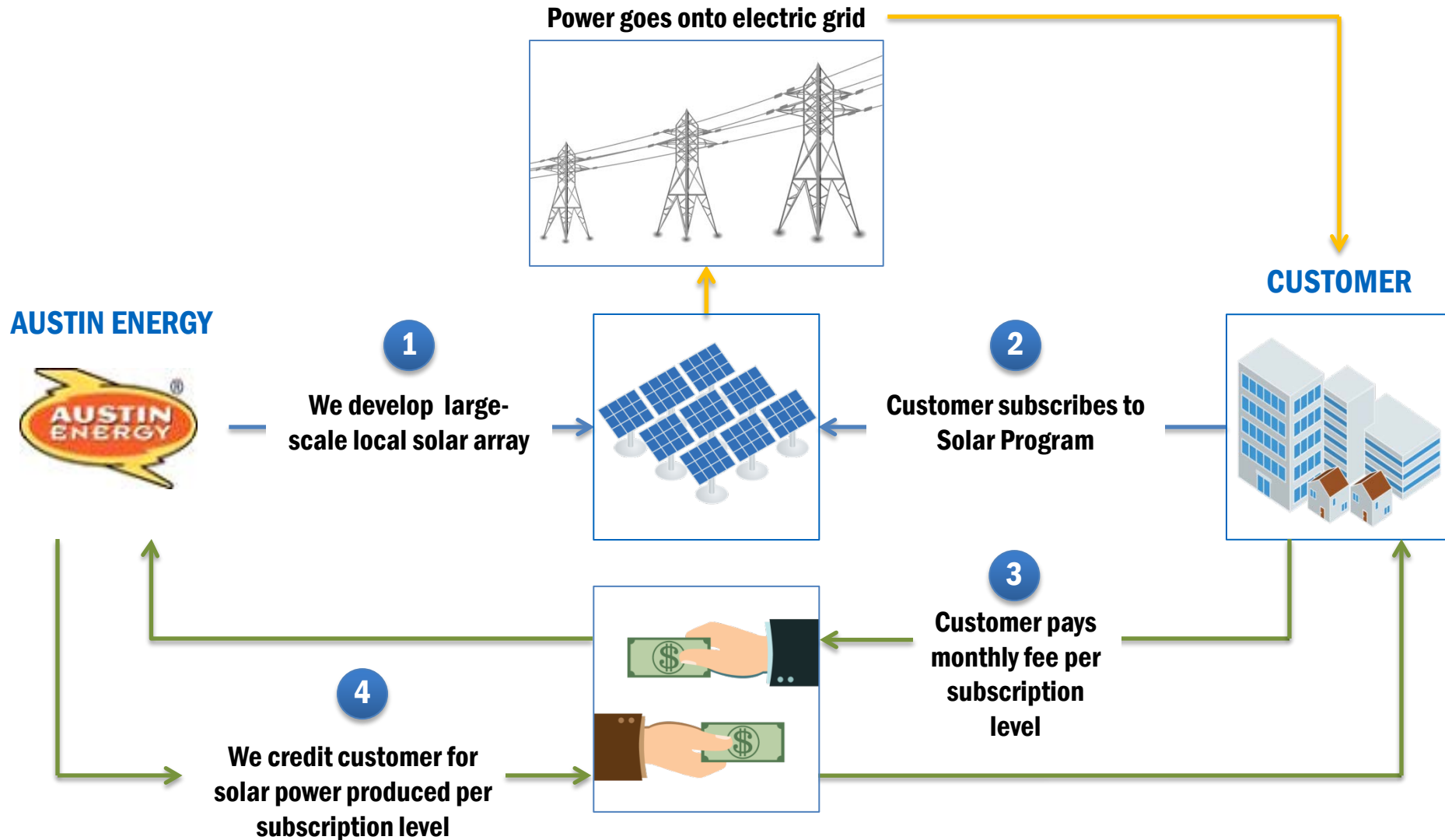
CONFIDENTIAL





Value	Count
Under \$10,000	1
\$10,000 but less than \$15,000	2
\$15,000 but less than \$25,000	5
\$25,000 but less than \$35,000	10
\$35,000 but less than \$50,000	37
\$50,000 but less than \$75,000	36
\$75,000 but less than \$100,000	32
\$100,000 but less than \$150,000	48
\$150,000 or more	43
Don't know	3
Refused	33

# How does Community Solar work?





## Corporate Communications

### Kingsbery Community Solar Project Communications/Public Outreach Plan

#### Background

In October 2014, the Austin City Council approved an up to 3.2 megawatt community solar project adjacent to the Kingsbery substation northeast of Springdale Road and Airport Boulevard in East Austin. The purchase power agreement with local solar company [PowerFin Partners](#) is for 25 years.

The project helps fulfill requests by many members of the community who want to participate in a solar program but are not able to install solar panels on their roofs. Regardless if residents live in apartments, downtown condominium hi-rises or homes shaded by trees, they will be able to subscribe to clean, renewable energy from the sun.

The project will be one of more than 50 in 17 states often referred to as shared renewables or community solar, according to the [Solar Energy Industries Association](#). Community solar in this country includes programs offered by electric cooperatives, investor-owned and municipally owned utilities. Public power utilities similar to Austin Energy with community solar offerings include Salt River Project, Sacramento Municipal Utility District, Orlando Utilities Commission, and Seattle City Light.

The project site will be near the former 52-acre tank farm that produced outrage in East Austin. Six oil companies stored millions of gallons of gasoline in more than 30 above-ground tanks. Spills and odors prompted residents – some living just a few hundred feet from the tanks – to demand that the site be closed as a threat to public health. PODER, led by Suzanna Almanza, and the East Austin Strategy Team, led by Ron Davis, spearheaded a successful community-based effort to remove the tank farm facilities, to clean the land to residential standards, and to rezone many East Austin properties to prevent future heavy-industrial uses.

In 2012, partners Richard deVarga and Robert Summers purchased the cleaned site and began the process to rezone the property to allow the mixed-use vision of [thinkEAST](#). thinkEAST's mission is to use sustainable, modern architecture to foster engagement and to stimulate growth and diversity in East Austin's economy, culture and community.

#### Challenges/Opportunities (Key Issues)

- Little to no outreach was done in the community before approval of the solar project. Current public sentiment for the project in the area is unknown.
- No public opposition to the project has surfaced to date. Initial interactions with community have been positive.
- Transmission lines, the substation, railroad tracks, a drainage easement and a gas line running through the property make it largely undevelopable for residential and commercial use.
- The site is the subject of a documentary ["La Loma"](#) that chronicles how students cross the property to school.
- The 78721 ZIP Code is 53% Hispanic, 32% African-American and 13% White. 71% of the residents live in single-family homes with 50% living in own homes and 49% in rental homes. 33% of residents live below poverty level.
- Schools are an important part of the neighborhood's identity including Eastside Memorial High School and its eight elementary and one middle feeder schools. Ortega Elementary is located one block north of the site, Govalle Elementary about a mile west of the site, and Eastside Memorial HS is a half mile SE of the site, separated by railroad tracks and the East Boggy Creek Greenbelt.
- City departments and other agencies such as the Economic Development Department's Cultural Arts Division, PARC, Library, Public Works, and Capital Metro are potential partners.

- There may be a distrust of government projects in an area that received an inordinate amount of industrial uses compared to other areas of the city. Because of the tank farm, residents in the area are skilled at organizing.
- The community solar project will be a quiet, clean neighbor in an area that once included the toxic tank farm.
- Battery storage for project will make the community unique for progressiveness in new, clean technology.

#### Goals (What we want)

- To enlist the neighborhood and its schools and organizations as partners in the project and for the project to reflect their input and identity.
- To create a project that responds to community needs.
- To gather support from our partners to ensure there are no delays in the planning and permitting process nor at Boards and Commissions or by elected officials.
- To complete the project on schedule after groundbreaking with no delays due to issues not addressed in the neighborhood or with appointed or elected officials.
- To create a process for continuous communication with the community before, during and after construction.
- To develop the project as the model for community solar in the Austin area.

#### Audiences (Who can get it for us or keep it from us)

<p><b>Government</b>  Austin City Council  Councilman Pio Renteria  City Manager  Austin Independent School District  Capital Metro  Public Works  Travis County Health &amp; Human Services  Travis County Commission</p> <p><b>Boards &amp; Commissions</b>  Planning Commission</p> <p><b>Schools/Education</b>  Eastside Memorial High School  Martin Middle School  Ortega Elementary  Govalle Elementary  Allison Elementary  Brooke Elementary  Metz Elementary  Zavala Elementary  Huston-Tillotson University  Austin Community College</p>	<p><b>Neighborhood Associations</b>  Springdale-Airport Neighborhood Association  MLK Neighborhood Association  East MLK Contact Team</p> <p><b>Organizations</b>  thinkEast  Fusebox  Forklift Danceworks  Eastside Community School Alliance  Austin Voices for Education &amp; Youth  Austin Partners in Education  Communities in Schools  Goodwill Central Texas  LifeWorks  Any Baby Can  Texas AgriLife Extension Service (Nutrition)  Seedling Foundation  Sylvan Learning Centers  YWCA of Greater Austin</p> <p><b>Environmental Organizations</b>  PODER  ATX Environmental Justice  Solar Austin  Sierra Club  Public Citizen  EDF</p>
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#### Messages (What we will say repeatedly)

- The community solar project is a quiet, clean and green neighbor – no pollution and no noise.
- The project will bring clean, green energy, rather than the dirty industry of the past.

- Battery storage will differentiate the area as the innovator in clean technology, while providing better power quality to the neighborhood.
- Community solar promotes equity because it makes solar available to everyone.
- Community solar will not affect rates although residents can pay a little extra to subscribe to the program.
- Community solar helps provide solar in all areas of the community not just in areas that can afford private, rooftop installations on their homes.
- Community solar projects will be built throughout the Austin metropolitan area.
- The project will increase safety, improve access to schools and trails, and reflect the culture of the community.
- The community solar project will promote STEM education and other educational initiatives in the community.

#### Channels (How we will reach the audiences)

Date	Channel	Audience	Owner
Fall 2014	Program design survey	AE customers; potential participants	Murray/Baise
Fall 2014	Program design survey by Solar Austin	Solar Austin members; potential participants	Solar Austin
April 10-12, 2015	Booth at ThinkEAST; community survey	Neighborhood residents	Murray/Cullick/Cordova
May 27, 2015	Meeting with PODER	PODER organizers/members	Cullick/Murray/Rivas
June-July 2015	Meetings with developer of community solar	Internal	Cordova/Murray
July-Aug 2015	Meetings with thinkEAST developers	Internal	Cordova/Murray
July-Aug 2015	Meetings with A.I.S.D. Trustee	Internal	Cordova/Murray/Vice
July-Aug 2015	Meetings with Council Members	Internal	Cordova/Murray/Vice
July-Aug 2015 (monthly)	Meetings with Eastside Alliance	Stakeholders	Cordova/Murray/Wisner
July-Aug 2015 (monthly)	Coordination meetings with City Departments	Internal	Cordova/Murray/Wisner
July-Aug 2015	Create Executive champion team	Dreyfus, Kimberly, Smith	AE Executive Team
July 2015	Letters of support from partners	Planning Commission	Cordova/Murray/Vice
Summer 2015	Organizational meetings with thinkEAST/Fusebox	Stakeholders	Cordova/Murray/Wisner

August 2015	Host charrette with thinkEAST	Springdale-Airport neighborhood	Cordova/Murray/Wisner/DiLeo/Schooler
September 2015	Host 2 <sup>nd</sup> charrette	Springdale-Airport	Cordova/Murray/Wisner/DiLeo/Schooler
October 2015	Meetings with minority media	Minority Media	Cordova/Rivas
November 2015	Memo to Council on results of charrette	Austin City Council	Murray/Kimberly/Weis/Vice
November 2015	Harvest Fest community event	Eastside Memorial (1,000 attendance)	Cordova/Wisner/DiLeo/Rivas/Rios
Feb. 2016	SXSWedu community outreach	Austin Voices	Wisner/Cowan/Rios
April 2016	STEM Fest community event	Eastside Memorial H.S.	Cordova/Wisner/Cowan
April 2016	thinkEAST/Fusebox Festival	Springdale-Airport/Govalle	Cordova/Wisner/DiLeo/Rivas/Rios
Summer 2016	Targeted marketing to neighborhood for early sign-up	Kingsbery substation service area	Cordova/Murray/ Wisner
July 2016	Tours of construction site	Neighborhood/Council District Member	Cordova/Murray
Sept-Oct 2016	Site Visits with local schools	Ortega, Govalle, Eastside Memorial	Cordova/Murray/Rivas/Rios/Ornelas
Oct. 2016	SXSWeco community outreach	Austin Voices	Wisner/Cowan/Rios
June-July 2017	Create summer solar camp for students	Ortega Elementary School	Cordova/Murray/Rivas/Rios/Ornelas

## Products

Date	Channel	Audience	Owner
July 2015	Create informational Web page for project	Public/Stakeholders	Cordova/Wisner/Web Team
July 2015	Create one-page bilingual information sheets about project	Public/Stakeholders	Cordova/Wisner
August 2015	Create calendar of Social Media posts	Public	Cordova/Wisner
September 2015	Establish bilingual hotline	Neighborhood/Stakeholders	Cordova/Rivas/Contractor
November 2015	Create bilingual neighborhood newsletter	Neighborhood/Stakeholders	Cordova/Rivas/Contractor
January 2016	Create project display boards for public	Public/Stakeholders	Wisner/DiLeo
May 2016	Create calendar of construction tours	Neighborhood/Stakeholders	Wisner
July 2016	Plan groundbreaking ceremony	Stakeholders/Austin City Council/A.I.S.D.	Corporate Communications/Marketing Communications
January – May 2017	Create Solar Camp curriculum	Ortega Elementary	Murray/Cowan/Rios



## thinkEAST Community Solar Survey

***Please share any ideas, comments, questions or concerns about the project  
on the back of this survey – we want to hear from you!***

1. Do you live in a home where you have, or are considering having, solar installed on your own property?
  - a. No
  - b. No, because I rent
  - c. No, because I think I'll move in the next few years
  - d. Yes, I've considered it, but haven't taken action
  - e. Yes, and I have contacted solar installers for bids
  - f. Yes, but my house is too shaded
  - g. Yes, but decided it was too expensive
  - h. Yes, and I installed solar!
2. Based on what you have heard about Community Solar, do you think it will be a good way to increase the amount of local solar power generation?
  - a. Yes, definitely
  - b. Yes
  - c. Not sure
  - d. No
  - e. Definitely not
3. Will you consider participating in Austin Energy's Community Solar program, once it is opened for customer sign-up?
  - a. Yes, definitely
  - b. Yes, maybe
  - c. Not sure
  - d. Probably not
  - e. Definitely not
4. Do you think Austin Energy should offer this type of clean energy option to customers?
  - a. Yes, definitely
  - b. Yes
  - c. Not sure
  - d. No
  - e. Definitely not
5. Do you think this is a good use of the land Austin Energy owns around the Kingsbery substation?
  - a. Yes, definitely
  - b. Yes, maybe
  - c. Not sure
  - d. Probably not
  - e. Definitely not
6. Do you think it is important for the first Community Solar project to include a visitor's center with public access, informative displays, and opportunities for school visits?
  - a. Very important
  - b. Somewhat important
  - c. Not sure
  - d. Not very important
  - e. Not important at all
7. What should we name the community solar project at the Kingsbery substation? \_\_\_\_\_



## thinkEAST Community Solar Survey

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on the back of this survey – we want to hear from you!***

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**Request for Proposals**  
for customer-sited community solar projects  
sized between 200kW and 1MW (AC)

Issued: December 10, 2015  
Responses due: February 1, 2016

## **1. INTRODUCTION**

Austin Energy, the municipally-owned electric utility of the City of Austin, Texas, is engaged in the generation, transmission, and distribution of electricity to over 420,000 residential, commercial, and industrial customers. Austin Energy has approximately 3,500 MW of generation capacity, including nuclear, coal, natural gas, biomass, wind, and solar resources. Austin Energy participates in all aspects of the Electric Reliability Council of Texas (ERCOT) wholesale power market for purposes of serving its load and maximizing the value of its resources.

In 2014, the Austin City Council adopted the Austin Energy Resource, Generation and Climate Protection Plan to 2025 that includes goals for local solar energy. One strategy to meet local solar generation goals is through the growth of a community solar program. Austin Energy's community solar program will allow customers who are unable to install solar panels on their own dwellings to receive the benefits of solar power.

## **2. PURPOSE**

Austin Energy issues this Request for Proposals ("RFP") to solicit proposals from qualified vendors (each a "Proposer") experienced in the development and operation of renewable solar energy resources. Austin Energy desires to purchase solar power under a power purchase agreement ("PPA") from solar generation projects (each a "Project") located within Austin Energy's service territory, sized from 200 kW to less than 1MW (AC), for a term of up to 25 years. Austin Energy seeks to purchase the energy, along with all associated environmental attributes, such as renewable energy credits, of the Project.

A Proposer may submit more than one proposal or more than one Project per proposal, but may only submit one proposal per site; however, a Proposer may submit pricing for different construction completion dates. Only qualified solar photovoltaic technologies, as judged in Austin Energy's sole discretion, will be considered under this RFP.

Selected Projects will be incorporated into Austin Energy's community solar program. Austin Energy reserves the right to award a contract in order to satisfy its requirements, or to make no contract award at all.

## **3. SCHEDULE**

The following schedule and deadlines apply to this RFP. Austin Energy reserves the right to revise the schedule at its sole discretion.

December 10, 2015: RFP issued

January 15, 2016, 5:00 PM CT: Deadline to submit questions regarding RFP.

February 1, 2016, 5:00 PM CT: Deadline for receiving proposals.

#### 4. PROJECT CONCEPT AND OPERATION

**A. Power Purchase Agreement.** Under a PPA structure, Austin Energy will purchase the energy and environmental attributes of selected solar Project(s). The PPA will include the option for Austin Energy to purchase the Project and the right for Austin Energy to resell all or part of the energy and environmental attributes acquired.

**B. Term, commercial operation date.** Austin Energy seeks a PPA term of up to 25 years and a commercial operation date prior to January 1, 2017. A proposal may provide two different prices for commercial operation dates before and after January 1, 2017.

**C. Size and location.**

1. Project capacity may be sized from 200 kW to less than 1 MW (AC).
2. Projects must be located within Austin Energy's service territory, at the site of an existing Austin Energy customer with an energy consumption meter ("Customer Meter"), account, and electric load. Projects may not be located on Austin Energy's downtown network.
3. Proposer is responsible for negotiating the use of the site, if the property owner (site host) is not the Proposer. Proposer must provide a Letter of Intent from the site host indicating its commitment to host the Project for the length of the PPA. An agreement between the Proposer and site host for the use of the site (e.g., lease) will be necessary for PPA execution.
4. Proposer should consider public visibility and public engagement factors when identifying the location. Public visibility is a measure of the location and prominence of the project to encourage public awareness of solar energy in the Austin community. Projects prominently located in heavily populated or high-traffic locations (including locations with high numbers of visitors, residents, employees, community members, or passersby) will receive a higher score than Projects located in remote areas or with minimal visibility.
5. A Project location with a community partnership or benefit component is preferred. Proposer should consider a Project that supports community partnerships with entities such as non-profits including schools and governmental agencies, affordable housing developments, and "green" master communities.

**D. Proposer.** Proposer must have at least five years of experience in solar photovoltaic (PV) project development and must have been involved in the construction of at least three commercial or utility-scale PV facilities of at least 150kW in size in the last two years.

**E. Project details.** Proposer must provide a detailed description of the Project and the solar technology that will be used to provide the renewable energy and capacity to Austin Energy. Proposer must provide sufficient information to provide assurance to Austin Energy that the generating facility will be able to meet its projected production estimates for the duration of the PPA. All facilities must meet applicable regulatory and industry safety, environmental, and operational standards, including but not limited to standards and requirements of the Public Utility Commission of Texas, ERCOT, Texas Reliability Entity (TRE), and North American Electric Reliability Corporation (NERC). At a minimum, Proposer must provide the following:

1. Name and location of site host with a letter of intent from the site host indicating its commitment to host the project for the length of the PPA, if selected.

2. Technical information for the facility, including:

a. proposed make and model numbers for inverters and solar panels, including manufacturer and vendor warranties,

b. description of interconnection and metering arrangement, including how the Project is situated on the site with the Customer Meter and Revenue Meter, and sufficient to show that the Project meets the requirements of section 4.F.4 below,

c. the Distributed Generation Planning Application<sup>1</sup> and the Electric Service Planning Application<sup>2</sup> approved by Austin Energy, with Austin Energy's rough estimate of the costs payable by the Proposer for interconnection at the site (for rough estimate contact [David.Tomczyszyn@austinenenergy.com](mailto:David.Tomczyszyn@austinenenergy.com)).

d. one-line diagram, including the interconnection, configuration, and general building and site layout diagrams, and

e. projected commercial operation date, expected annual hourly output profile (8760 hours) for first year of operation. Include summary of net AC output rating, capacity factors, forced outage rate, de-rating assumptions, expected annual production degradation, and expected reasons for and timing of maintenance. Solar irradiation data used must be the National Renewable Energy Laboratory (NREL) National Solar Radiation Data Base (NSRDB) 1961-1990: Typical Meteorological Year version 2 (TMY2).

3. Estimate of project development and construction duration (in days) and project development timeline from contract signature to commercial operation.

4. Description of how project meets or exemplifies public visibility and community partnership criteria outlined in sections C.4 and C.5 above.

#### **F. Metering and point of delivery.**

1. Austin Energy will install, own, and maintain a revenue meter ("Revenue Meter") which will be dedicated solely to the measurement of energy sold and purchased under the PPA. The meter may not be behind the existing Customer Meter. Austin Energy will not consider proposals containing split or allocated meter arrangements.

2. Austin Energy will install, own and maintain the data collection and related communications/telemetry for the metering facilities and related services necessary to meet the mandatory 15-minute Interval Data Recorder (IDR) Meter requirements.

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<sup>1</sup> The current Distributed Generation Planning Application is available online at [austinenenergy.com](http://austinenenergy.com). Select "Contractors" tab, then select Electric Service Design & Planning.

<sup>2</sup> The current Electric Service Planning Application is available online at [austinenenergy.com](http://austinenenergy.com). Select "Contractors" tab, then select Electric Service Design & Planning.

3. With the exception of equipment specifically mentioned in 4.F.1 and 4.F.2, the Proposer will install, own, and maintain all other metering equipment and metering facilities.

4. Austin Energy will take delivery of energy at the Revenue Meter. Projects must comply with the **Austin Energy Design Criteria Manual**<sup>3</sup> and the **Distribution Interconnection Guide for Customer Owned Power Production Facilities less than 10 MW**<sup>4</sup>, with the exception of metering requirements covered under the terms of this RFP.

## 5. PROPOSAL

**A. Submittal format.** Proposer must submit proposals with all supporting documentation and required information, in portable document format (PDF), to [EnergySupply@austinenergy.com](mailto:EnergySupply@austinenergy.com) by the deadline. If the proposal and supporting documentation contains more than 20 MB of data, it must be divided up and submitted in multiple emails in order to stay below a 20 MB data limit. Proposer will receive an automatic email reply that the Energy Supply mailbox received the proposal. If no response is received, contact Stephanie Ritter at [Stephanie.Ritter@austinenergy.com](mailto:Stephanie.Ritter@austinenergy.com) immediately.

**B. Information required in proposal.** In addition to details regarding the Project concept and operation required above, the following information must be included in the proposal.

1. 90-day validity. Proposals must include a statement that they are valid for at least 90 days subsequent to the RFP response deadline.

2. Term sheet. A summary of the principal features of the Proposal must be included, with the Proposer's name, site host name, Project location, Project capacity in STDC and AC, offered pricing, PPA term, commercial operation date (year), financing structure, and any critical development and operational aspects of the proposal.

3. Cost. Proposer must identify all pricing elements that are included and determine the cost of supplying the renewable energy to Austin Energy. Austin Energy prefers a fixed, non-escalating price for the term of the agreement for all energy and associated capacity delivered. Proposer should state a fixed price in U.S. dollars per megawatt-hour (\$/MWh) for renewable energy including all environmental attributes.

4. Proposer's financial strength and structure. Proposer must present sufficient documentation fully supporting financing and development of the proposed solar facility to assure its successful construction, commissioning and long-term operation, including:

a. the full name and address of the Proposer's organization and identity of parent company, if Proposer is a subsidiary;

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<sup>3</sup> The current Austin Energy Design Criteria manual is available online at [austinenergy.com](http://austinenergy.com). Select "Contractors" tab, then select Electric Service Design & Planning.

<sup>4</sup> The current Distribution Interconnection Guide is available online at [austinenergy.com](http://austinenergy.com). Select "Contractors" tab, then select Electric Service Design & Planning.

b. primary contact information for individuals responsible for the proposal and authorized to manage contract negotiations;

c. form of organization (corporation, joint venture, limited partnership, limited liability company, sole proprietor, etc.), ownership structure, and names of principal officers and general partner, if any;

d. description of the of the financial structure of the Proposer's company and its financial capability to meet its obligations in the proposal, including relevant information on the Proposer, any parent company, and any partners involved in the proposal;

e. evidence of ability to obtain and secure financing for the project, sources of equity and long-term debt, bank/financial institution references (including, if applicable, letters of interest from investment banking firms, private investors or other financial or lending institutions); and

f. profile of qualifications to do business in the State of Texas.

5. Corporate and professional experience. The amount of corporate and professional experience in the design, development, construction and maintenance of solar generation projects will be a determining factor in the evaluation process. Information provided in the proposal must, at minimum, include:

a. description of previous experience with solar generation, including the development, management, operation, and maintenance of at least three solar projects at least 150 KW in size, including any third-party vendors' and sub-contractors' qualifications and experience;

b. description of the solar generation projects, including nameplate, gross and net capacities, that have been constructed, owned, or operated by Proposer or parent company that are in service or projected to be constructed and placed into commercial operation;

c. qualifications of permitting, engineering, construction, operation, and maintenance team that will be assigned to the Project and an organization chart detailing key personnel involved with the administration and day-to-day management; and

d. list of key personnel that would be involved in the project with their names, qualifications and experience.

6. Project documentation. Proposer must present supporting documentation and references describing the reliability of the proposed solar technology, its commercial application, its operational viability, speed of implementation, and expected production. Proposer must also provide:

a. staffing and maintenance plan to support long-term operations and letters of intent from proposed vendors providing major equipment; and

b. confirmation of Proposer's ability to secure options to purchase the principal equipment needed to meet the commercial operation date.

**C. Confidential information.** As a governmental entity, all information submitted to Austin Energy is subject to the Texas Public Information Act. Proposer must conspicuously identify in its proposal pages that contain confidential or proprietary information. This will allow Austin Energy, in the case of a public information request, to identify information the Proposer wishes to protect. Austin Energy will then notify Proposer, allowing it to seek to protect the information. The final decision as to what information must be disclosed rests with the Office of the Attorney General of Texas. Failure to identify proprietary information may result in it being available to the public upon request.

## **6. EVALUATION FACTORS, AWARD, AND NEGOTIATION**

**A. Competitive selection.** The evaluation factors outlined below will be applied to all responsive proposals. Qualifying proposals will be assessed in order to identify the best proposal, in Austin Energy's discretion. Austin Energy will review proposals and arrive at a short list to consider for further evaluation. Austin Energy reserves the right to consider any other factors it deems relevant and to request additional information, documentation, or supplemental materials from Proposer.

Austin Energy may choose to award a contract under this solicitation, multiple contracts, or may choose to not award any contract. Each Project is subject to interconnection review and approval. If multiple projects are proposed on the same feeder, higher scoring projects will receive priority in interconnection review and project approval.

**B. Evaluation factors.** 100 point scoring basis.

Price: 60 points

Public visibility: 10 points

Community partnership value: 10 points

Financial strength of Proposer: 10 points

Experience: 10 points

**C. Proposal recommendation.** Austin City Council approval may be required to execute an agreement. Austin Energy will evaluate all proposals and, if necessary, make a recommendation for approval to the Council, which may reject or re-evaluate the proposals.

**D. Contract negotiation.** Proposer is expected to agree to Austin Energy's standard PPA terms, which will be distributed to short-listed Proposers after evaluation. PPA documents will be prepared by Austin Energy, incorporating all applicable provisions of the selected proposal(s). Proposer must agree to minimum performance thresholds and will be required to post sufficient performance security for the term of the PPA and maintain adequate property insurance coverage



for the value of the Project. An executed PPA may not be assigned without Austin Energy's approval.

## **7. QUESTIONS, NON-CONFLICT OF INTEREST, ANTI-LOBBYING, AND MBE/WBE**

**A. Questions.** During the RFP process, all questions regarding the RFP must be submitted to [EnergySupply@austinenenergy.com](mailto:EnergySupply@austinenenergy.com). Any questions submitted after the deadline for questions will not be reviewed or answered.

**B. Anti-Lobbying.** Chapter 2-7, Article 6 of the Austin City Code (Anti-Lobbying and Procurement) applies to this solicitation and restricts Proposer's contacts with City of Austin officials or employees. During the No-Contact Period, a Proposer or potential Proposer is prohibited from making a representation (as that word is defined in City Code § 2-7-101) to anyone other than an Authorized Contact Person for the Solicitation.

**C. Authorized Contact Person.** THERE ARE TWO AUTHORIZED CONTACT PERSONS FOR THIS SOLICITATION. THE PRIMARY CONTACT REGARDING ALL ASPECTS OF THE SOLICITATION IS STEPHANIE RITTER. THE ADDITIONAL CONTACT FOR OBTAINING AND SUBMITTING ELECTRIC SERVICE DISTRIBUTION MATERIALS REQUIRED UNDER 4.E.2.c OF THIS SOLICITATION IS DAVID TOMCZYSZYN. **IF, DURING THE NO-CONTACT PERIOD, PROPOSER MAKES A REPRESENTATION TO ANYONE OTHER THAN AN AUTHORIZED CONTACT PERSON FOR THE SOLICITATION (EVEN IF THE CONTACT WAS INITIATED BY A CITY OFFICIAL), THE PROPOSER IS DISQUALIFIED FROM FURTHER CONSIDERATION EXCEPT AS PERMITTED UNDER CITY CODE.**

**D. Affidavit.** Proposer must complete the Non-Collusion, Non-Conflict of Interest, and Anti-Lobbying Affidavit provided in Attachment 1 and submit the Affidavit with its proposal.

**E. MBE/WBE Procurement Program.** Proposer must comply with the City of Austin's Minority-Owned and Women-Owned Business Enterprise (MBE/WBE) Procurement Program (City Code Chapters 2-9A, 2-9B, 2-9C and 2-9D), Rules, and Third Party Resolution (20120112-058) for the purchase, design and construction costs associated with the award and completion of the project. (See attachment 2a- SMBR requirements and 2b- Availability List for Professional Services). The requirements, standards and principles of the MBE/WBE Program will become a part of the contract agreement. The successful Proposer will be required to meet the annual design and construction goals specified in the agreement or in the City Code, or demonstrate a good faith effort to meet the goals as defined by the MBE/WBE Program.

Currently, City Code specifies the goals as follows, but they may vary depending on the scope of work subject to the MBE/WBE Program:

	<b>Professional Services Participation Goals Chapter 2-9B</b>	<b>Construction Participation Goals Chapter 2-9A</b>
African American	1.9%	1.7%
Hispanic	9.0%	9.7%
Asian/Native American	4.9%	2.3%
WBE	15.8%	13.8%

Proposer should contact the Small & Minority Business Resources Department (SMBR) at 512-974-7600 to discuss MBE/WBE Program requirements, request availability lists, forms, and submission deadlines prior to commencing any work subject to the MBE/WBE Program.

**From:** [Murray, Danielle](#)  
**To:** [Poff, Karen](#)  
**Subject:** Community solar subscription options  
**Date:** Thursday, February 18, 2016 10:57:54 AM

---

Hi Karen,

Here are the community solar subscription options That I've been thinking about Would be happy to hear if you have others. Do you have time to talk today before 3 p.m.?

Community solar options:

- 1) Capacity (kW) based subscription - pay up front at a discount or pay overtime on bill.  
Receive value of solar for production as credit on bill
- 2) Community solar rate replaces PSA and fuel charges on your bill. Premium today, hedge against future increases.
- 3) Penny plus premium on PSA (like green choice)

D

Danielle Murray  
Manager, Solar Energy Services  
Austin Energy  
512-322-6055

# Expanding Solar Access Through Utility-led Community Solar

## PARTICIPATION AND DESIGN TRENDS FROM LEADING U.S. PROGRAMS

SEPTEMBER 2014

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*K Kaufmann, Communications Manager*

The average community solar program has 213 participants purchasing power from a 1 megawatt system which is 71% subscribed.



**SEPA**

solar electric power association

# Expanding Solar Access Through Utility-led Community Solar



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## Acknowledgements

The authors would like to send special thanks to all of the utility program managers that took the time to participate in SEPA's survey, sharing program performance data as well as personal insights.



# Expanding Solar Access Through Utility-led Community Solar



## INTRODUCTION

To build on existing research and gain greater insight into individual programs, the Solar Electric Power Association (SEPA) recently conducted a survey covering community solar programs that utilities have developed and made available to their customers. Over a 6-week period in spring of 2014, SEPA queried program managers on actual customer participation rates and top design considerations. The survey was circulated to all 37 utilities with community solar programs that were in operation at that time, resulting in a 46-percent response rate. This report will summarize SEPA's community solar tracking efforts as well as the results of its most recent research on program and participation trends and critical program design considerations.

A note on terminology -- for this report, community solar programs will be identified as either active or planned. An active program is one that is currently accepting applications or is fully subscribed; a planned or proposed program is one that has been publicly announced but is not yet accepting applications.

The term program itself will be used to differentiate community solar offerings that may contain more than one individual installation from such individual projects.

## BACKGROUND

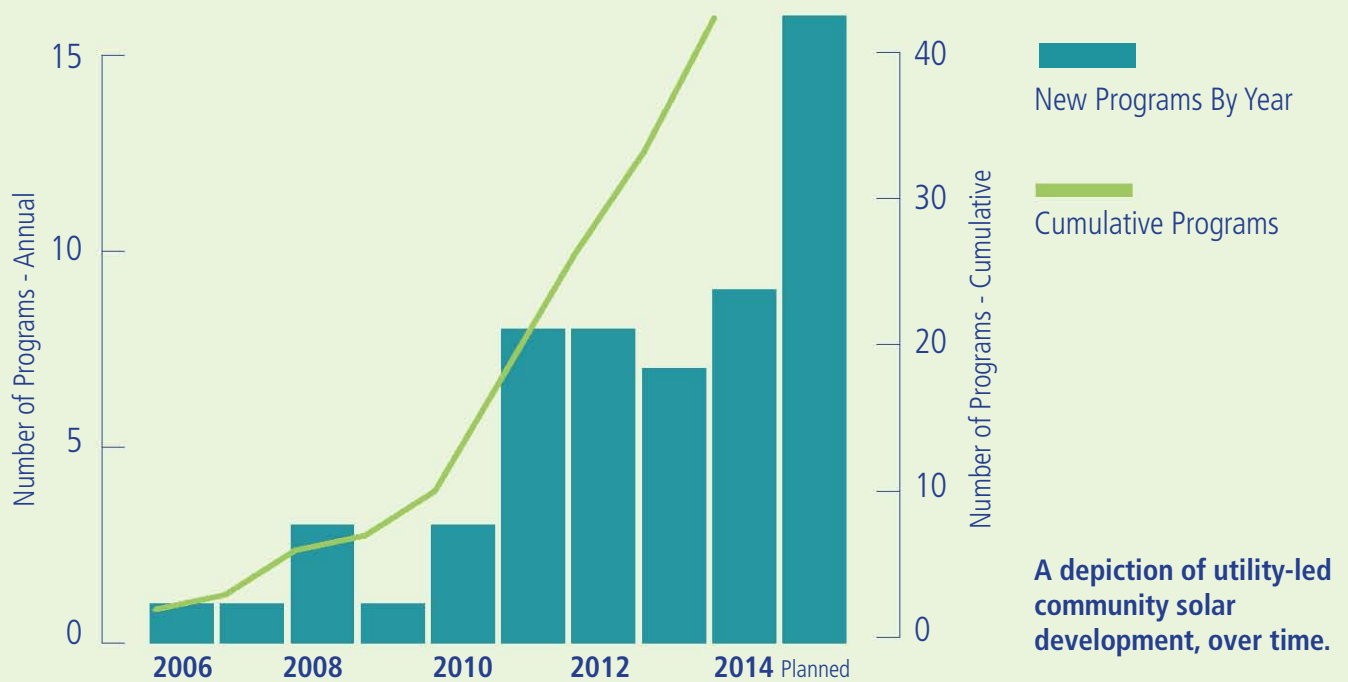
Community solar projects provide a compelling and increasingly popular way to increase the amount of solar power on the grid, appealing especially to consumers who, for a variety of reasons, may not be able to install rooftop arrays.

SEPA has been tracking the spread of these projects across the United States since early 2012, documenting a 64 percent increase in newly active community solar offerings in the past 18 months alone.

Utility programs represent 87 percent of all community solar programs now online, 60 percent of active and planned community solar systems, and 96 percent of all active and planned community solar capacity in the United States.

<sup>1</sup> The number of active programs has grown since the time of survey.





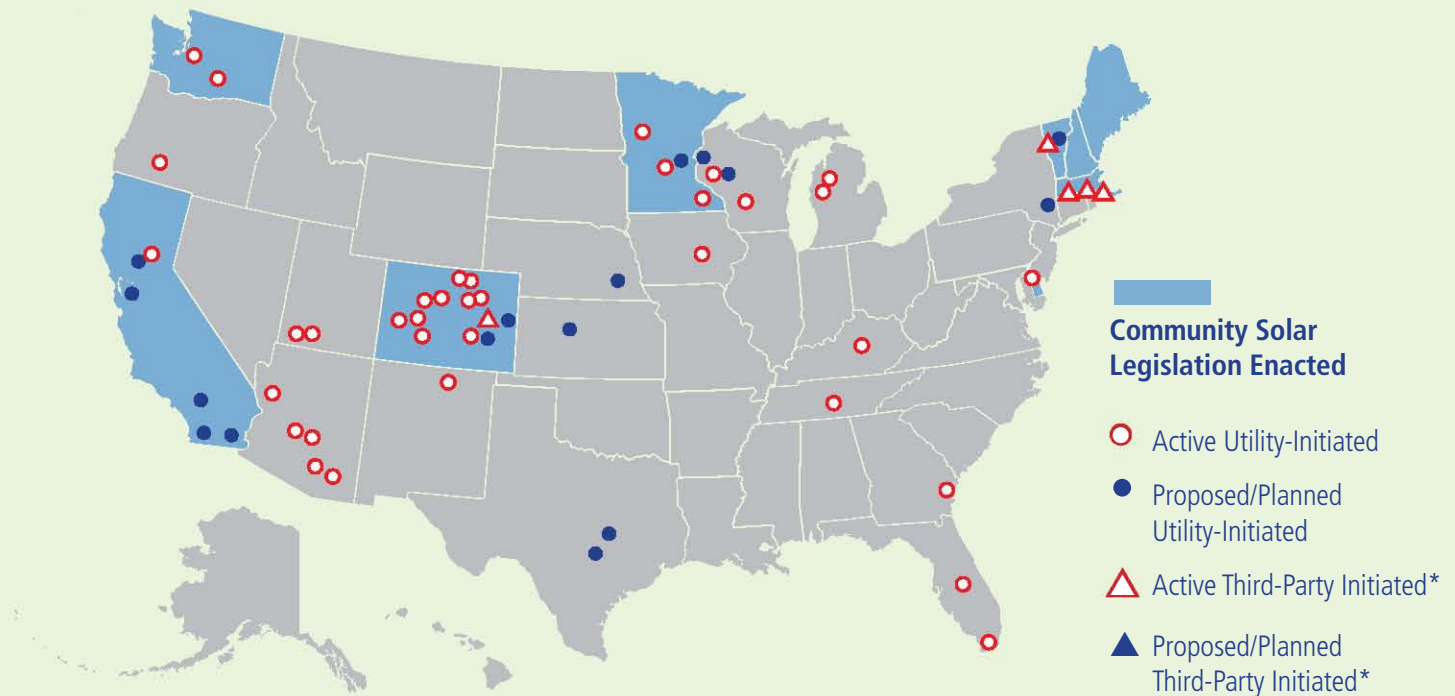
SEPA defines community solar as a program through which individual members of a community have the opportunity to “buy in” to a nearby solar installation. As part of the buy-in, customers typically receive a proportional share of the financial or energy output of the system. Community solar programs may be offered by electric utilities or through third-parties or community groups, in which case, some form of enabling legislation may be required. This report focuses on community solar programs initiated through utilities or through third-parties in partnership with a utility.

While often included within the definition of community solar, SEPA considers bulk purchasing or green pricing programs to be separate and distinct offerings with different pricing, participation and program design characteristics.

In some cases, utilities initiate community solar programs voluntarily, typically in response to customer demand for solar options. In other instances, utilities offer programs in response to regulatory mandates. Utilities also sometimes play a “pass-through” role in third-party or community-managed programs, taking responsibility for the virtual net metering of customers’ participation but otherwise not playing an active role in offering the community solar program.

Regardless of motivation, utilities can use community solar programs to proactively help customers overcome the obstacles to on-site solar adoption. Community solar may particularly appeal to customers who rent or lease property, have heavily shaded or north-facing roofs, or simply do not want to make the high up-front financial investment in a rooftop system. These programs allow utilities to offer a solar option to a broader portion of their customers, compared to other utility-led customer solar programs.



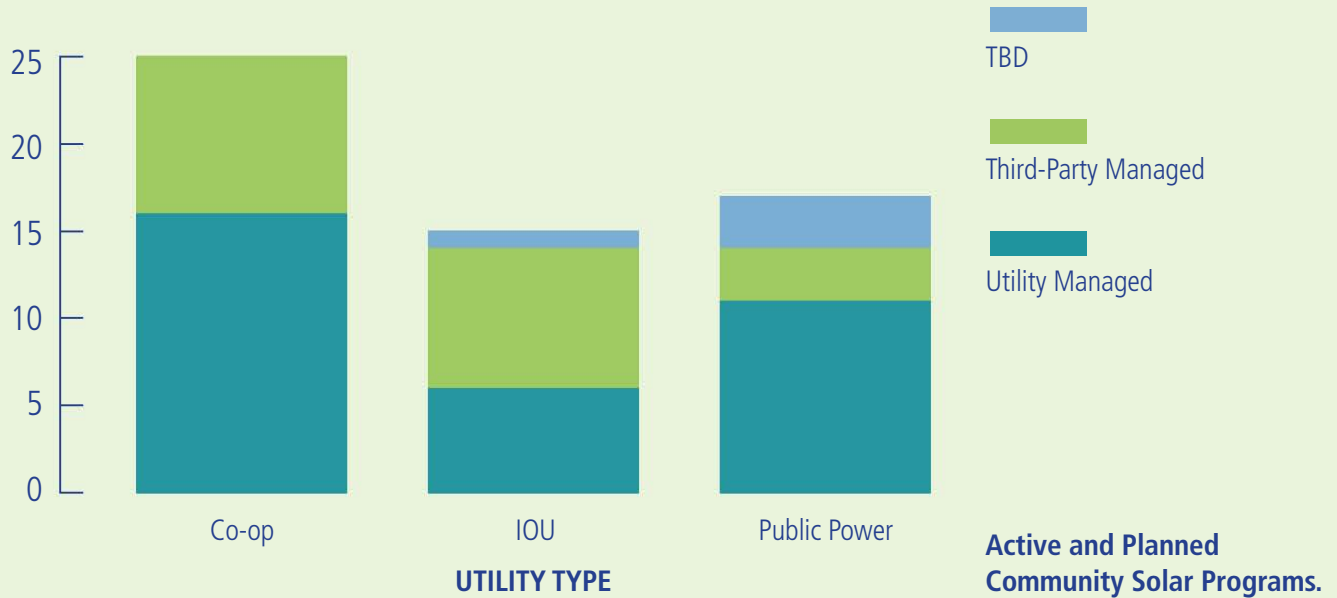


\* Third-party initiated programs indicate that the utility is an active partner, but the program was not proposed or initiated by the utility.

## Where are Utility-Led Community Solar Programs Located?

- As of August 2014, SEPA is tracking 57 utility-offered community solar programs, spanning 22 states.
- Of these programs, 41 are active, while 16 are in the planning or proposal stages.
- Utilities originated 52 of these programs -- although not always on a voluntary basis -- while third parties created five programs in response to community solar legislation.
- More than half of the programs, 31, are located in states that have community solar legislation.

<sup>2</sup> These five programs represent multiple projects initiated by multiple third-party community solar program administrators, typically in partnership with the utility.

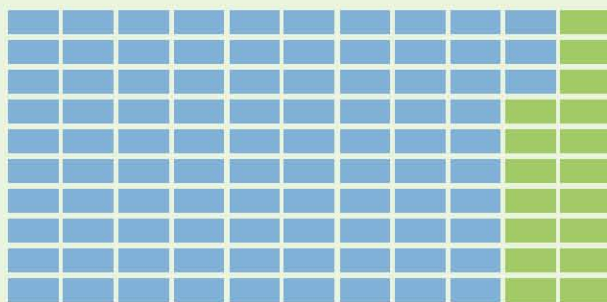


## How are Community Solar Programs Distributed Among Different Type of Utilities?

- Electric cooperatives (co-ops) have initiated 44 percent, or 25, of the country's utility-led community solar programs. The National Renewable Electric Cooperative's (NRECA) sCoop program and the National Rural Electric Cooperative Association's (NRECA) SUNDA program are driving this trend, with both organizations offering procurement assistance and standardization of project financing options and program designs.
- Public power utilities have 17 programs, or 30 percent of the total. Of those, 71 percent, or 11 programs, are currently active, and the rest are in the planning stages.
- Investor-owned utilities (IOUs) have announced 15 community solar programs, with eight now online and seven in the planning or proposal stages.



# Expanding Solar Access Through Utility-led Community Solar



Capacity Offering **74%**

Rate Offering **17%**

**A breakdown of active and planned community solar program structures.**

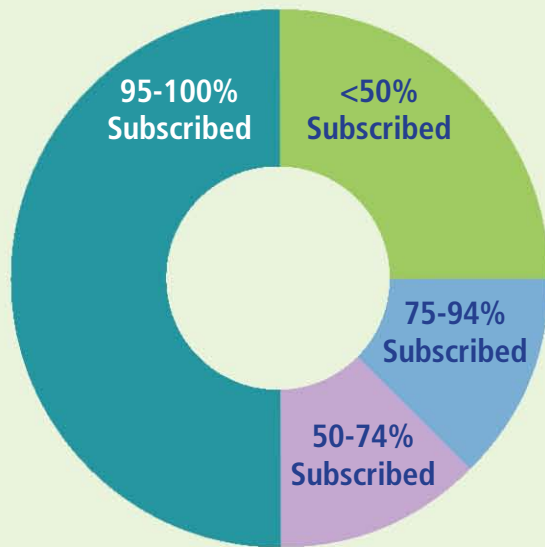
## What do customers purchase?

- Customers buying into a community solar project generally have two options.
  - They can purchase or lease blocks of capacity -- often in panel increments -- and in some cases, receive a virtual or simulated net metering rate.
  - They may also purchase blocks of energy output, measured in kilowatt-hours (kWh), at a predetermined, sometimes fixed, community solar rate, potentially offering them a rate hedge against both current rates and higher future rates.
- Customer options are not yet established for approximately 9 percent of the community solar programs SEPA is tracking, because the utilities involved are still in the early phases of program decision-making.
- In an effort to keep programs competitive with other solar options -- including third-party leasing -- 50 percent of the programs that sell or lease capacity also offer some form of customer financing to assist with up-front buy-in costs. These financing options typically take the form of low-interest loans, but some utilities also offer on-bill financing.
- The utilities providing financing options also report high program participation rates. SEPA found that 70 percent of survey participants offering a financing option for capacity-based programs have participation rates exceeding 75 percent of the available capacity.

*Who says you can't break the mold?*



Tennessee-based Duck River Electric Membership Corporation (DREMC) began offering a different style of community solar program in August 2012. Instead of offering a program based on participating through a capacity or rate offer, DREMC gave its customers the opportunity to invest in the project as part of a limited partnership. DREMC registered the project with the Tennessee Valley Authority's (TVA) Generation Partners Program, which provides a 20-year feed-in tariff for the project's output. Program participants receive a prorated share of all revenue from the project, including the retail value of energy production in addition to the feed-in-tariff payments from TVA.

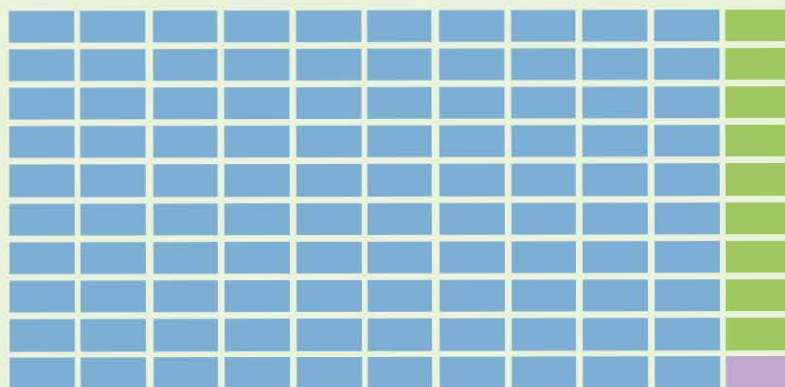


Community solar program performance based on program subscription rates at the time of SEPA survey.

## What kind of participation rates have utility-led community solar programs achieved?

- On average, community solar programs are subscribed at 70 percent of available capacity.
- Of those with less than 50 percent subscription rates, three utilities have indicated that participation is below expectations. In response, two are implementing program modifications, while one utility said that, even with the lower subscription rate, its program is meeting expectations, and no revisions are planned.
- Utilities with less than satisfactory program performance agreed that pricing is the most likely factor impeding program goals. They have a range of program revisions under consideration, including overall program structure and pricing changes, financing options and billing credits.
- Utilities with successful programs noted plans to expand offerings in order to keep pace with growing demand. Almost half of the surveyed utilities, 47 percent, are planning program expansions.





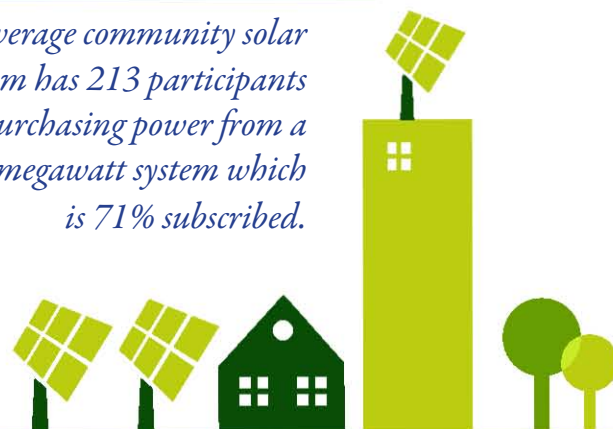
Average number of participants by customer segment

- Residential: 281
- Commercial: 24
- Industrial: 1

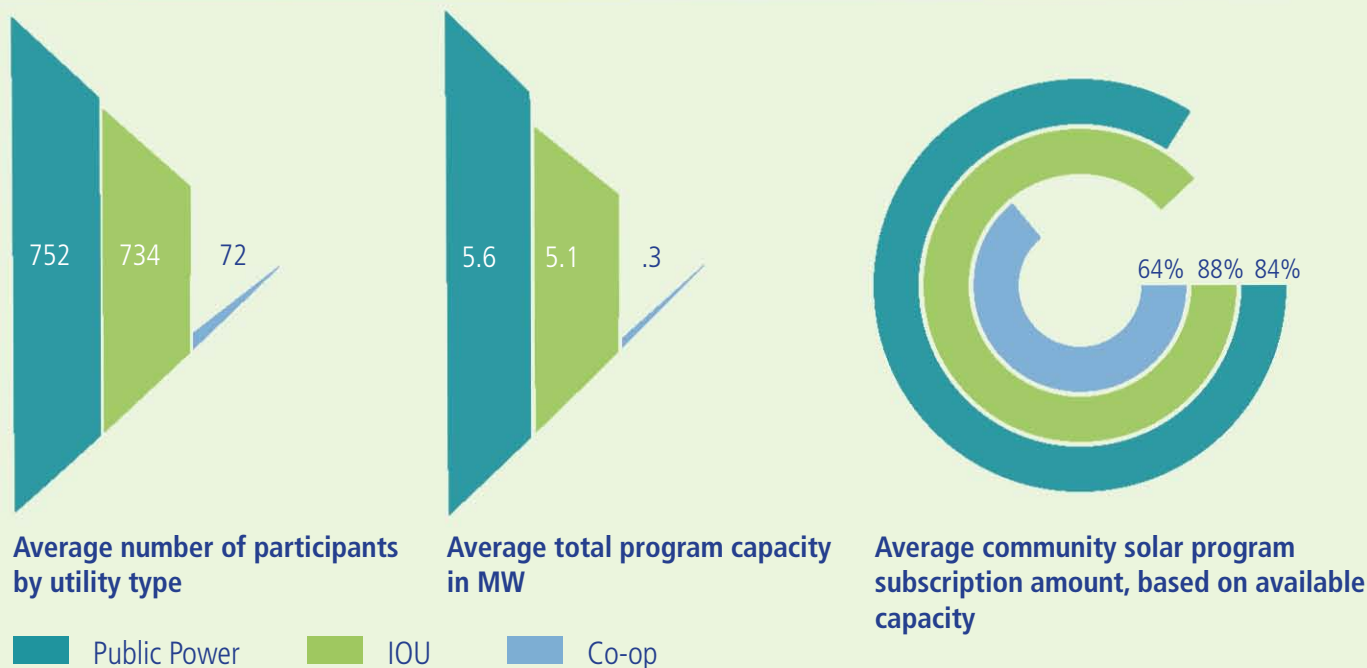
## What types of customers participate in community solar programs?

- While 82 percent of active utility-led community solar programs are available to all utility customers, some utilities limit participation to specific customer types or implement participation carve-outs for customer segments.
  - In spite of this, on average, residential customers account for approximately 90 percent of participants in utility-led community solar programs.
- Utilities may need to consider a change in marketing approach to capture a broader audience for community solar programs, if that is a specific program goal.

*The average community solar program has 213 participants purchasing power from a 1 megawatt system which is 71% subscribed.*







## How do participation rates vary among different types of utilities?

- Community solar programs at co-ops tend to make use of smaller solar projects, and thus have a lower number of participants than IOUs and public power utilities. These lower program metrics coincide with the smaller number of customers that are often served by electric cooperatives.
- Interestingly, community solar programs at IOUs and public power utilities show close similarities in number of participants, project capacity, and subscription levels. However, SEPA expects this trend to change dramatically if the California IOUs receive commission approval to proceed with proposed community solar programs, which are collectively slated to include more than 500 MW of solar capacity.

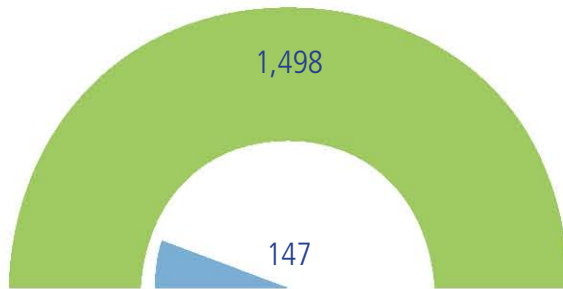
### *Flexibility is a key to success*



A Touchstone Energy® Cooperative

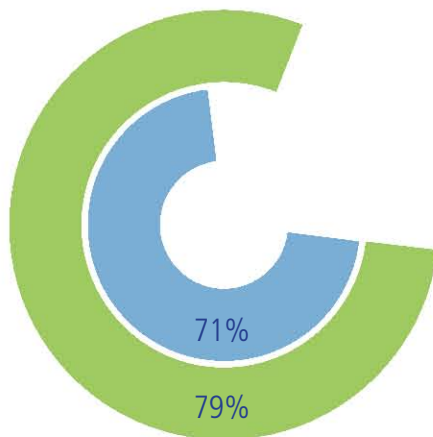
After observing lower customer participation than planned in its community solar program -- a capacity-based program -- Grand Valley Power decided to take action. First, the Colorado co-op lowered the up-front buy-in cost by \$50 per panel. When that approach didn't meet with the hoped-for success, the utility offered a financial installment option with no down payment or credit check. Under the new payment plan, participants agree to a fixed payment of \$15 a month for five years. After the payment period, participants will no longer have the fixed payment on their bills, but will continue to receive bill credits for the power produced from their panels for an additional 18 years. This strategy doubled program subscriptions within six months. Grand Valley Power is now developing a short-term lease option of six months or less. Based on the program's ongoing performance, the utility will continue to adjust its customer offering options.

## How do community solar program participation rates vary based on the type of customer offering?



Average number of participants per customer offer type

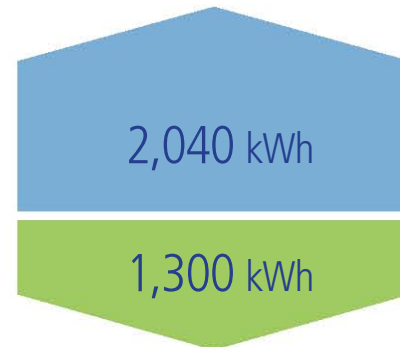
Rate offer Capacity offer



Average subscription amounts: Capacity vs. Rate

Rate offer Capacity offer

## How much energy does the typical community solar participant purchase?



Average residential participant subscription amounts: Capacity vs. Rate

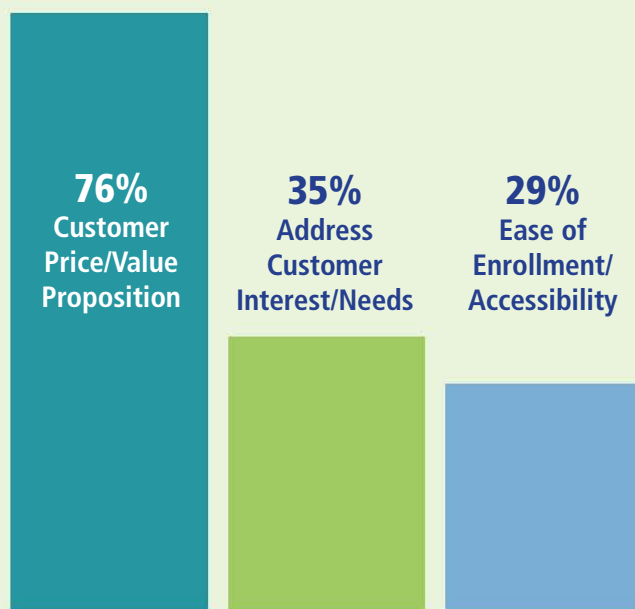
Capacity offer Rate offer

Note: Capacity was converted to energy by assuming a conservative 1,200 kWh of annual production per kW of capacity.

- Rate programs tend to draw a larger number of subscribers, possibly because they often allow customers to invest in smaller portions of a project.
- However, programs with capacity offerings tend to see participants purchasing larger shares of the project. An underlying driver here may be that 67 percent of survey respondents offer financing options to assist with up-front program costs, making it possible for customers to take on larger program commitments.



# Expanding Solar Access Through Utility-led Community Solar



A summary of the most critical community solar design considerations, as noted by program managers when asked for their top 3 selections.

## What do utility program managers regard as the top three considerations for creating a successful community solar program?

- Utility program managers were asked to describe their top three community solar program design considerations, and responses were grouped into three themes:
  - Price setting and value proposition to customer - 76 percent
  - Adequacy in addressing customer interests and needs - 35 percent
  - Ease of enrollment and accessibility of program - 29 percent
- Clearly, the utilities in the SEPA survey see customer concerns as driving community solar success, with price and value proposition the most critical factor.
- Other less commonly noted considerations included clear customer outreach strategies, balanced utility program costs, management or regulator buy-in, and transparency, both in program goals and performance measurements.

## *Understanding your customers' financial constraints can pay off!*



Holy Cross Energy, a Colorado-based rural electric cooperative first launched its community solar program in 2010. The co-op

elected to partner with third-party program administrator, Clean Energy Collective (CEC), in offering its program. The program has two active phases, totaling nearly 1 MW of capacity, and utilizes a capacity-based offer. In an effort to offset the up-front investment associated with participation, CEC has built relationships with financial institutions that offer its customers low-interest financing options with a variety of loan terms, with payback periods ranging from three to 20 years. As a result, both phases of Holy Cross Energy's program are fully subscribed, and the partners are planning a third phase to meet continued customer demand.



\* Third-party initiated programs indicate that the utility is an active partner, but the program was not proposed or initiated by the utility.

A depiction of active and planned community solar programs in relation to active third-party ownership markets.

## How does the third-party ownership market affect the success of community solar programs?

- About two-thirds of the community solar programs tracked by SEPA are offered in states that have active residential third-party leasing options. Consequently, market competition should be a key program design consideration to ensure expected performance outcomes.
- In several cases, survey respondents noted that competing third-party ownership offerings were adversely impacting the performance of community solar programs.
- Utility community solar program managers noted that for utility programs where participation is offered on a capacity basis, including financing options allows the community solar programs to more effectively compete with "no money down" third-party ownership options.



## CONCLUSION: Weighing options for community solar programs

A utility has many considerations to weigh before committing to offer a community solar program.

- If a green pricing or similar program is already being offered, a utility may need to consider whether to replace the legacy program with community solar or whether the programs will complement or compete with each other. Community solar programs have a high potential to adversely impact participation in green pricing programs and vice versa.
- If third-party ownership companies are active in a utility's service territory, then a community solar program that requires a significant up-front investment may prove to be a weak option when customers compare it against no-money-down solar leasing options. An alternative might be to offer financing options to make the up-front investment more palatable.
- If community solar programs are currently being offered through third-parties or community groups, a utility will have to consider how to market its program as a more attractive option. A utility's history, and reputation for providing reliable power, far exceeds that of the companies offering competing programs, which might be an important benefit for customers considering a 5-20 year program investment.

For a more detailed list of program design considerations, please read [\*\*SEPA's Utility Community Solar Handbook\*\*](#).



## ADVISORY SERVICES

SEPA also provides one-on-one advisory services for utilities looking at community solar or other solar program offerings. Our team can assist in assessing program demand, surveying customers to prioritize needs/interests, or designing your utility's program.

### Please feel free to contact us!

For more information, contact John Sterling at 202-559-2022 or by email at [jsterling@solarelectricpower.org](mailto:jsterling@solarelectricpower.org).



**\$895**

**This report is included with your SEPA membership.**

Not a member? Call us today at 202-897-0898!





# Community Solar Update

Solar Committee Meeting  
October 21, 2015



# Overview of Community Solar Initiatives

## **Phase 1: Kingsbery Community Solar Project (~3 MW)**

- Utility-owned land at Kingsbery Substation
- Completion: Fall of 2016.
- Capacity based subscription

## **Phase 2a: Palmer Auditorium Solar Project (185 kW)**

- Customer Owned
- Roof lease with Palmer

## **Phase 2b: Customer-hosted PPA projects**

- RFP for Solar Developers to develop customer-hosted PPA projects
- 25 year PPA
- Solar developer negotiates use of host site.

# Phase 1: Kingsbery Solar Project

## Project Design:

- Participants subscribe in 1 kW increments of solar capacity
- Pay a flat fee per kW each month on their electric bill
- Receive VoCS credit for kWh generated by their subscribed kW each month on their electric bill

## Action Items:

- EMO support to calculate VoCS
- Solar team develop subscription rate, program fine print
  - Should we increase initial deposit in order to reduce monthly subscription fee, enable customers to see net positive on monthly bill?
  - Is there an end date on the program? Can customers transfer subscription?
- Solar to work with billing on integration into CC&B
- Decide on using third party to help with program management



# Clean Energy Collective (CEC)

## *Community Solar Platform: Provide utilities with service and software tools to support community solar initiatives*

### **Services:**

- Project Management/O&M/Land Acquisition/Project Design
- Community Solar Financial Services
- Customer acquisition

### **Software Tools:**

- RemoteMeter Foundation: Production crediting, on-bill crediting, customer portal *MyOwnCleanEnergy* – *Can integrate with CC&B, credit actual solar production (not modeled; no annual true up)*
- RemoteMeter Engagement – online customer engagement including marketing, enrollment – *Can manage opt in/outs, ensure capacity available, provide right-sizing calculator for choosing enrolment level)*



# Phase 2a: Palmer Auditorium Solar Project

## Background

- [REDACTED]
- Couldn't connect behind Palmer meter due to Downtown Network constraint; connected via line tap on distribution feeder on Barton Springs instead (May '15)
- Finalizing "infrastructure rental" agreement to pay Palmer for use of roof

## Community Solar potential

- Customers pay upfront for purchase of Palmer solar panels
- Customers can receive federal solar tax credit (30%) on their panels
- 50 participants at ~5 kW-dc per subscription
- Assume Roof Rental Rate [REDACTED]
- All in cost: [REDACTED] (includes installed cost, interconnection costs, inverter replacement, roof rental; doesn't include program admin)
- Participants' simple payback: [REDACTED]

- Should we pursue as community solar project?
- Should we attempt to recover all costs, or simply improve on current situation?
- Should customers be able to transfer/sell ownership?
- Is it too confusing to have different offerings, or are we meeting customers' desires for choice?



# Phase 2b- RFP for Solar Developers to Develop Customer-Hosted PPA Projects

AE's Response to Public Citizen/Sierra Club RFI No. 1-8  
Attachment 4  
Page 189 of 281

## Process:

- RFP for solar developers to develop customer-hosted PPA projects
- PPA: 25 year contract [w/option for AE buy-out?]
- Projects between 200 kW and <1 MW
  - Do we want to consider larger projects? Reduces local value...
- Solar developer must negotiate the use of project site, contract with host (AE not a party to agreement)
- AE may facilitate relationships between developers and interested hosts (e.g., “solar speed dating” event)



# Phase 2b- RFP for Solar Developers to develop customer-hosted PPA projects

AE's Response to Public Citizen/Sierra Club RFI No. 1-8  
Attachment 4  
Page 190 of 281

## Benefits:

- PPA-based projects take advantage of federal tax credit & MACRS
- Market-driven solution = minimal work for Austin Energy
- Developer takes all development risk
- Achieves lowest prices
- Flexible procurement – can decide if and how many PPAs to pursue
- Agility and ability to execute in a timely manner.
- Standard, turn-key documents will make multiple projects possible to execute quickly.
- Customer-sited projects better integrated into the “community”
- Several large customers have voiced interest in hosting; positive customer relationship opportunity



# Phase 2b- RFP for Solar Developers to develop customer-hosted PPA projects

AE's Response to Public Citizen/Sierra Club RFI No. 1-8  
Attachment 4  
Page 191 of 281

## RFP/Executed PPA Timeline (DRAFT):

<u>Oct 21-Nov 14:</u>	RFP & standard PPA development
<u>Nov 15, 2015:</u>	Issue RFP
<u>Nov 22, 2015:</u>	Pre-proposal Meeting & Solar Speed
<u>Dating</u>	
<u>Dec 15, 2015:</u>	Proposals Due
<u>Dec 16-31, 2015:</u>	Evaluation of proposals
<u>Jan 4-8, 2016:</u>	Clarifications / mtgs w/vendors
<u>January 15, 2015:</u>	Winners selected, PPAs ready to sign
<u>January 18-19, 2016:</u>	RCA at EUC and RMC
<u>March XX, 2015:</u>	RCA at Council, Approved
<u>March 31, 2016:</u>	PPAs signed

<u>Summer 2016:</u>	Project Development & Customer
---------------------	--------------------------------





# Phase 2b- RFP for Solar Developers to develop customer-hosted PPA projects

## RFP Evaluation Criteria (for discussion):

- PPA Price - 25 year, no escalator [REDACTED]
- Public Visibility [REDACTED]
  - *How exactly to define? Literal visibility of panels, or highly “visible” host?*
- Community Partnership Value – Key Account, Non-Profit Host (e.g., schools), Affordable Housing, MF properties, “green” master planned community, commercial REITs [REDACTED]
  - *Thoughts on how/if to assign partnership value (e.g., school better than Key Account?)*
- Financial strength of respondent [REDACTED]
- Local installer [REDACTED]
  - *Small bonus for local installer, or developer/other partner?*
- Project subject to interconnection review [go/no go criteria]





# Phase 2b- RFP for Solar Developers to develop customer-hosted PPA projects

## Action Items:

- Develop PPA Template
  - *Does EMO have a PPA that would be a good starting point to use as template?*
- Development of RFP
  - Plan to issue through EMO, not purchasing
  - Will include Standard PPA language w/RFP
- Identify interested host sites
- Schedule/facilitate solar developer/site host introductions (e.g. “speed dating” event)

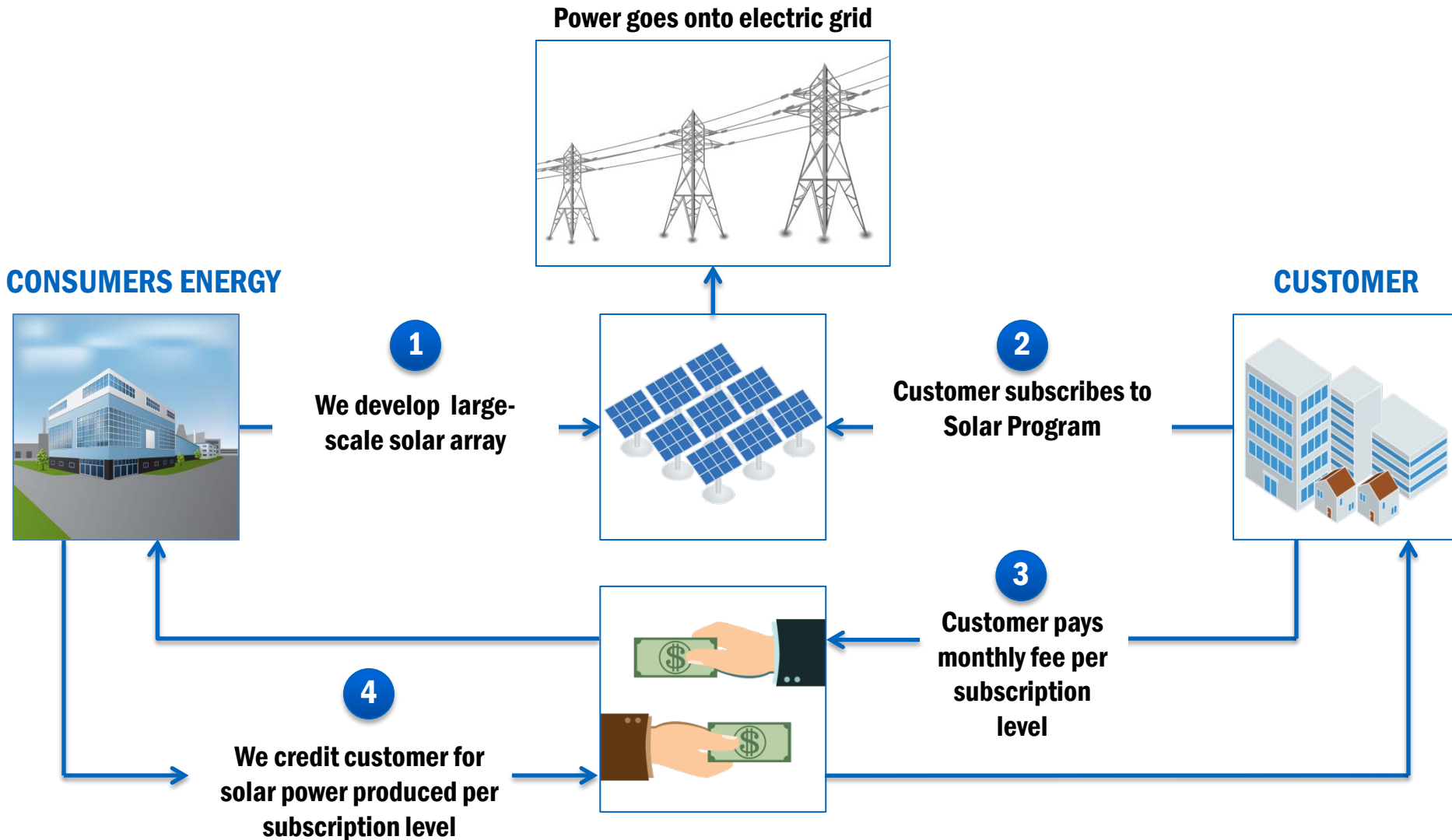
# Consumers Energy Solar Park Program

*January 2015*



**Consumers Energy**  
*Count on Us*

# What is a Solar Park?



# Benefits of a Solar Park Program

3

- Cost-effective solar energy for interested customers
- Roofs not required
- Leave being an energy expert to Consumers Energy
- Flexibility to meet your needs

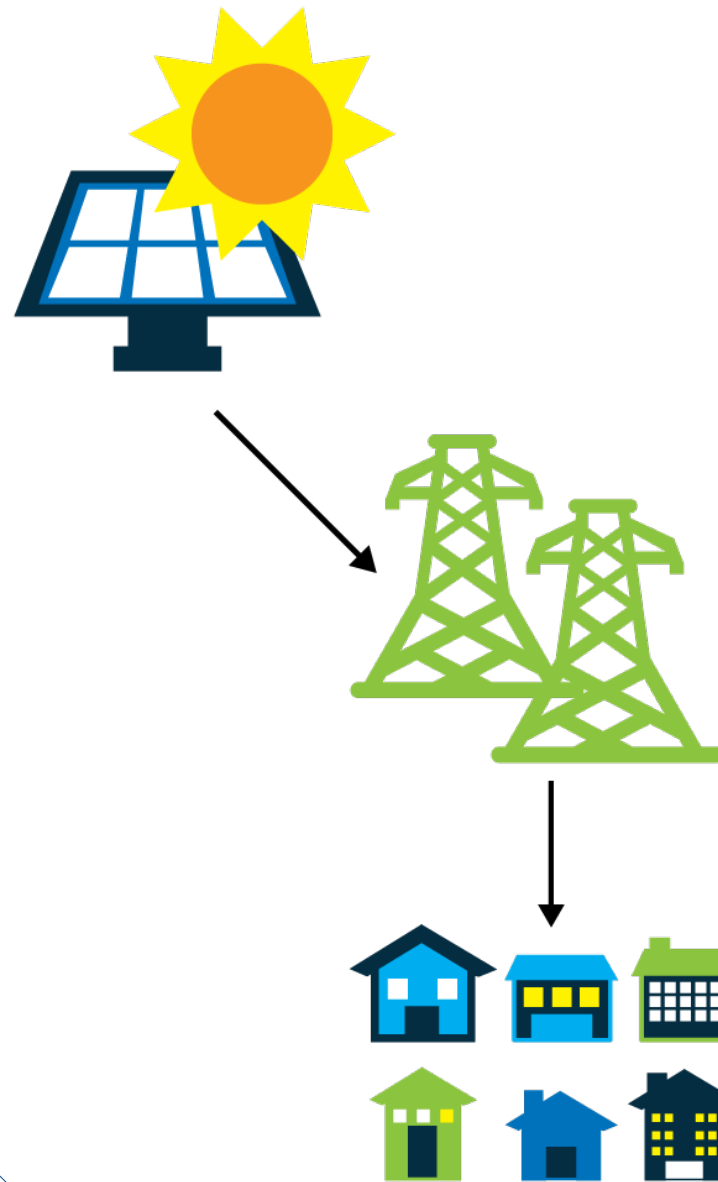


Customer receives all the benefits of solar energy without the need to become an expert.

416

# How it will work

1. Consumers Energy will select sites for the Solar Park
2. Interested customers enroll prior to construction, ensuring fully-committed Solar Park
3. Flexible payment plans offered to subscribers at time of enrollment
4. Once fully subscribed, Solar Park built within one year
5. Once Solar Park is operational, subscription charges and Solar Energy credits applied to monthly bill



# Timeline

5

- **Solar Park Program Proposal Timeline**

- Jan. 23 – MPSC filing
- April – Projected MPSC approval
- Mid-2015 – Online application available to customers
- 2016 – Solar Parks operational
  
- Solar Park Website coming soon





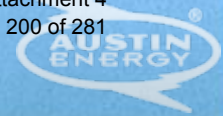


# Value of Solar Update



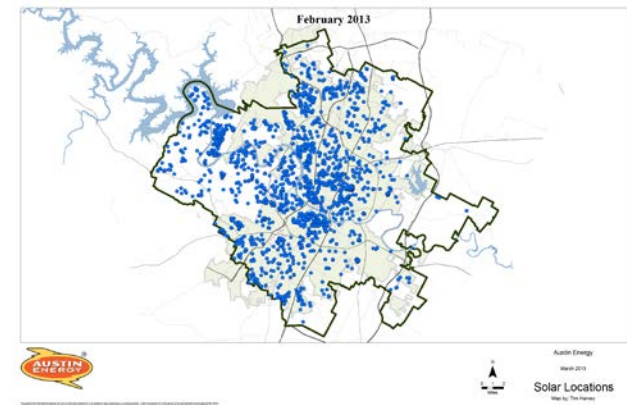
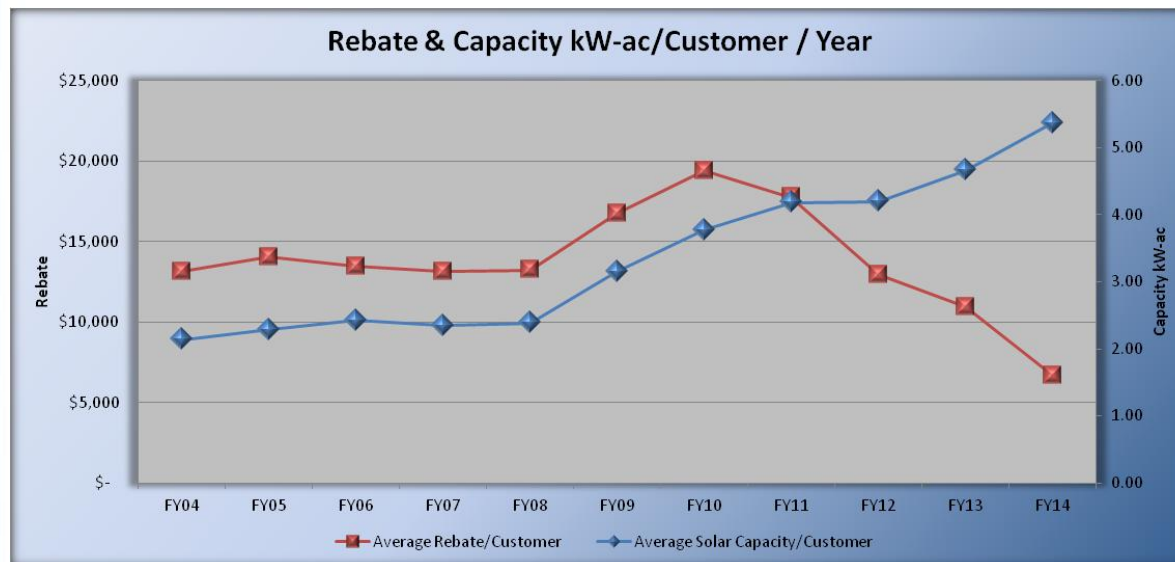
Emerging Technology and Telecommunications (ETT) Committee January 15, 2014  
Debbie Kimberly, Vice President, Customer Energy Solutions

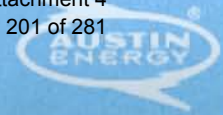




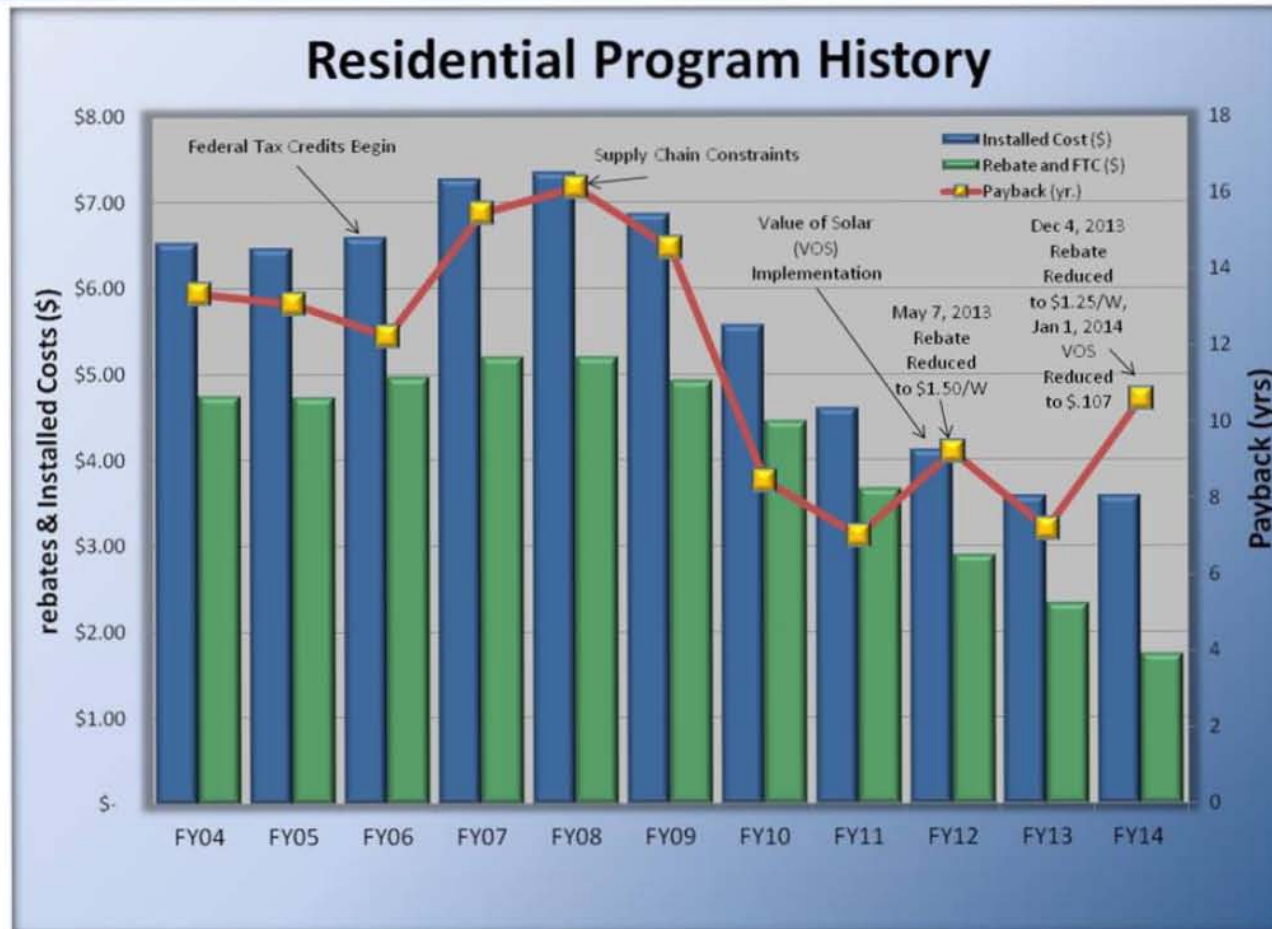
# AE Solar Customers

- The average “whole house” consumption for an Austin Energy solar customer is 16,900 kWh per year (average AE customer is 12,000 kWh annually)
- The average AE solar array is approx. 4 kW-ac
- Average annual PV system production is 6,182 kWh
- Average upfront incentive is \$13,600 (see graph) but trending downward while system size is trending up

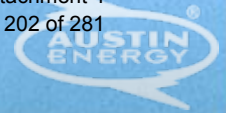




# Installed Costs, Rebates and Payback



- Payback with \$1.25/watt rebate and VoS @ 10.7¢ is ~10 years
- Average payback over program history is ~12 years



# VoS Overview – Rate and Sweep

- AE developed the Residential Solar rider as alternative to net metering
- VoS reflects current market conditions and is reset annually

#1

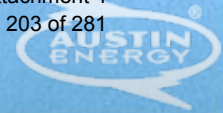
*'The Value of Solar Factor shall initially be \$0.128 per kWh and shall be administratively adjusted annually, beginning with each year's January billing month, based upon the marginal cost of displaced energy, avoided capital costs, line loss savings and environmental benefits.'*

- **Staff believes formula valid, will review enhancements**

#2

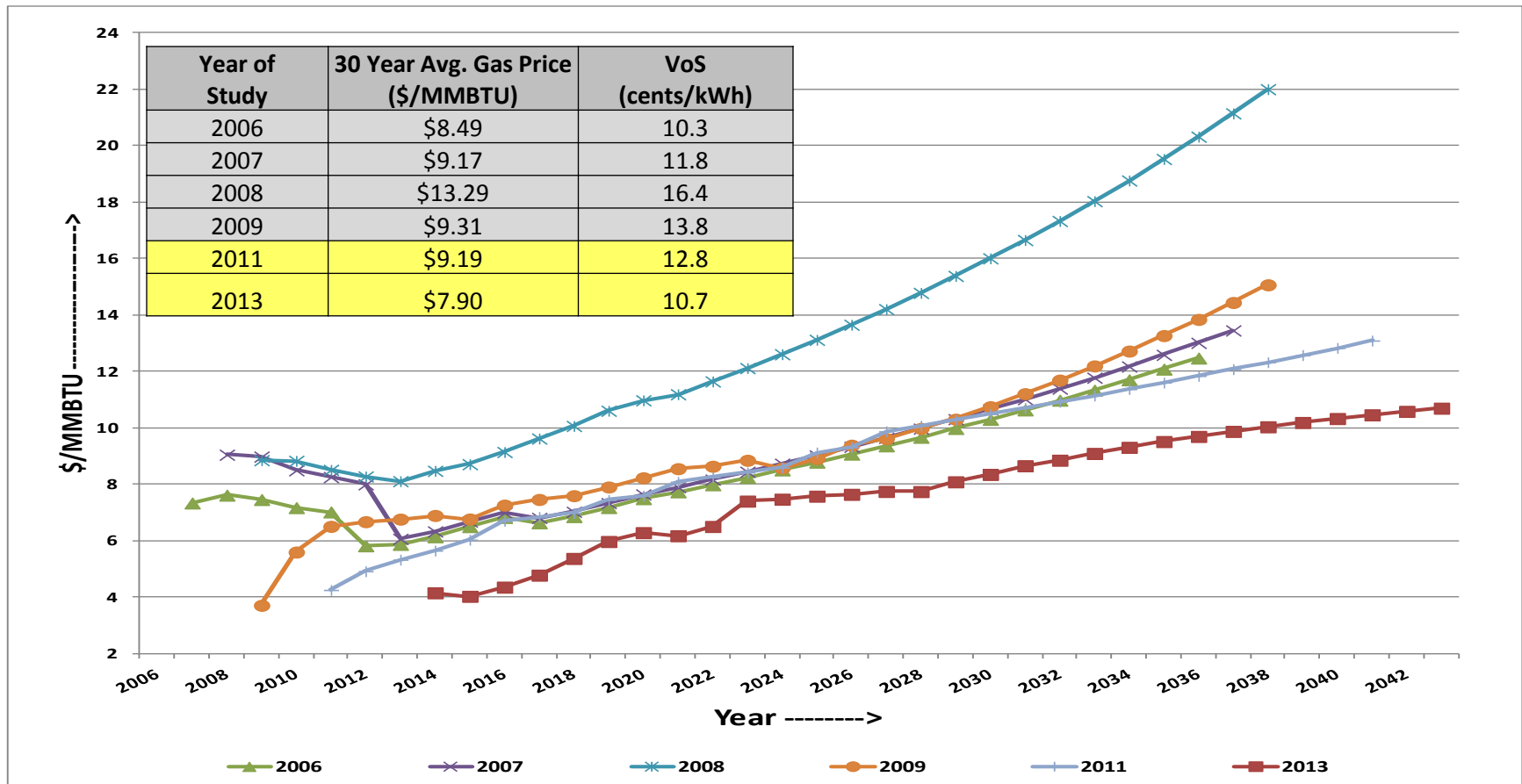
*... the customer's carry-over credit, if any, shall be reset to zero in the first billing month of each calendar year.'*

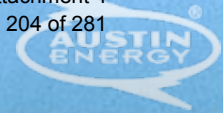
- **Staff believes this should be changed**



# Issue #1: Solar Value

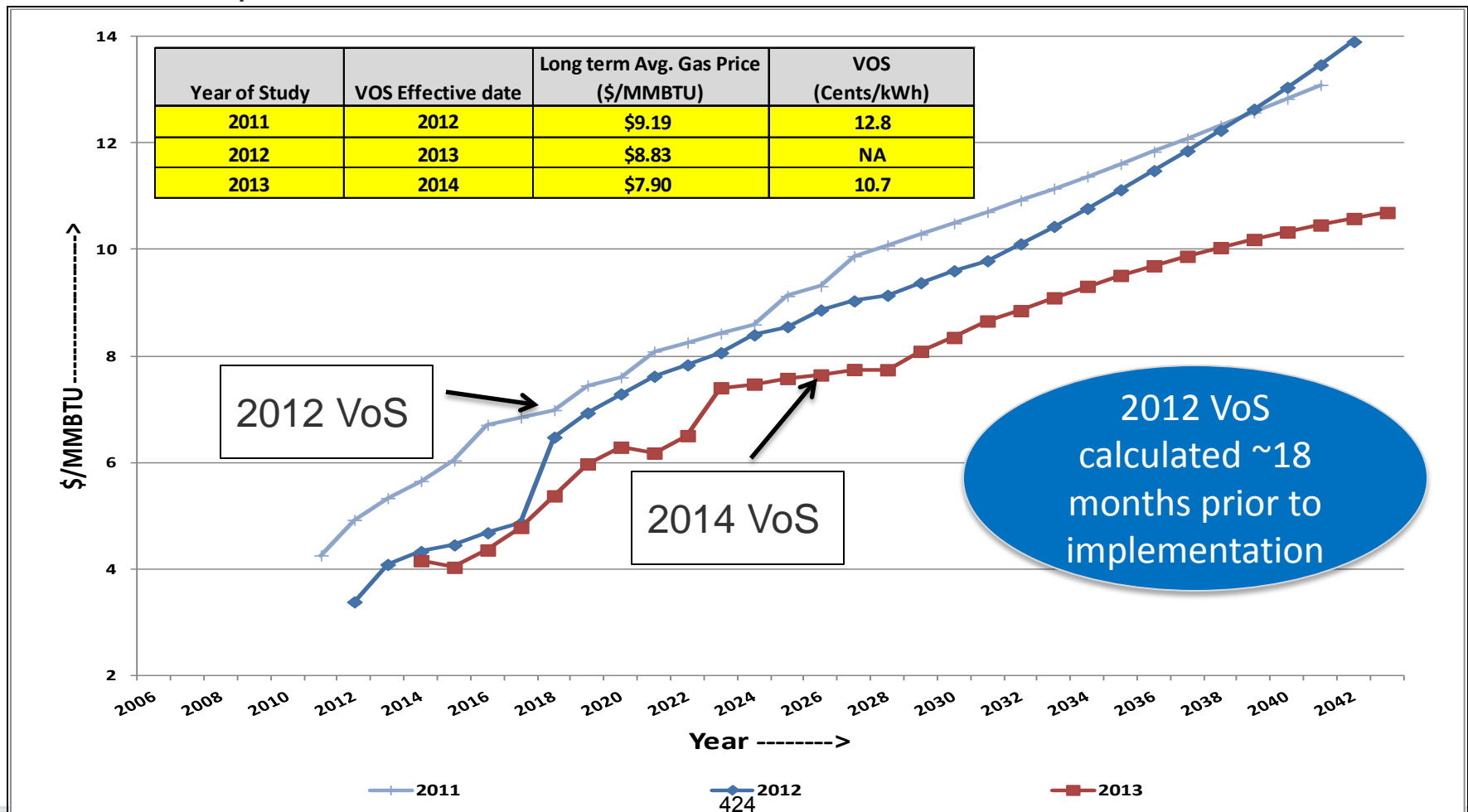
- The VoS and the future price of natural gas trend with one another
- Other components also influence the result



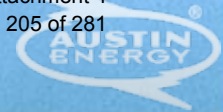


# Future Natural Gas Prices and the VoS

- The VoS and the future price of natural gas generally trend with one another
- Other components also influence the result

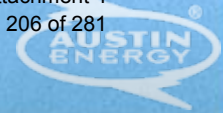






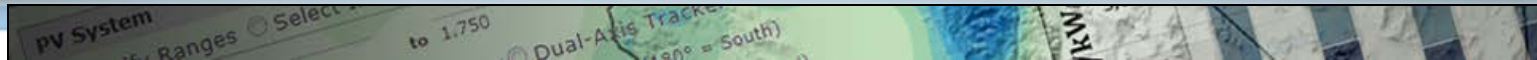
# 2013 VoS Review

7/23	Contract with CPR/Dr. Tom Hoff – performed original study
9/26	Hoff presentation to AE staff on preliminary results
10/1	VoS update included in CC&B rate work to be completed by Jan. 1
10/16	AE Meeting with LSAC – Discussed VoS results being finalized, would be presented to Joint EUC/RMC meeting
10/17	Solar contractor meeting - AE informed contractors VoS would be lower, and would be presented at the joint EUC/RMC meeting
10/21	Hoff presentation of results to AE Executive Team
10/21	Hoff presentation on VoS to joint EUC/RMC meeting
10/22	G.M. memo to Council and Commissions announcing VoS change
11/21	New VoS announced to contractors at monthly meeting
12/6	Press Release & January PowerPlus article
12/6	Letters to Customers
12/13	Executive summary from Hoff completed and distributed to Council and Commissions
12/16	Presentation to EUC
12/18	COA Legal memo to Council re: conformance to legal requirements



# Value of Solar Update

*Excerpted from CPR Summary as of October 16, 2013*



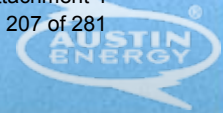
## Objective

- Calculate long-term value of solar to Austin Energy
- This information will be used by Austin Energy as input for the basis of a rate offered to customers
- Rebates are not included in the analysis
- Societal benefits are not included in the analysis

Prepared by Clean Power Research for Austin Energy

2



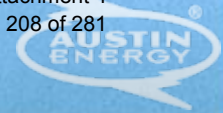


# Value of Solar Update

*Excerpted from CPR Summary as of October 16, 2013*

## Value of Solar Components

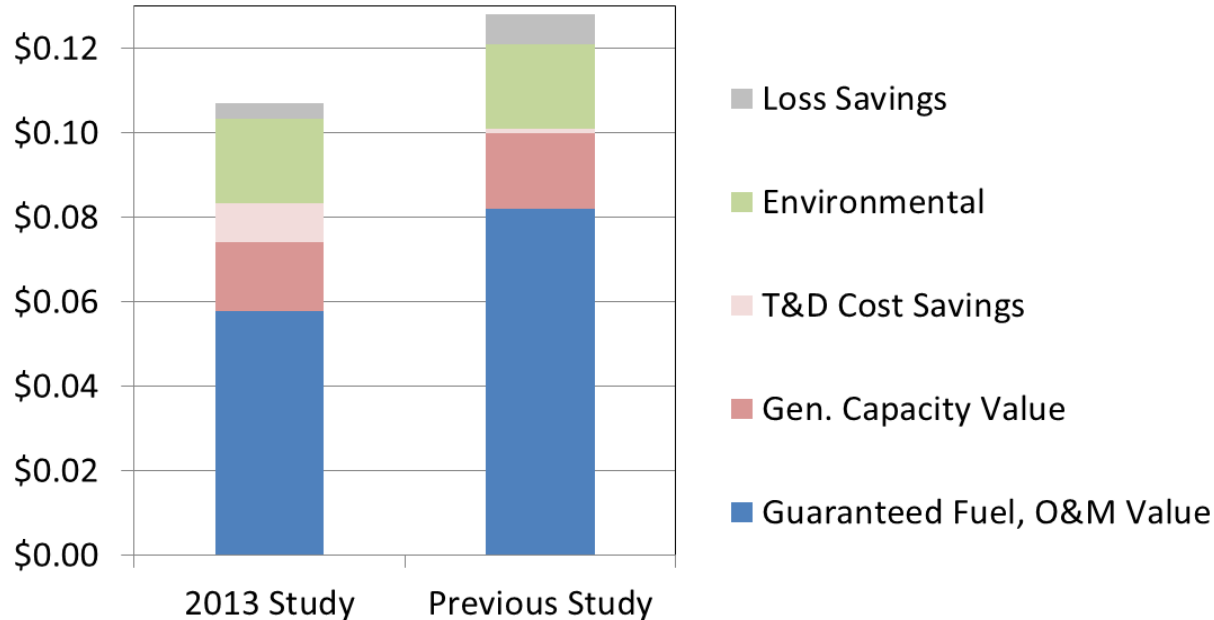
Value Component	Basis
Guaranteed Fuel Value	Cost of fuel to meet electric loads and T&D losses inferred from nodal price data & guaranteed future NG prices
Plant O&M Value	Costs associated with operations and maintenance
Generation Capacity Value	Capital cost of generation to meet peak load inferred from nodal price data
Avoided T&D Capacity Cost	Cost of money savings resulting from deferring T&D capacity additions.
Avoided Environmental Compliance Cost	Cost to comply with environmental regulations and policy objectives.



# Value of Solar Update

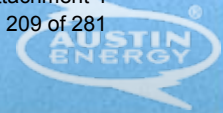
*Excerpted from CPR Summary as of October 16, 2013*

## How Do Results Compare to Previous Study?



Prepared by Clean Power Research for Austin Energy

4



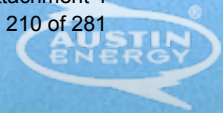
# Value of Solar Update

*Excerpted from CPR Summary as of October 16, 2013*

## Why Have Results Changed?

- Natural gas prices have declined
- Assumed system life aligned to warranty period (25 vs. 30 years)
- Loss savings are slightly lower
- Transmission savings results have increased
- Methodology has been refined for ERCOT market

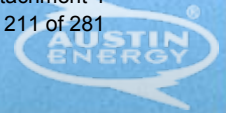
# VoS Methodology – Avoided Cost Model



## ● Methodology has remained consistent

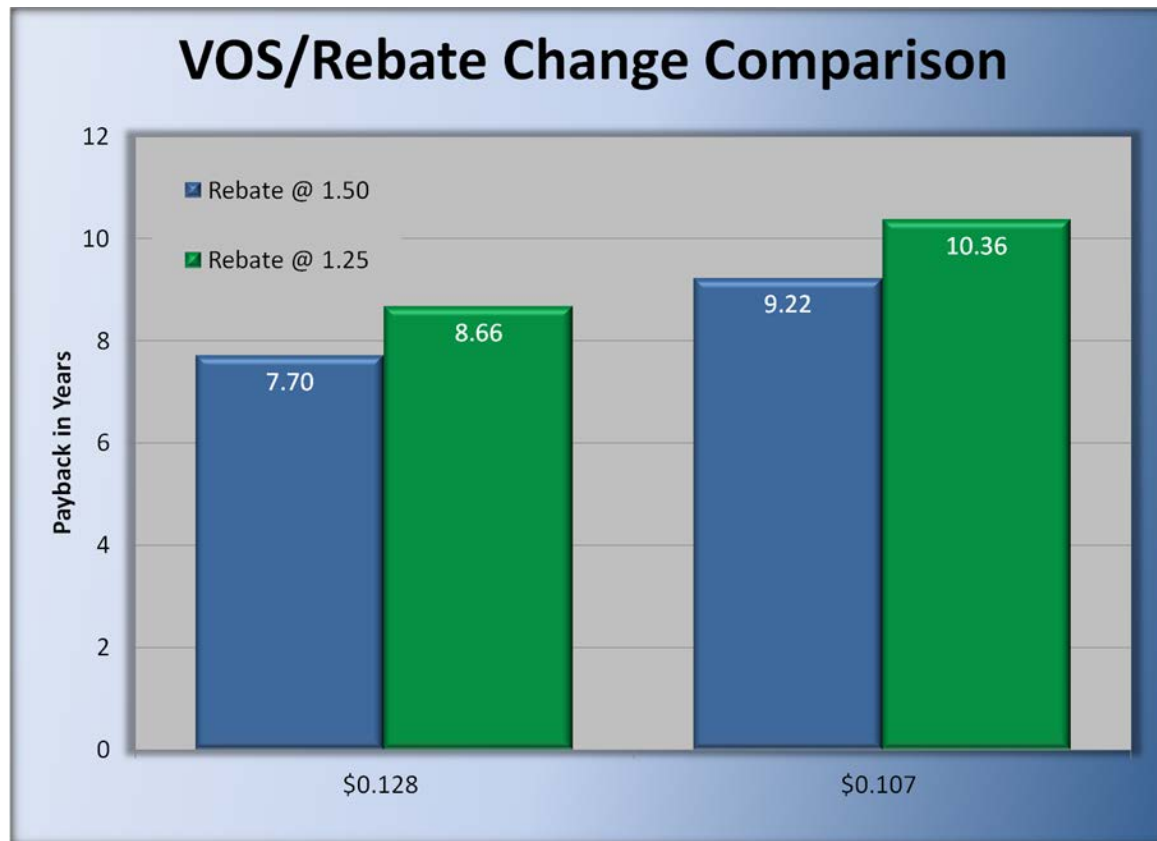
- PV fleet data from AE's actual fleet rather than modeled representation
- Refinements to reflect current nodal market structure
- “Energy Value” renamed “Guaranteed Fuel Value” because this clarified fact that it includes protection from fuel price uncertainty
- Increased transmission savings
- Reduced discount rate to account for changed in interest rates
- Assumed system life changed from 30 to 25 years
  - 20 - 25 yr panel warranty, 10 yr inverter warranty – industry standard
- Retained 2006 value for environmental (did not use REC values)

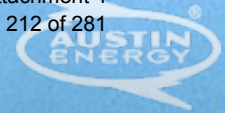
*“Several methodological advancements were made” - Dr. Tom Hoff*



# Impact on Payback

- Payback a function of VoS, Rebates, FTC
- Payback for new AE solar customers impacted similarly by change in rebate and VoS
- Change in VoS results in average customer receiving \$130 less per year

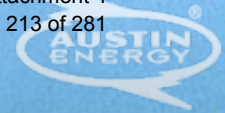




# VoS Benefits vs. Net Metering

- Austin Energy charges for full cost of service
  - Solar residential customer subject to same billing structure for consumption and applicable charges and adders as other residential customers
  - Solar customer can easily assess their total energy consumption
  - Five tier rate encourages energy efficiency
- Customer compensation tied to objective “Value of Solar” formula
  - Solar customer is compensated for energy production based on algorithm that is adjusted yearly as market values change
  - Solar energy production value does not decrease if customer saves energy
  - Low and high energy users compensated for solar energy production the same

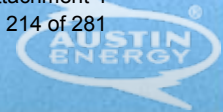




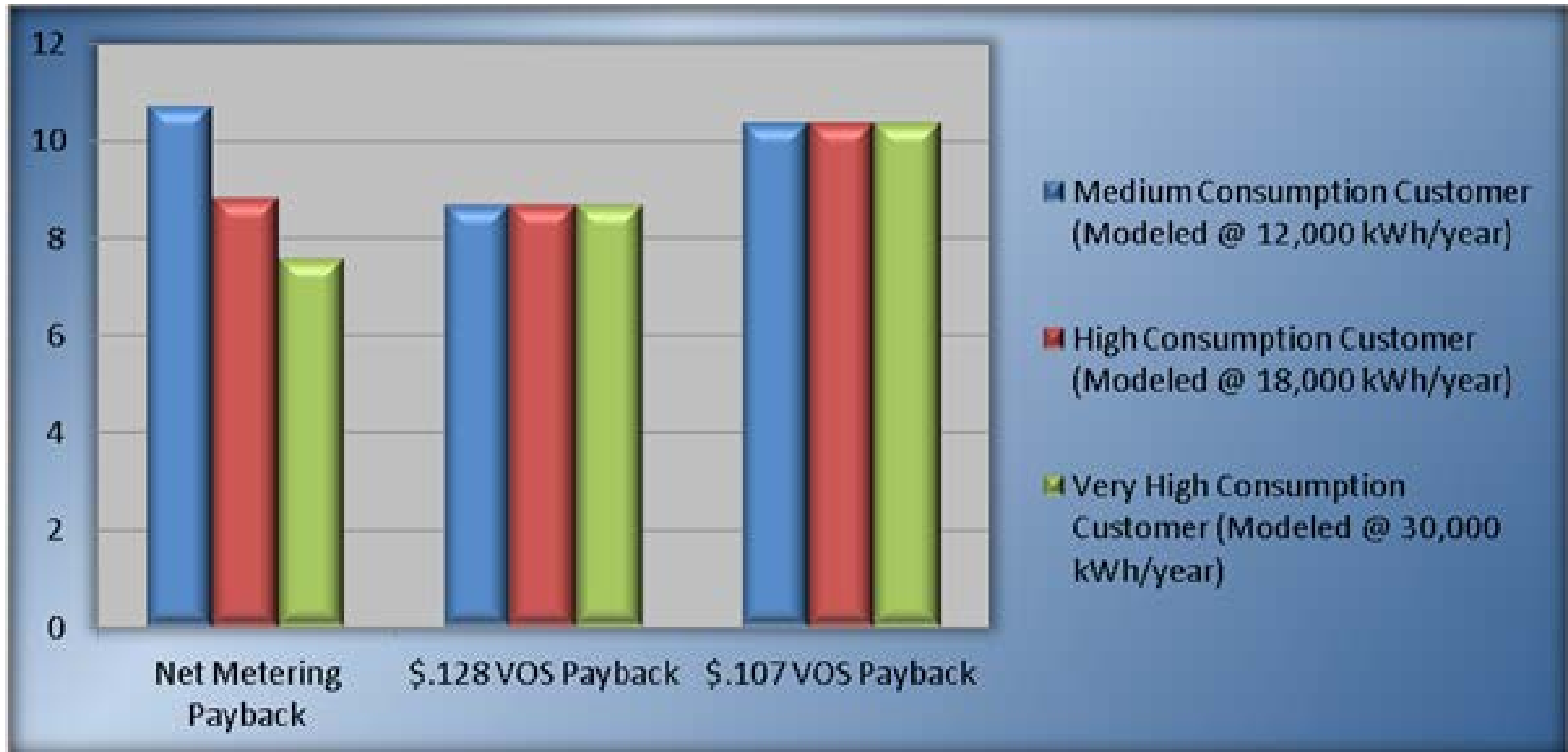
# Net Metering In a Tiered Rate Structure

## Under net metering:

- Customers with higher consumption are compensated at a higher value per kWh than customers in lower tiers
- Customers with lower levels of consumption are compensated at a level below the value of the energy to the system
- Customers with higher levels of consumption are compensated at a level above the value of the energy to the system
- The utility under-recovers the cost of service, having to spread that cost across all customer
- Under a tiered rate structure, the signal sent to customers is that production offsetting higher tiers of consumption is more valuable to the utility

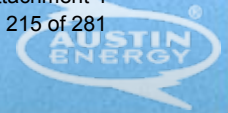


# Customer Payback- VoS and Net Metering



Payback is shorter for high consumption customers under net energy metering than VoS at 10.7¢, payback is longer for “average” customers

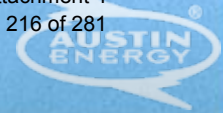
\*Projected net metering payback for customers inside City of Austin under current retail rate



## Issue #2: Credit Carryover Potential Tax Implications of VoS

Payments from utility to a customer for electric output could be construed as taxable income under the federal tax code

- IRS : a “non-refundable credit” is a credit that can reduce or eliminate liability but cannot result in a net gain to the taxpayer
- AE’s VoS designed so benefit to customer is a nonrefundable credit.
  - Limit VOS “payment” to the customer to a credit against the customer’s bill, and
  - Ensure credit never exceeds 100% of the customer’s billed consumption
- Any utility program that appears to generate net financial gain to the customer increases possibility that the customer could lose benefit of the 30% federal tax credit or be construed as taxable gross income

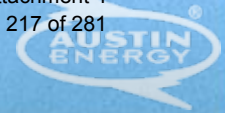


# Impact of VoS Credit Sweep

Approx. 15% of solar customers had excess credits

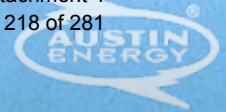
- Total # of solar customers- 2,587
- Customers with balance swept- 391
- Total swept ~ \$67,000, deposit to CAP
- Average amount swept \$170





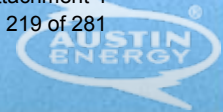
# FY14 Solar Program Review

- FY13 excess credits applied to Customer Assistance Program
- Amend rider to allow for non-refundable rollover
- Develop multi-year analysis of requirements to achieve goal(s)
- Provide information to customers to assist in proper system sizing
- Consider removing/revising VoS & program caps to ensure incentive program aligns with Residential Solar Rider
- Provide Customer more surety on return on investment – e.g. possible floor on VoS, fixed term of 5-10 years
- VoS to be included in budget review process
- Augment with other solar program enhancements
  - Community solar- RFP this January
  - Solar leasing?
  - Solar tariff?



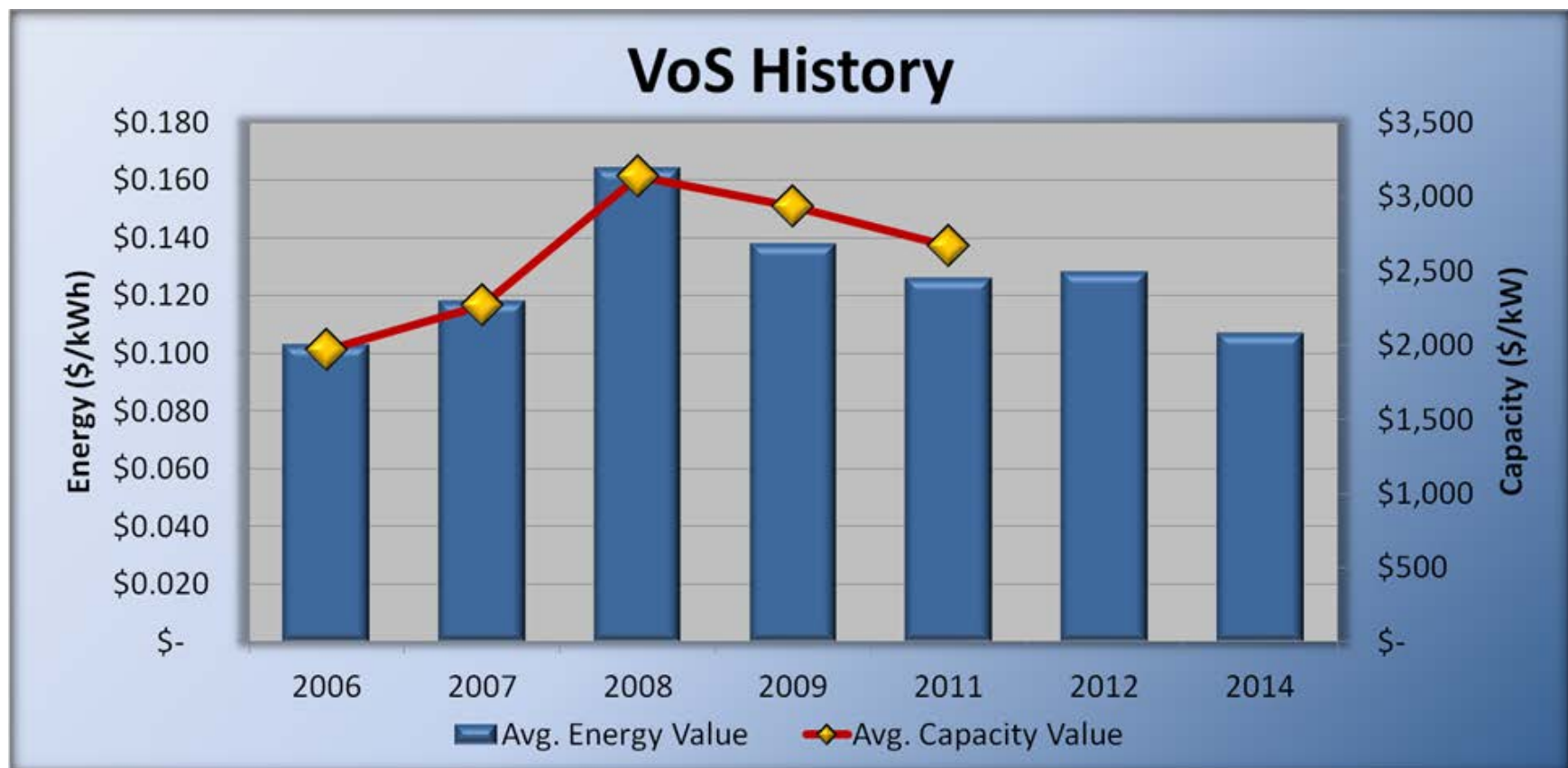
# Questions?

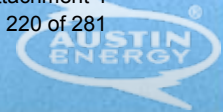




# Issue 1: Solar Value

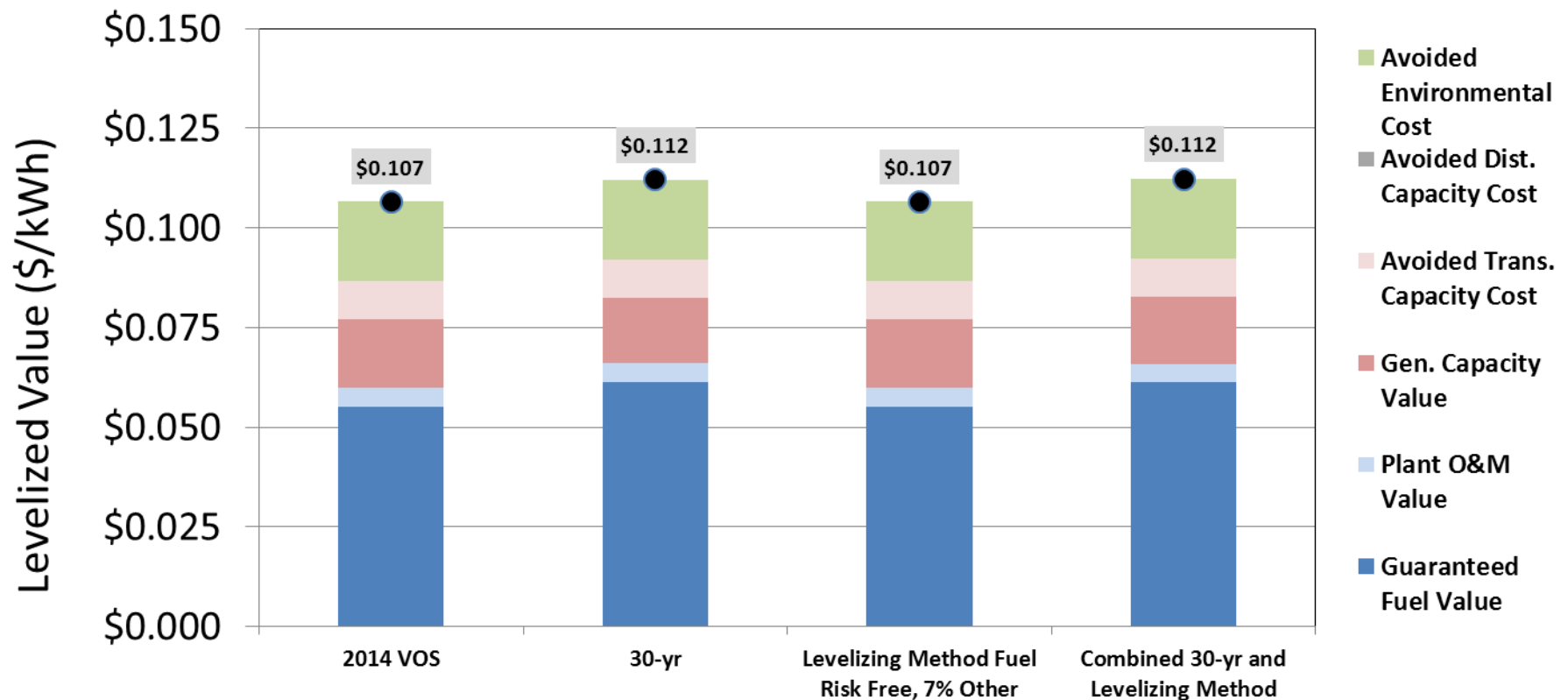
## VoS values for energy and capacity

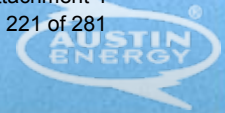




# VoS Assumptions

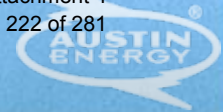
- Levelizing Method has negligible impact due to equivalent denominator (KWh) discount
- Extending from 25 to 30 years increases VOS primarily due to fuel escalation value increasing faster than risk free discount rate over the addition 5 years





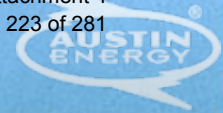
# Background

- AE retained Clean Power Research (CPR) to assist with the VoS methodology resulting in a VoS of \$0.128 per kWh
- Residential Solar Rate designed as a non-refundable credit with annual zeroing out of credits so as not to create taxable income for customers
- No change in VoS and no credit sweep in January 2013
- Summer of 2013 CPR is awarded a contract to update the VoS for 2014
- The CPR scope of work includes a comprehensive overview of VoS components and methodology to ensure the VoS is reasonable and accurately reflects current ERCOT nodal market conditions
- Detailed overview provided by CPR to a joint EUC/RMC meeting on October 21, 2013 and memo to Council, EUC and RMC on October 22, 2013



# Residential Solar Rider

- The Residential Solar Rider was developed for the following reasons:
  - Net Energy Metering (NEM) does not reflect the true cost of serving solar customers
  - NEM in combination with tiered rate structures provides variable valuation of solar generated electricity (higher consumers offset higher tiered rates)
- Customers would begin paying a electric bill reflecting their “whole house consumption” and then credited for solar production at VoS
- The VoS methodology used a preliminary analysis reflecting the nodal ERCOT market
- The VoS would leave AE cost neutral whether energy was provided through the ERCOT nodal market or the residential solar customer
- VoS was developed as a “non-refundable credit”
- ALL residential solar customers migrated from DG from Renewable Sources Rider to the Residential Solar Rider on October 1, 2012

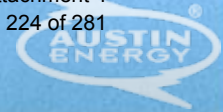


# VoS Methodological Changes

“Several methodological advancements were made”- Dr. Tom Hoff

1. Analysis using PV fleet data from AE’s actual fleet rather than a hypothetical single-location PV system
2. Rather than use historic (only 2 years data) ERCOT nodal pricing, use implied hourly forecasted heat rates for 2014- 2022 to determine weighted heat rate for ERCOT nodal prices, compare to solar and baseload plants to determine the solar weighted heat rate, effective capacity and capacity cost
3. The value component *Energy Value* from the previous studies was renamed Guaranteed Fuel Value because this clarified the fact that it included protection from fuel price uncertainty.
  - a. Use risk free discount rate and guaranteed future natural gas prices
4. The value component *Plant O&M Value* was listed separately.
5. Previous studies identified *Loss Savings* as a separate value component. Since loss savings magnify the other value components, this study presents loss savings as a multiplier of other value components rather than as a separate value component.





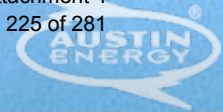
# VoS Methodology

- City Legal asserts that State law and the City Charter were followed, as administrative adjustments to the VoS were consistent with administrative adjustments to other fees and charges outside the budget process for other City departments
- Specific to the VoS methodology-
  - The calculation of the Guaranteed Fuel Value\* is analytically consistent with other VoS calculations done by AE since 2006
  - The assumed life was changed from 30 to 25 years
  - Changes to make the methodology more applicable to Nodal market
  - Loss savings now a multiplier as part of other value components rather than being listed as separate value component
  - Analysis using PV fleet data from AE's actual fleet rather than a hypothetical single-location PV system

\*

Referred to as the "Energy Value" in previous VoS studies



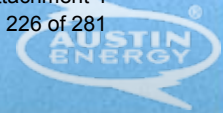


# VoS Assumptions

- Levelizing Method has negligible impact due to equivalent denominator (KWh) discount
- Extending from 25 to 30 years increases VOS primarily due to fuel escalation value increasing faster than risk free discount rate over the addition 5 years

## 2014 Value of Solar Results and Key Sensitivities

	2014 VOS	30-yr	Levelizing Method Fuel Risk Free, 7% Other	Combined 30-yr and Levelizing Method
	(\$/kWh)	(\$/kWh)	(\$/kWh)	(\$/kWh)
Guaranteed Fuel Value	\$0.055	\$0.061	\$0.055	\$0.061
Plant O&M Value	\$0.005	\$0.005	\$0.005	\$0.005
Gen. Capacity Value	\$0.017	\$0.016	\$0.017	\$0.017
Avoided Trans. Capacity Cost	\$0.010	\$0.010	\$0.010	\$0.010
Avoided Dist. Capacity Cost	\$0.000	\$0.000	\$0.000	\$0.000
Avoided Environmental Cost	\$0.020	\$0.020	\$0.020	\$0.020
Fuel Price Guarantee Value	\$0.000	\$0.000	\$0.000	\$0.000
	\$0.107	\$0.112	\$0.107	\$0.112
	445			



# Value of Solar Update Comparison

VOS Components	2011 Update	2013 Update	% Change
Guaranteed Fuel Value	0.085	0.0550	-23%
Generation Capacity Value	0.015	0.0220	5%
Avoided T & D Cost	0.001	0.0100	7%
Avoided Environmental Cost	0.027	0.0200	-5%
<b>Total</b>	<b>0.128</b>	<b>0.107</b>	<b>-16%</b>



## Corporate Communications

### Kingsbery Community Solar Project Communications/Public Outreach Plan

#### Background

In October 2014, the Austin City Council approved an up to 3.2 megawatt community solar project adjacent to the Kingsbery substation northeast of Springdale Road and Airport Boulevard in East Austin. The purchase power agreement with local solar company [PowerFin Partners](#) is for 25 years.

The project helps fulfill requests by many members of the community who want to participate in a solar program but are not able to install solar panels on their roofs. Regardless if residents live in apartments, downtown condominium hi-rises or homes shaded by trees, they will be able to subscribe to clean, renewable energy from the sun.

The project will be one of more than 50 in 17 states often referred to as shared renewables or community solar, according to the [Solar Energy Industries Association](#). Community solar in this country includes programs offered by electric cooperatives, investor-owned and municipally owned utilities. Public power utilities similar to Austin Energy with community solar offerings include Salt River Project, Sacramento Municipal Utility District, Orlando Utilities Commission, and Seattle City Light.

The project site will be near the former 52-acre tank farm that produced outrage in East Austin. Six oil companies stored millions of gallons of gasoline in more than 30 above-ground tanks. Spills and odors prompted residents – some living just a few hundred feet from the tanks – to demand that the site be closed as a threat to public health. PODER, led by Suzanna Almanza, and the East Austin Strategy Team, led by Ron Davis, spearheaded a successful community-based effort to remove the tank farm facilities, to clean the land to residential standards, and to rezone many East Austin properties to prevent future heavy-industrial uses.

In 2012, partners Richard deVarga and Robert Summers purchased the cleaned site and began the process to rezone the property to allow the mixed-use vision of [thinkEAST](#). thinkEAST's mission is to use sustainable, modern architecture to foster engagement and to stimulate growth and diversity in East Austin's economy, culture and community.

#### Challenges/Opportunities (Key Issues)

- Little to no outreach was done in the community before approval of the solar project. Current public sentiment for the project in the area is unknown.
- No public opposition to the project has surfaced to date. Initial interactions with community have been positive.
- Transmission lines, the substation, railroad tracks, a drainage easement and a gas line running through the property make it largely undevelopable for residential and commercial use.
- The site is the subject of a documentary ["La Loma"](#) that chronicles how students cross the property to school.
- The 78721 ZIP Code is 53% Hispanic, 32% African-American and 13% White. 71% of the residents live in single-family homes with 50% living in own homes and 49% in rental homes. 33% of residents live below poverty level.
- Schools are an important part of the neighborhood's identity including Eastside Memorial High School and its eight elementary and one middle feeder schools. Ortega Elementary is located one block north of the site, Govalle Elementary about a mile west of the site, and Eastside Memorial HS is a half mile SE of the site, separated by railroad tracks and the East Boggy Creek Greenbelt.
- City departments and other agencies such as the Economic Development Department's Cultural Arts Division, PARC, Library, Public Works, and Capital Metro are potential partners.

- There may be a distrust of government projects in an area that received an inordinate amount of industrial uses compared to other areas of the city. Because of the tank farm, residents in the area are skilled at organizing.
- The community solar project will be a quiet, clean neighbor in an area that once included the toxic tank farm.
- Battery storage for project will make the community unique for progressiveness in new, clean technology.

### Goals (What we want)

- To enlist the neighborhood and its schools and organizations as partners in the project and for the project to reflect their input and identity.
- To create a project that responds to community needs.
- To gather support from our partners to ensure there are no delays in the planning and permitting process nor at Boards and Commissions or by elected officials.
- To complete the project on schedule after groundbreaking with no delays due to issues not addressed in the neighborhood or with appointed or elected officials.
- To create a process for continuous communication with the community before, during and after construction.
- To develop the project as the model for community solar in the Austin area.

### Audiences (Who can get it for us or keep it from us)

<p><b>Government</b>  Austin City Council  Councilman Pio Renteria  City Manager  Austin Independent School District  Capital Metro  Public Works  Travis County Health &amp; Human Services  Travis County Commission</p> <p><b>Boards &amp; Commissions</b>  Planning Commission</p> <p><b>Schools/Education</b>  Eastside Memorial High School  Martin Middle School  Ortega Elementary  Govalle Elementary  Allison Elementary  Brooke Elementary  Metz Elementary  Zavala Elementary  Huston-Tillotson University  Austin Community College</p>	<p><b>Neighborhood Associations</b>  Springdale-Airport Neighborhood Association  MLK Neighborhood Association  East MLK Contact Team</p> <p><b>Organizations</b>  thinkEast  Fusebox  Forklift Danceworks  Eastside Community School Alliance  Austin Voices for Education &amp; Youth  Austin Partners in Education  Communities in Schools  Goodwill Central Texas  LifeWorks  Any Baby Can  Texas AgriLife Extension Service (Nutrition)  Seedling Foundation  Sylvan Learning Centers  YWCA of Greater Austin</p> <p><b>Environmental Organizations</b>  PODER  ATX Environmental Justice  Solar Austin  Sierra Club  Public Citizen  EDF</p>
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### Messages (What we will say repeatedly)

- The community solar project is a quiet, clean and green neighbor – no pollution and no noise.
- The project will bring clean, green energy, rather than the dirty industry of the past.

- Battery storage will differentiate the area as the innovator in clean technology, while providing better power quality to the neighborhood.
- Community solar promotes equity because it makes solar available to everyone.
- Community solar will not affect rates although residents can pay a little extra to subscribe to the program.
- Community solar helps provide solar in all areas of the community not just in areas that can afford private, rooftop installations on their homes.
- Community solar projects will be built throughout the Austin metropolitan area.
- The project will increase safety, improve access to schools and trails, and reflect the culture of the community.
- The community solar project will promote STEM education and other educational initiatives in the community.

#### Channels (How we will reach the audiences)

Date	Channel	Audience	Owner
Fall 2014	Program design survey	AE customers; potential participants	Murray/Baise
Fall 2014	Program design survey by Solar Austin	Solar Austin members; potential participants	Solar Austin
April 10-12, 2015	Booth at ThinkEAST; community survey	Neighborhood residents	Murray/Cullick/Cordova
May 27, 2015	Meeting with PODER	PODER organizers/members	Cullick/Murray/Rivas
June-July 2015	Meetings with developer of community solar	Internal	Cordova/Murray
July-Aug 2015	Meetings with thinkEAST developers	Internal	Cordova/Murray
July-Aug 2015	Meetings with A.I.S.D. Trustee	Internal	Cordova/Murray/Vice
July-Aug 2015	Meetings with Council Members	Internal	Cordova/Murray/Vice
July-Aug 2015 (monthly)	Meetings with Eastside Alliance	Stakeholders	Cordova/Murray/Wisner
July-Aug 2015 (monthly)	Coordination meetings with City Departments	Internal	Cordova/Murray/Wisner
July-Aug 2015	Create Executive champion team	Dreyfus, Kimberly, Smith	AE Executive Team
July 2015	Letters of support from partners	Planning Commission	Cordova/Murray/Vice
Summer 2015	Organizational meetings with thinkEAST/Fusebox	Stakeholders	Cordova/Murray/Wisner

August 2015	Host charrette with thinkEAST	Springdale-Airport neighborhood	Cordova/Murray/Wisner/DiLeo/Schooler
September 2015	Host 2 <sup>nd</sup> charrette	Springdale-Airport	Cordova/Murray/Wisner/DiLeo/Schooler
October 2015	Meetings with minority media	Minority Media	Cordova/Rivas
November 2015	Memo to Council on results of charrette	Austin City Council	Murray/Kimberly/Weis/Vice
November 2015	Harvest Fest community event	Eastside Memorial (1,000 attendance)	Cordova/Wisner/DiLeo/Rivas/Rios
Feb. 2016	SXSWedu community outreach	Austin Voices	Wisner/Cowan/Rios
April 2016	STEM Fest community event	Eastside Memorial H.S.	Cordova/Wisner/Cowan
April 2016	thinkEAST/Fusebox Festival	Springdale-Airport/Govalle	Cordova/Wisner/DiLeo/Rivas/Rios
Summer 2016	Targeted marketing to neighborhood for early sign-up	Kingsbery substation service area	Cordova/Murray/ Wisner
July 2016	Tours of construction site	Neighborhood/Council District Member	Cordova/Murray
Sept-Oct 2016	Site Visits with local schools	Ortega, Govalle, Eastside Memorial	Cordova/Murray/Rivas/Rios/Ornelas
Oct. 2016	SXSWeco community outreach	Austin Voices	Wisner/Cowan/Rios
June-July 2017	Create summer solar camp for students	Ortega Elementary School	Cordova/Murray/Rivas/Rios/Ornelas

## Products

Date	Channel	Audience	Owner
July 2015	Create informational Web page for project	Public/Stakeholders	Cordova/Wisner/Web Team
July 2015	Create one-page bilingual information sheets about project	Public/Stakeholders	Cordova/Wisner
August 2015	Create calendar of Social Media posts	Public	Cordova/Wisner
September 2015	Establish bilingual hotline	Neighborhood/Stakeholders	Cordova/Rivas/Contractor
November 2015	Create bilingual neighborhood newsletter	Neighborhood/Stakeholders	Cordova/Rivas/Contractor
January 2016	Create project display boards for public	Public/Stakeholders	Wisner/DiLeo
May 2016	Create calendar of construction tours	Neighborhood/Stakeholders	Wisner
July 2016	Plan groundbreaking ceremony	Stakeholders/Austin City Council/A.I.S.D.	Corporate Communications/Marketing Communications
January – May 2017	Create Solar Camp curriculum	Ortega Elementary	Murray/Cowan/Rios





# Kingsbery Community Solar Project

Karen Poff, Project Manager, Solar Energy Services  
March 9, 2016



# Community Solar Overview

- Community Solar will provide access to solar energy for customers unable to install solar panels on their own homes or dwellings.
  - Renters and homeowners/condo dwellers with shaded roofs
  - Customers unable to make the upfront investment in rooftop systems
- Allows participants to receive the benefits of solar power without actually owning/hosting the solar panels on-site



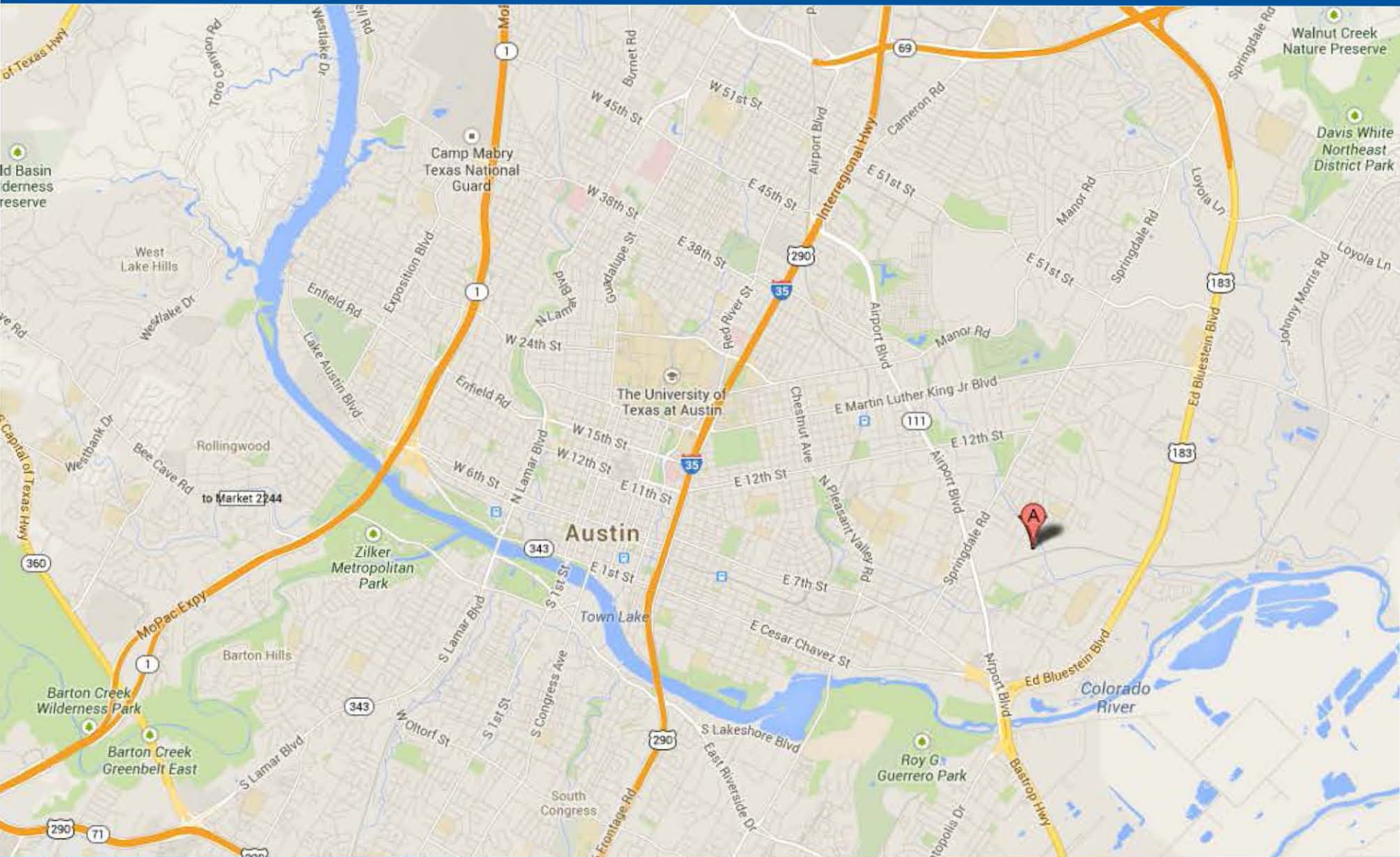
# Community Solar Overview

- Participants subscribe in 1kW increments of solar capacity from the community solar project
- Capacity Model Option: Participants pay a flat fee per kW each month and receive kWh/mo/kW subscribed
- Subscribers receive modified “Value of Community Solar” credit for their production from the system





# Kingsbery Site







# Kingsbery Site





# Kingsbery Renderings

- **2.0 MW-AC project**
- **Project Developer: Power Fin**
- **25 year PPA**
- **Currently in Site Plan Development Phase**
- **Completion: QTR 4 2016/QTR 1 2017**





# Kingsbery Renderings



**A decorative fence is proposed between the Community Solar Project and its nearest residential neighbors. The image also demonstrates what the view would have been with a chain-link fence in place.**



# Kingsbery Renderings



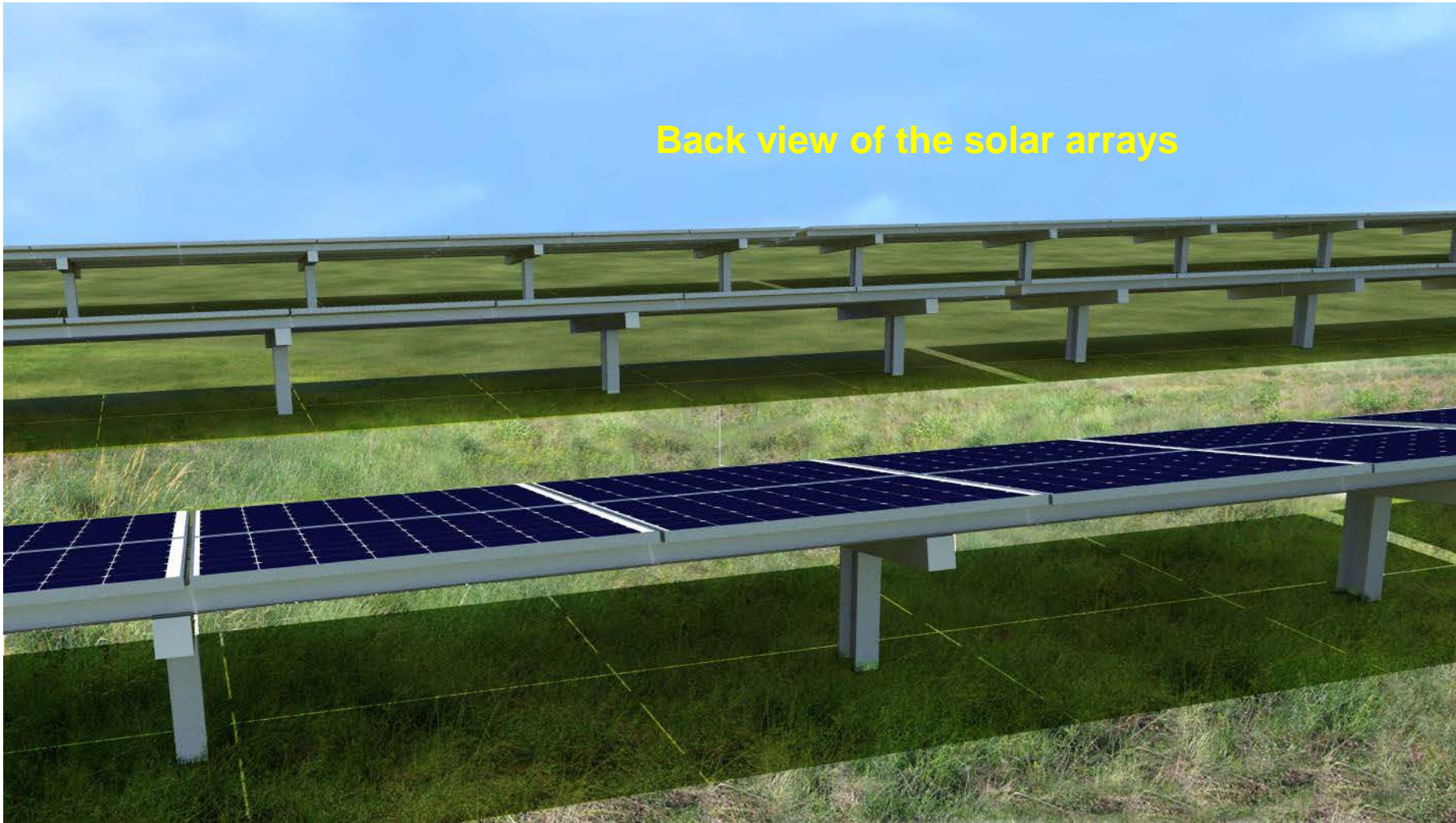
The Educational Area will bring new learning opportunities to site visitors. Placement of the Educational Area will be made with careful consideration of community feedback.





# Kingsbery Renderings

Back view of the solar arrays





# Community Benefits

- Supports City of Austin aggressive climate protection goals
- Renewable energy and Austin Energy's support for clean energy technology have helped diversify the economy in Austin.
- The Austin Technology Incubator estimates that the clean tech energy sector contributes \$2.5 billion to the region's economy and employs 20,000 people.
- The Kingsbery and Mueller battery storage projects are closely tied to each other (Austin Energy received a \$4.3 M SHINES grant).
- The Airport/Springdale area is being transformed from a former home to the Tank Farm to being a leader for clean energy innovation.

# Community Benefits

- Currently parcel has low visibility and is home to garbage dumping and homeless camps
- Working with the Austin Independent School District, Capital Metro, Public Works and others to find ways to resolve pedestrian access issues for students attending Eastside Memorial High School. This issue was highlighted in the documentary “La Loma.”
- Educational opportunities for community and local schools.

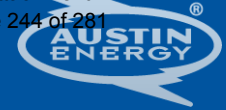


# Approvals to Date

- Plan amendment and rezoning from the East MLK Neighborhood Contact Team in District 1.
- Plan amendment and rezoning from the Austin Planning Commission.
- Plan amendment and rezoning from the Austin City Council.
- Purchase Power Agreement with PowerFin from the Austin City Council.
- Purchase of a utility-scale battery storage unit from the Austin City Council.



- Work with the City arborist to develop tree mitigation plan
- Develop site plan
- Present site plan to planning commission
- Begin construction
- Project Completion: QTR 4 2016/QTR 1 2017



**City of Austin - Austin Energy  
Customer Energy Solutions**

**Karen Poff**

**Project Manager, Solar Energy  
Services**

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@austinenergy

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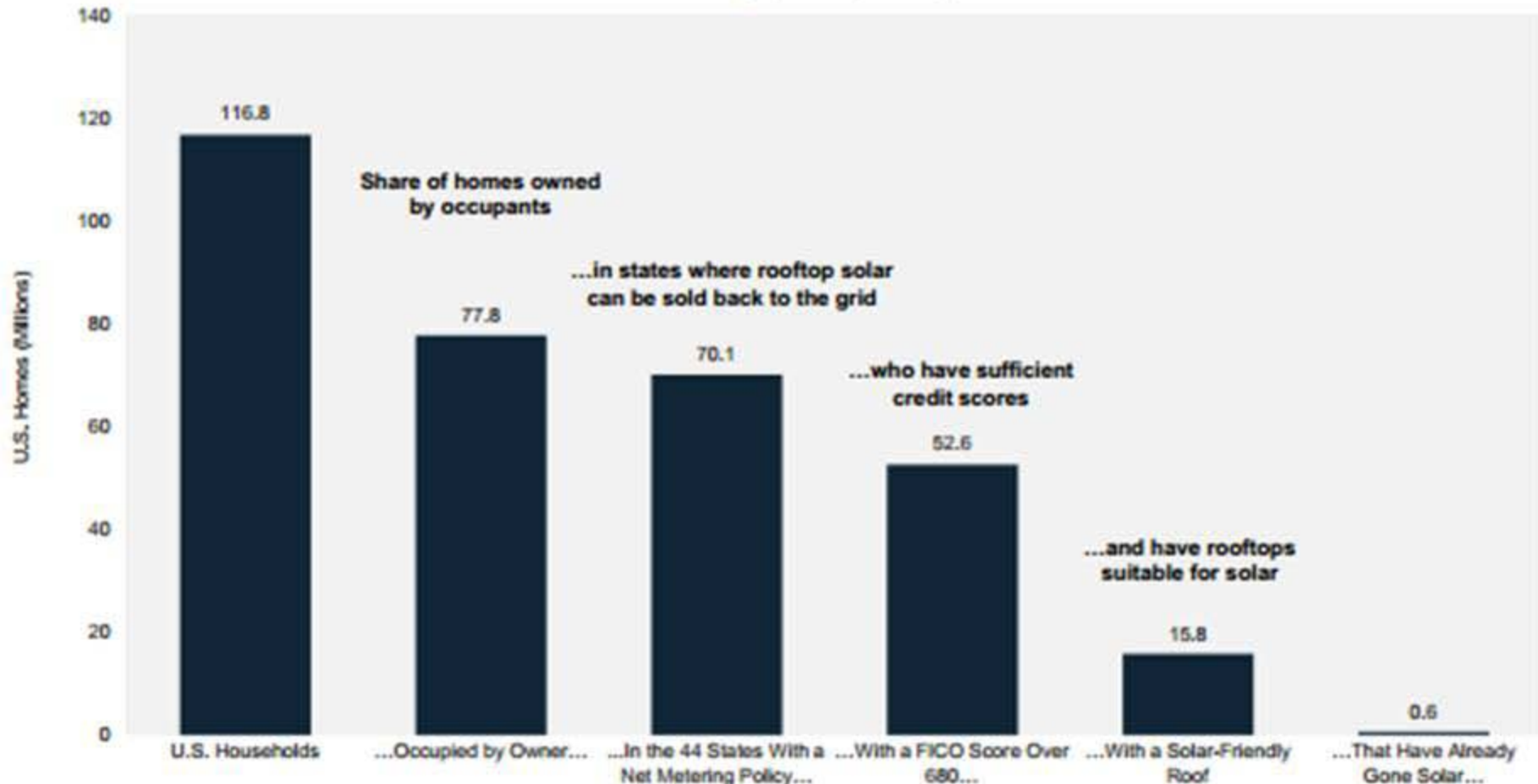


facebook.com/austinenergy

# Thank You!

# Community Solar Taps Into Segments Underserved by Rooftop Solar

2015 Residential Customer Demographics by Rooftop Solar Constraints





# Leveraging Community Solar to Meet Utility Needs

# Agenda & Goals

- ✧ Background on Community Solar
- ✧ The SunShare Experience
- ✧ Program Design
- ✧ Program Implementation
- ✧ Case Studies





# About Us





# Our Story

4

Founded in 2011, SunShare is one of the nation's first Community Solar companies with a mission to make solar accessible to all.

- We partner with utilities to bring choice to consumers
- We develop, own, and operate Community Solar Gardens
- Serve all customer classes
- Offices in Denver and Minneapolis
  - ~32 people



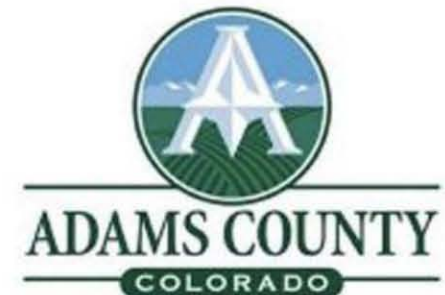
# SunShare Experience



University of Colorado  
Colorado Springs



WESTMINSTER



# Employee and Student Engagement



# History of Community Solar

7

CO State  
Legislature  
passes the Solar  
Gardens Act



*400-person  
Groundbreaking  
Ceremony at the  
Venetucci Solar  
Garden*

12 Colorado  
Community Solar  
programs approved  
or under  
development

22 states with  
Community Solar  
programs online or  
under development

2010

2011

2012

2013

2014

**Several co-op,  
municipal-run  
community solar  
systems in the  
US**

SunShare and  
Colorado Springs  
Utilities first  
competitive Solar  
Gardens Program in  
nation (2MW)

**SunShare's first  
Solar Garden sells  
out in 10 weeks with  
350 participants**

Xcel Energy creates  
Solar\*Rewards  
Community  
Program

Xcel Energy implements  
9 MW of Community  
Solar Projects  
in CO

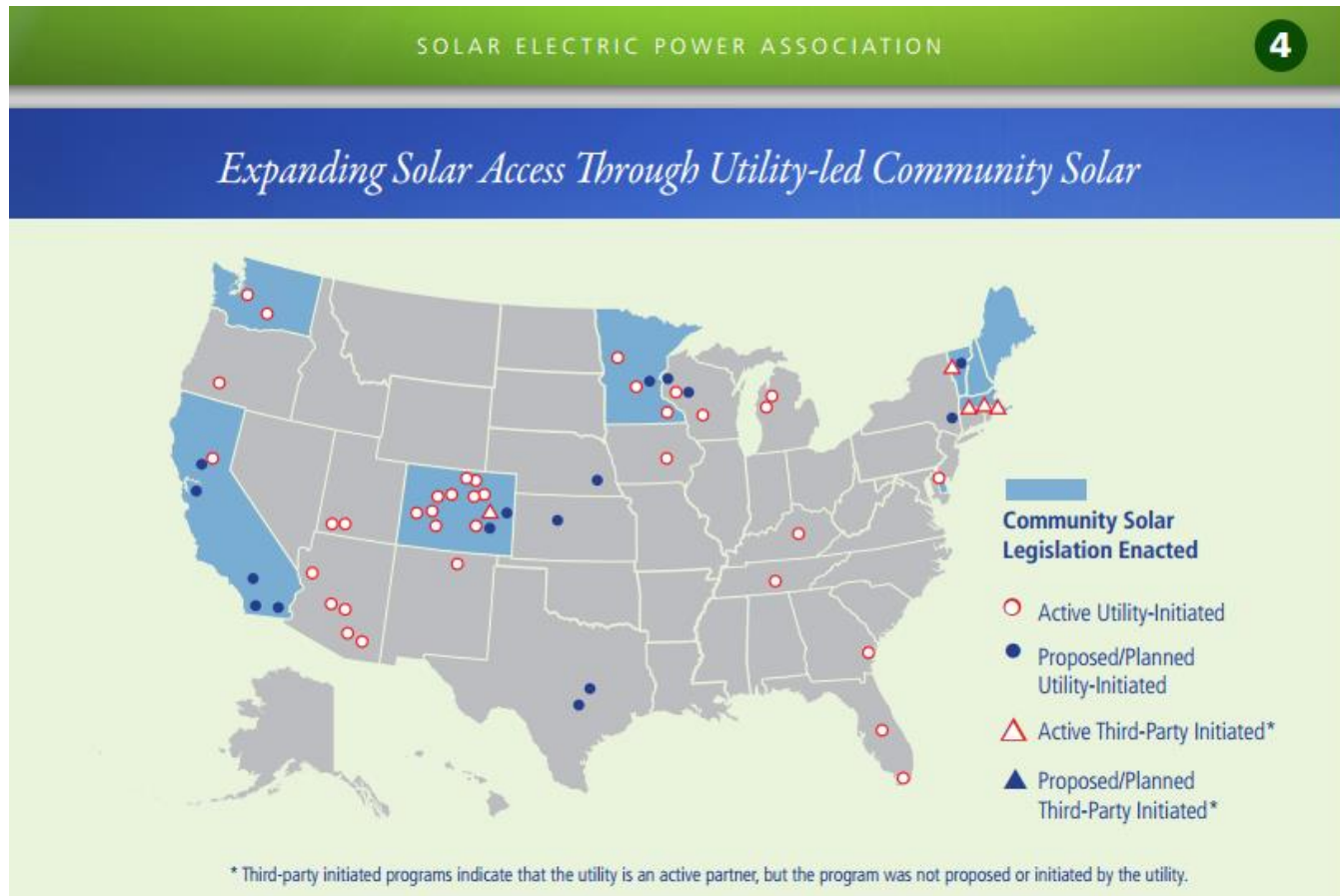
**CA: 600MW Pilot  
Program**

MN: Uncapped  
program



# National Community Solar Adoption

8



- 57 Community Solar programs in 22 states
- 41 active and 16 in planning stage

Source: Campbel, B., et. al. *Expanding Solar Access to Utility-led Community Solar: Participation and Design Trends from Leading US Programs*, Solar Electric Power Association, September 2014

473  
Confidential

# Why Community Solar?

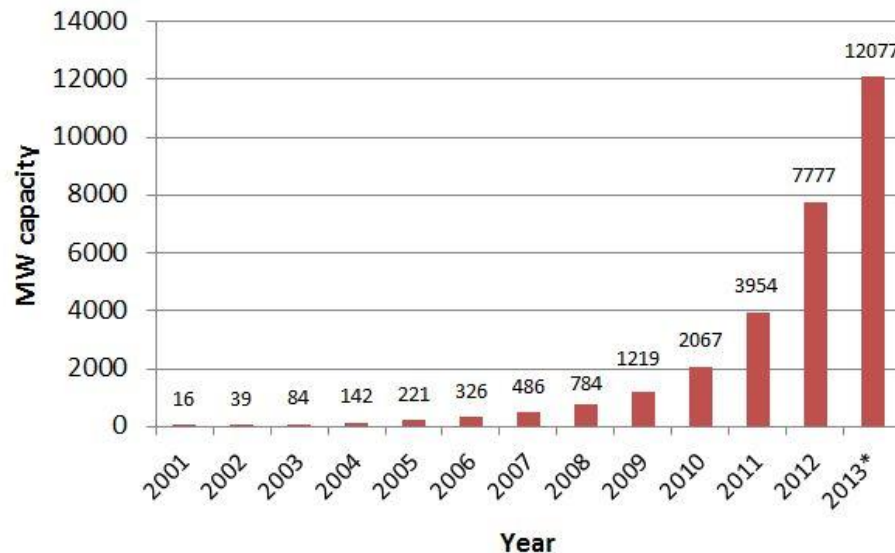




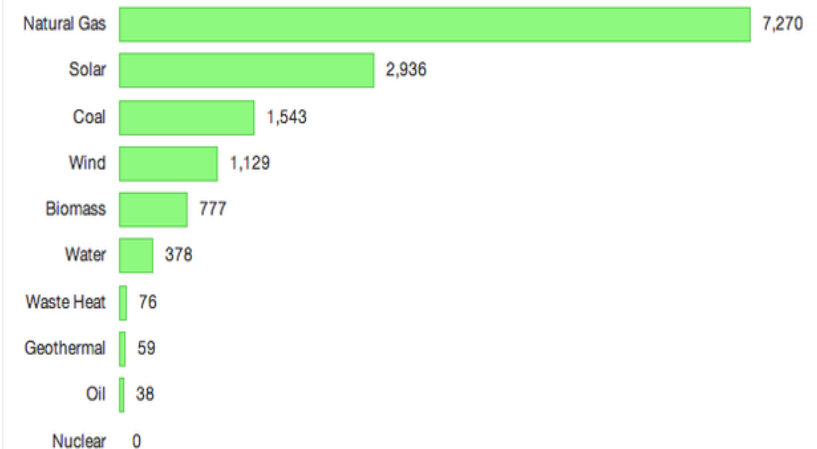
# The Growth Curve of US Solar

- Solar is now the 2<sup>nd</sup> highest source of new power generation in the U.S.
- Solar capacity has nearly tripled in the last 3 years
- New capacity driven by a nearly 75% decrease in system costs

**U.S. Solar Capacity (MW)**



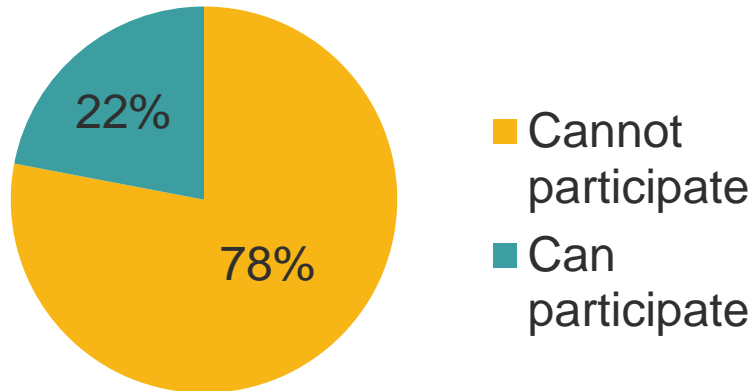
**Top Sources of New US Power Capacity (2013)**



# Why Community Solar?

11

## Percentage of Americans Who can Participate in Rooftop Solar

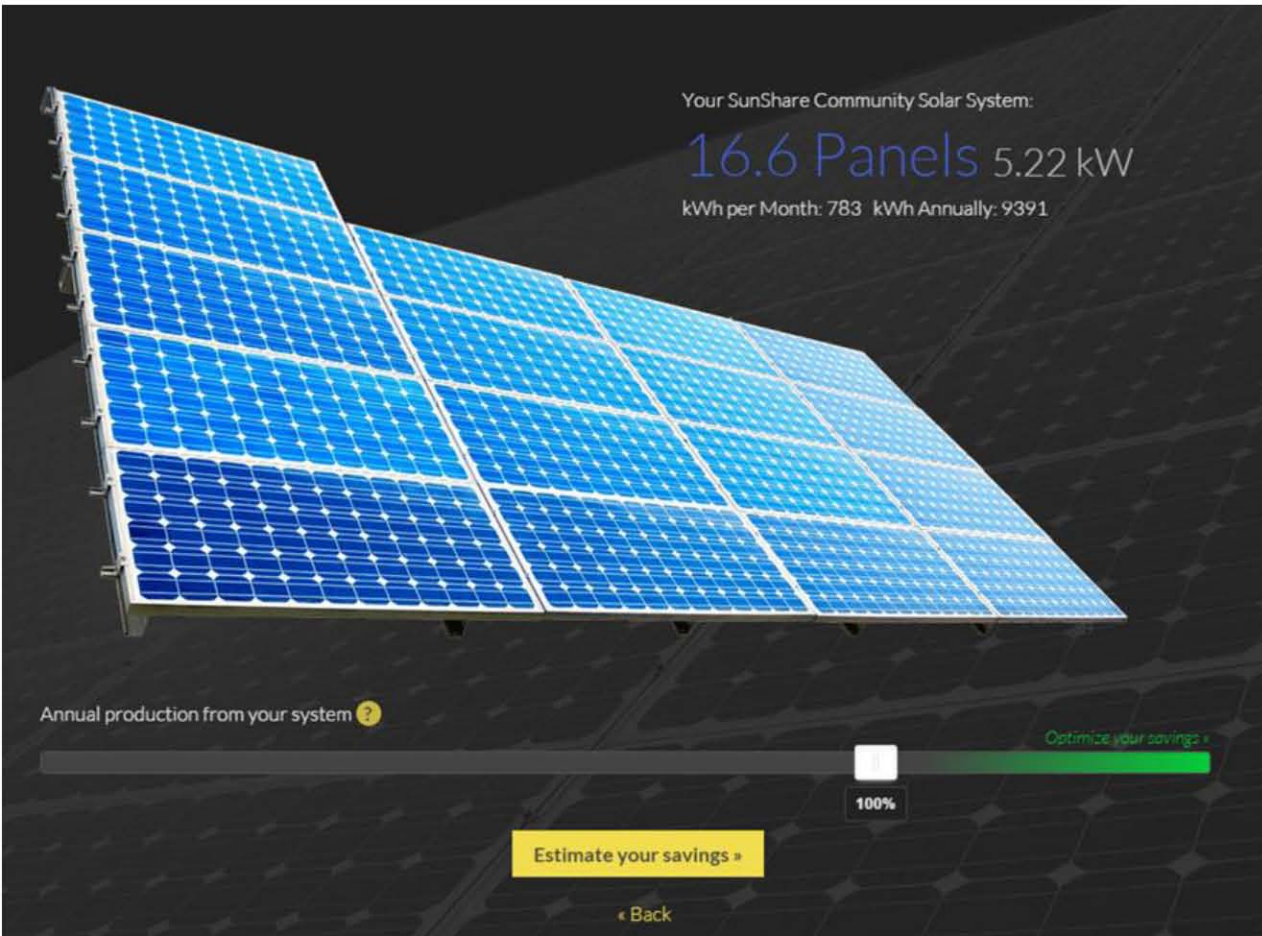


Source: National Renewable Energy Laboratory, 'Supply Curves for Rooftop Solar Generated for United States,' 2008.



- ✓ Gives your customers what they want: choice!
- ✓ Broadens solar energy access to everyone
- ✓ No hassle of rooftop or onsite installation for customers
- ✓ Boosts local economy and creates jobs

# The Residential Experience



# Many Utility Benefits

13

- Increased customer satisfaction
  - Utilities maintain customer relationship and can choose utility-branded programs
- Affordable way to meet RPS goals
  - Cost-recovery mechanisms for transmission and distribution
  - No capital costs required
  - Economies of scale achieved at ~1MW in size
- Ease costly network upgrades
  - Community Solar companies can work with utilities to strategically locate Solar Gardens to strengthen power distribution
- Social equity
  - All ratepayers can participate, regardless of location or property ownership

# The Project Dashboard





# Policy/Regulatory Framework





# Policy/Regulatory Requirements

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- Community Solar is dependent on policy/regulatory bodies to create and maintain programs for ratepayers
- Methods for initiating Community Solar programs
  - State law
    - Example: Colorado Solar Gardens Act (HB 10-1342)
    - Applicable mostly to Investor-Owned Utilities
    - Establishes framework for Public Utilities Commission to establish program rules, regulations, and process
  - Utility-driven programs
    - Example: Colorado Springs Utilities
    - Usually municipal utilities and cooperatives
    - Can be faster-moving process with more utility control

# Program Design



# Program Design

18

## ○ Program levers

### ○ Size (Program/Individual Project)

#### ○ Examples

- Colorado Springs Utilities: 2MW Pilot Program
- Xcel Energy (MN): market-based program

### ○ Length of contract with solar companies and customers

- Typical program length 20-25 years

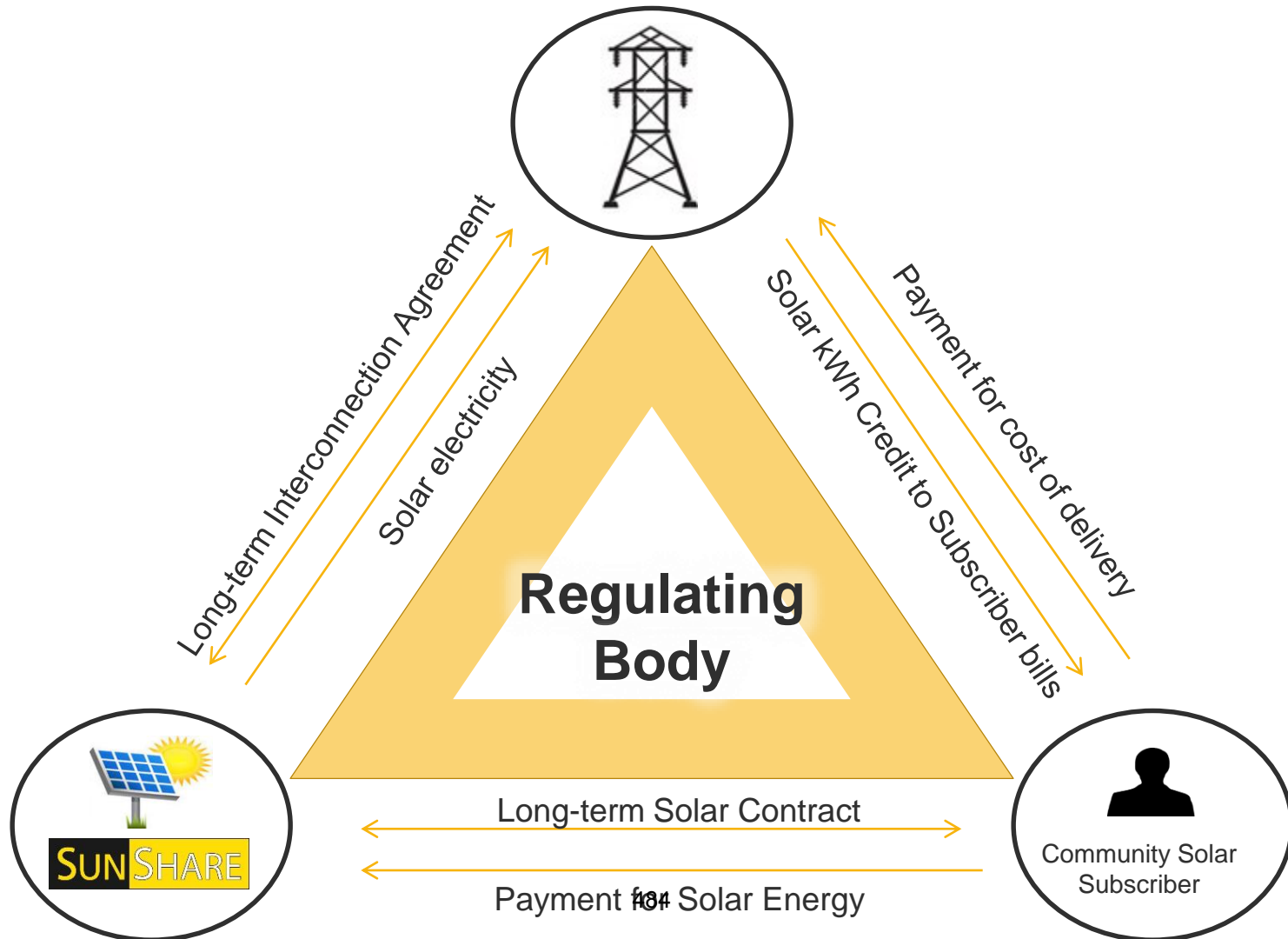
### ○ Roles of utility and solar developers

- Branding
- Business model
- Developer selection process

### ○ Rate design

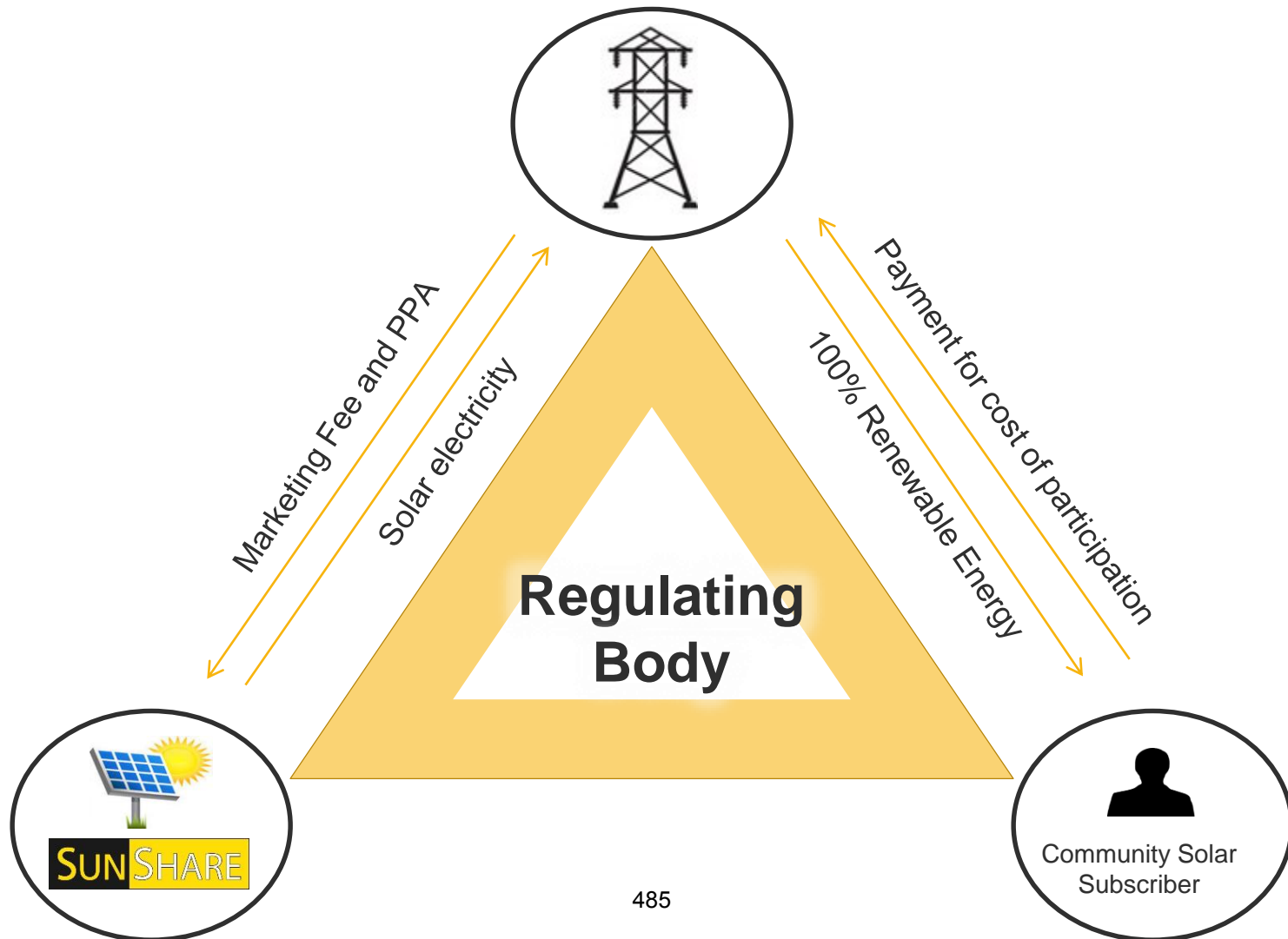
# Tariff Model

19



# Subscription/PPA Model

20



# Rate Design

21

- Considerations
  - Cost recovery mechanism
  - Value of solar
  - Impact on ratepayers
  
- Sample bill credit structure and cost-recovery
  - Xcel Energy (CO): Cost of Service
    - Bill Credit = Retail rate (incl. demand charges) – Cost of Delivery
  - Colorado Springs Utilities: Cost of Service + REC purchase
    - Bill Credit = (Non-fuel) + (Fuel and Purchased Power) + (Capacity) + (Cost Adjustment) + (REC purchase)
  - Xcel Energy (MN): Retail rate + REC purchase (fuel rider cost recovery)
    - Bill Credit = Retail rate + 2-3¢/kwh REC purchase



# Case Study: Minnesota

## 2013 MN Community Solar Garden legislation:

Access to solar for all

No caps on program size

Helps MN achieve statewide goals:

- 10% solar by 2030
- 1.5% by 2020



# MN Program Details

## Program specifics

- ✖ Consumers can purchase up to 120% of their consumption
- ✖ Systems will be limited to 1 MW-AC
- ✖ Systems may be co-located
- ✖ Awards granted via open-submission, first-ready, first-serve application process; Xcel is required to take any projects submitted that meet the guidelines creating a large market potential
- ✖ No customer may purchase more than 40% of any garden
- ✖ Each projects must have at least five subscribers



# We are here to support you

Ross Abbey  
Director of Government Affairs

# In the Media

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## Denver-based SunShare wants to sell Minnesota a share of the sun

STAR TRIBUNE, Published by David Shaffer, September 6, 2014

SunShare, a developer of community solar gardens, sees opportunity in Minnesota. The Denver-based company is opening an office and hiring workers in Minnesota, and in 2015 plans to build large solar farms whose output will be shared by Xcel Energy customers who sign up to be subscribers. [\[Read Full Story\]](#)



## Trendspotting at Solar Power International 2014

Solar Novus Today, Anne Fischer, October 27, 2014

Aside from the challenges and opportunities posed by the potential end of the investment tax credit in the US, a few trends emerged from across the [Solar Power International](#) conference and exhibition held last week in Las Vegas.

First off, community solar is big and getting bigger in the US. Also known as solar gardens... [\[Read Full Story\]](#)



## Water World owner, SunShare sign big solar power deal

The Denver Business Journal, by Cathy Proctor, September 22, 2014

SunShare LLC, a Denver-based community solar power developer, has signed its largest single-customer power-supply contract with Hyland Hills Park and Recreation District, owner of the Water World attraction in Federal Heights. [\[Read Full Story\]](#)



## Here comes the sun: Montbello school the recipient of solar energy

THE DENVER POST, Published by Anthony Cotton, August 28, 2014

Chatting with students Thursday at Academy 360 in Denver's Montbello neighborhood, Mayor Michael Hancock made a little confession: He shared in their wonderment regarding solar energy. [\[Read Full Story\]](#)



## Colorado solar player expanding to Twin Cities

MINNEAPOLIS/ST. PAUL BUSINESS JOURNAL, Published by Katherine Grayson, August 22, 2014

A Colorado developer of "community solar" projects is expanding into the Twin Cities market, aiming to tap into an expected solar-development boom in Minnesota. [\[Read Full Story\]](#)



## Adams County government to power its buildings with community solar panels

DENVER BUSINESS JOURNAL, Published by Caitlin Hendee and Cathy Proctor, August 19, 2014

Adams County government will become the first in the country to power its buildings with energy from community solar power, with the city of Arvada also signing. [\[Read Full Story\]](#)



## Westminster inks deal to draw energy from community solar gardens

THE DENVER POST, Published by Austin Briggs, July 21, 2014

Westminster is joining other communities in providing a way for residents to buy into solar energy without installing solar panels. [Denver-based SunShare](#) is currently building solar fields in Jefferson and Adams county that will deliver a combined total of 4 megawatts of energy per year when they go online at the beginning of 2015. [\[Read Full Story\]](#)



## Nation's Largest Community Solar Garden Sold Out

CNBC, via PRNewswire, June 25th, 2014

A historic moment for the rapidly growing Community Solar market, Colorado energy company SunShare has sold out the nation's largest privately developed and subscribed Community Solar Garden - before construction begins on the 10,000+ solar panel installation this fall. [\[Read Full Story\]](#)

**Sign 1) What is Community Solar?** (english and spanish)

Community Solar will enable Austin Energy customers to get solar power, even if they can't install it at their own home.

A community solar system is a large, centralized solar project that can provide power to many homes, at lower cost than installing smaller individual systems.

Community Solar is perfect for renters, homeowners with shaded roofs, or anyone who doesn't want to pay for and maintain a solar system at their own home.

Austin's first Community Solar project is proposed at the Kingsbery Substation.

The Kingsbery Community Solar Project would be 2,300 kilowatts (kW), enough to power about 500 homes, and would be the size of about 20 football fields.

Visual: Photo from Webberville (see options here: <http://test.imaginesolar.com/austin-energys-new-solar-power-plant-in-webberville/> - images are from AE, but not sure where the originals are)

**Sign 2) Clean Power for East Austin** (English and Spanish – 2 separate signs(?))

*From old, dirty fuel to a bright, new renewable energy future*

Solar power is clean, quiet, and safe – that's what I call a great neighbor! [make that a little call-out bubble?]

Solar energy is renewable, produces no pollution, and the fuel is free: just add sunshine!

There are already XXX solar installations connected to the Kingsbery Substation, totaling XX kilowatts (kW); the new Community Solar project will add 2,300 kW.

Each rooftop solar system helps reduce the customer's electric bill, and creates jobs in the local community. There are over 40 solar installation companies in Austin.

*A Clean Energy Innovation Hub*

Austin Energy is also installing a 1.6 megawatt (MW) energy storage project (that's like a half-million AA batteries or enough energy to power a house for 2 months!) at the Kingsbery substation that will work with the community solar project to improve grid reliability and power quality in the neighborhood.

East Austin will be the first neighborhood in Austin to have both clean energy and energy storage, making it one of the most resilient and sustainable communities in the country.

The project will provide a learning opportunity for Austin Energy, local students, as well as visitors from around the world.

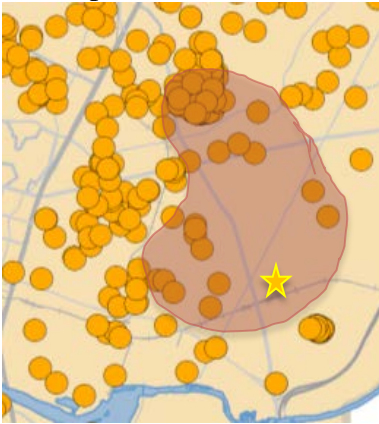
Visual 1: Image of container-sized storage project (in a bubble next to the storage info)



[Similar to this; finding graphic

with approval from Samsung/other]

Visual 2: Impact Map w/existing PV installs (overlay shaded "kidney bean" over Tim's PV map, with street names?)



[example using Tim's map; will try to make version with smaller markers. Made up the kidney bean, waiting for info from Clayton]

### **Sign 3) Kingsbery Community Solar Site**

The project would be located on land owned by Austin Energy around the Kingsbery Substation, which provides electricity to the Airport-Springdale neighborhood, and north to the new Mueller development.

Construction would take place in summer of 2016.

Visual: Aerial map of Kingsbery sub and project (with or without text boxes?); blow out to photo of Webberville (see options here: <http://test.imaginesolar.com/austin-energys-new-solar-power-plant-in-webberville/> - images are from AE, but not sure where the originals are)





Prompts:

"What should Austin Energy know about the site?" (ask next to aerial map of Kingsbery).

"Would you want to be able to visit the project and learn more about solar energy and smart grid technologies?"

#### **Sign 4) How Does Community Solar Work?**

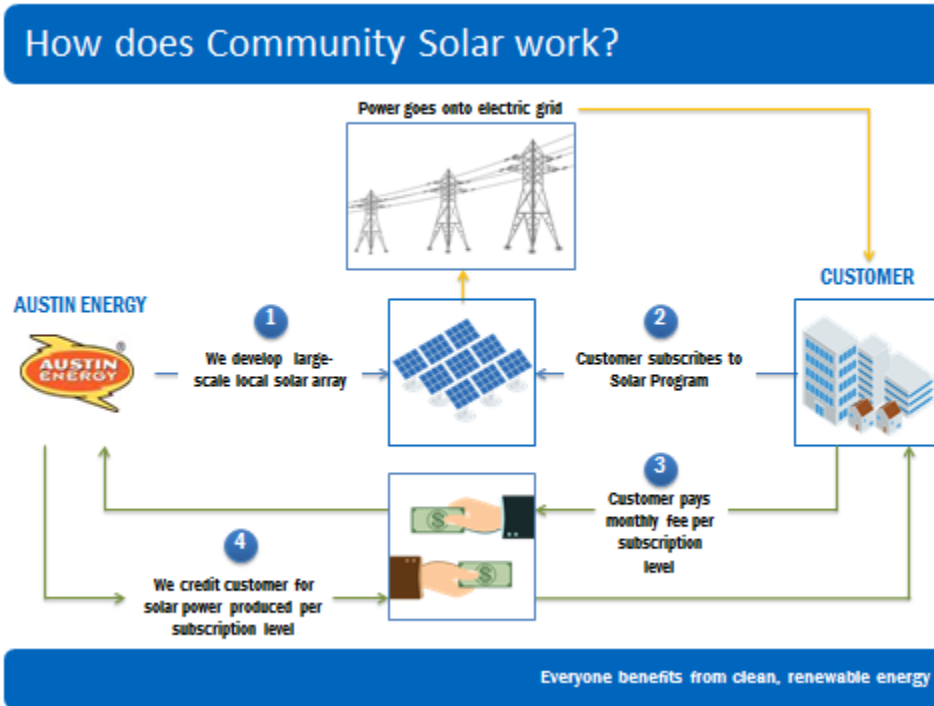
AE customers can sign up for 1-10 kW of solar power from the project.

Participating customers pay a monthly subscription fee for their portion of the solar array. Participants receive a credit on their electric bill for their portion of solar generation from the array.

There are NO EXTRA COSTS for non-participating customers.

Community Solar will make solar more accessible to Austinites, and improve power service in the immediate area.

Visual: How does CS Work slide



### Sign 5) How does solar work?

Visual: poster from Solar Schoolhouse (22"x28")

### Prompts for Public Feedback Boards (on 4'x8' boards) (eng/spanish):

"Why do you want clean energy in East Austin?"

"What should we name the community solar project?"

Community Solar Programs 12-2013

	State	Utility or Project Sponsor Name	Type	Program Name	Participant Information/Eligibility	Participation Mechanism	Participation Benefit/Valuation	Supply Size	Webpage
1	AZ	Arizona Public Service	IOU	Community Power Project Pilot	Pilot Project: All customers on a single distribution feeder in the Flagstaff area	All solar equipment is owned by APS, APS installed the solar which is interconnected on the utility grid. In exchange for hosting the system, the customer is eligible for a Critical Peak Price (CPP) rate plan based on estimated production over 20 years for system size installed (2, 3 or 4kW system). Frozen at 2010 rates.	Customers are billed at a fixed rate for a fixed portion of their energy use, based on the size PV system installed on their property. Not based on actual production.	1.5 MWac goal, 1.338 MWac installed (as of November, 2012)	<a href="http://www.aps.com/files/rates/CMPW-1.pdf">http://www.aps.com/files/rates/CMPW-1.pdf</a>
2	AZ	Salt River Project	Muni	Community Solar Program--Copper Farm Solar Farm	Commercial/industrial customers of SRP (10 MW), residential customers (2 MW) and schools (8 MW)	Pilot program energy sold in blocks equivalent to about 2,500 kWh/year, up to half of customer's annual usage.	Schools, businesses: 9.9 cents/kWh fixed for 10 years	20 MW	<a href="http://www.srpnet.com/environment/communitysolar/home.aspx">http://www.srpnet.com/environment/communitysolar/home.aspx</a>
3	AZ	Trico Electric Cooperative	Co-op	Sunwatts Sun Farm Program	No specific exclusions but a member's purchase of panel output cannot exceed their average monthly kWh energy usage in the last twelve month period, up to a maximum of 10,000 watts per member.	Customer can purchase upfront full, ½ and ¼ PV panel output of a 270- watt PV panel	Customer receives fixed kWh credits on monthly bill by panel shares owned @ 36 kWh per full panel, 18 kWh per ½ panel and 9 kWh per ¼ panel	227 kW	<a href="http://www.trico.coop/index.php?option=com_content&amp;view=section&amp;layout=blog&amp;id=9&amp;Itemid=116">http://www.trico.coop/index.php?option=com_content&amp;view=section&amp;layout=blog&amp;id=9&amp;Itemid=116</a>
4	AZ	Tucson Electric Power	IOU	TEP Bright Tucson Community Solar Program	All customers except those who are currently enrolled in net metering	Customer can purchase output in 150-kWh monthly blocks	Customer purchases 150 kWh blocks for \$3 each, no additional benefit beyond purchasing solar power in a shared system.	As of July 2012, the TEP Bright Tucson program included 777 customers, which were subscribed to a total of 4.13 MW in TEP or third-party-owned solar installations	<a href="https://www.tep.com/Renewable/Home/Bright/">https://www.tep.com/Renewable/Home/Bright/</a>
5	AZ	UniSource Energy Services	IOU	Bright Arizona Buildout/ Bright Arizona Community Solar Program	Available to customers on tariffs: Residential Service, Small General Service, and Large General Service	Customers can purchase the output in 150-kWh blocks	Customers purchase for \$0.02/kWh over regular tariff rate and their solar capacity component of the bill is fixed for 20 years. Purchases are exempt from Renewable Energy Standard Tariff and the Purchased Power and Fuel Adjustment Clause, surcharges that are adjusted annually.	1.7 MW	<a href="https://www.uesaz.com/renewable/home/bright/">https://www.uesaz.com/renewable/home/bright/</a>

	State	Utility or Project Sponsor Name	Type	Program Name	Participant Information/Eligibility	Participation Mechanism	Participation Benefit/Valuation	Supply Size	Webpage
6	CA	Pacific Gas and Electric **	IOU	Green Tariff Shared Renewables Program	Customers of PG&E	Under the new plan, participants will pay the full cost of the new renewable energy supplies built in direct response to their enrollment.	Participating customers will also receive credits for avoided PG&E generation costs	TBD	<a href="http://www.pge.com/greenoption/">http://www.pge.com/greenoption/</a>
7	CA	Sacramento Municipal Utility District	Muni	SolarShares Program	Customers of SMUD. SMUD’s goal is to keep the system subscribed up to 95% of its full output, with the additional 5% used as a safety margin. Approximately 700 customers were sufficient to fully subscribe the system, and there is a persistent waiting list of approximately 60 customers. The current mix by customer size is about 27% small, 51% medium, and 22% large.	Customers can meet <b>20-40% of their energy use</b> by purchasing 0.5-kW shares.	Customers receive kWh credit on monthly bill in relation to the quantity of output they subscribed for and the fixed energy rate they qualify for. <b>Blended incentive is \$1.50/W.</b>	1 MW	<a href="https://www.smud.org/en/residential/environment/solar-for-your-home/solarshares/">https://www.smud.org/en/residential/environment/solar-for-your-home/solarshares/</a>
8	CA	San Diego Gas & Electric**	IOU	Share the Sun and Sun Rate pilot programs	Developers sign up participants; can meet up to 200% of load	Customers acquire a portion of the power produced by a solar-energy system in SDG&E’s service area to cover all or part of their electricity use and receive a bill credit for the value of the solar power their portion generates. The “green attributes” of the solar power would belong to the customer and would not be applied toward SDG&E’s renewable portfolio goals.	Participants receive bill credit from SDG&E. Proposal is to credit participants for their share of system at FIT rate plus an "energy payment" based on the DA PCIA + adjustments, which is intended to reflect the incremental cost of delivery. SDG&E retires RECS for subscribed energy	10 MW available	<a href="#">u</a>
9	CO	Colorado Springs Utilities	Muni	Community Solar Gardens	A customer must have a solar garden interest of at least 0.4 kW	Springs Utilities customers may purchase or lease panels from one of two community solar project developers, Sunshare (lease) or Clean Energy Collective (CEC - purchase).	Subscribing customers will receive a fixed credit of \$0.09/kWh on their electric bill for their share of the power generated at the community solar garden. In 2012, Colorado Springs Utilities will provide subscribers a one-time, \$1.80 per watt incentive up to 30% of their solar garden investment.	2 MW (pilot)	<a href="http://www.csu.org/residential/customer/Pages/Community-Solar-Gardens.aspx">http://www.csu.org/residential/customer/Pages/Community-Solar-Gardens.aspx</a>



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State	Utility or Project Sponsor Name	Type	Program Name	Participant Information/Eligibility	Participation Mechanism	Participation Benefit/Valuation	Supply Size	Webpage
CO	Delta Montrose Electric Association	Co-op	The Community Solar Array Program	Co-op members may lease any portion of the array they wish - provided adequate capacity remains - in lease increments of \$10.	DMEA leases portions of a solar array to members in 2.7-watt blocks. DMEA had a goal to divide up the array into small enough components that anyone can afford to participate.	The customer is credited at the full retail rate for the amount his share produces.	20 kW	<a href="http://www.dmea.com/index.php?option=com_content&amp;view=article&amp;id=149&amp;Itemid=101">http://www.dmea.com/index.php?option=com_content&amp;view=article&amp;id=149&amp;Itemid=101</a>
CO	Empire Electric Association	Co-op	Solar Assist Cooperative Garden	Participation is open to Empire Electric members	Members may lease one or more panels for 20 years at \$1,250 each. There are 24 panels available.	Participants receive the value of the energy produced from their panels on their energy bill, at a rate of \$0.11/kWh. Empire Electric will pay for the operations and maintenance of the system.	10 kW	<a href="http://www.coloradounetrylife.org/files/Local%20Co-op%20Pages/2011/06/Empire%20June.pdf">http://www.coloradounetrylife.org/files/Local%20Co-op%20Pages/2011/06/Empire%20June.pdf</a>
CO	Grand Valley Power	Co-op	Solar Farm	Participation is open to Grand Valley Power members	The Solar Farm allows customers to lease solar panels for 24 kW for a one-time payment.	The customer receives a monthly credit on their bill for the Panel Production Credits (PPC) generated by their leased panels. The PPC is calculated by dividing the total generation from the system by the number of panels and providing a kWh credit to a participant's monthly bill.	20.68 kW	<a href="http://www.gvp.org/Solar/SolarFarmApp.pdf">http://www.gvp.org/Solar/SolarFarmApp.pdf</a>
CO	Holy Cross Energy	Co-op	El Jebel, Garfield County Airport (near Rifle, CO) (CEC)	Anyone with a Holy Cross electric bill is eligible to purchase solar panels, including homeowners, businesses, renters, lessees, community organizations, etc.	Customers can purchase shares (watts) of the solar array upfront at a cost of \$3.15 per watt (\$3,150 per kilowatt)	Monthly bill credit of 11 cents/kWh, or 37% more than the \$0.08/kWh for traditional solar systems. As rates increase, power credits will remain 37% greater than the standard credit rate.	78 kW phase 1 938 kW phase 2	<a href="http://www.easycleanenergy.com/faq.aspx">http://www.easycleanenergy.com/faq.aspx</a>
CO	Poudre Valley Rural Electric Association	Co-op	Poudre Valley REA Community Solar Farm (CEC)	The panels are purchased and are owned by individual consumers who receive electricity from PVREA.	PVREA consumers are able to purchase panels for \$618 per panel phase 1, \$729 phase 2	Credits from the electricity generated are applied directly to the electric bills of each participating consumer in proportion to the number of panels purchased. Phase 2 has a \$0.04 PBI	116 kW phase 1 500 kW phase 2	<a href="http://www.pvrea.com/solar/index.html">http://www.pvrea.com/solar/index.html</a>
CO	San Miguel Power Association	Co-op	SMPA Community Solar--Paradox Valley (CEC)	Open to members of San Miguel Power Association (SMPA)	SMPA customers purchase 240-watt panel(s)	Monthly monetary credit for the energy each panel(s) produces. Each panel will produce approximately \$45 worth of electricity per year.	1.1 MW	<a href="http://www.smpa.com/Service/SMPACommunitySolar.cfm">http://www.smpa.com/Service/SMPACommunitySolar.cfm</a>
CO	United Power	Co-op	Sol Partners Cooperative Solar Farm	Open to all members of United Power, including those who net meter.	Customers lease 210-watt PV panels within the system, for \$1,050 each, for 25 years	Customers receive a monthly bill credit for the value of their panel's production at a solar rate slightly above the retail credit rate. During the 1st year, the original 48 panels produced 17,504 kWh. Energy credits totaled \$40.12 per panel, equal to a 3.8% return.	21 kW	<a href="http://www.unitedpower.com/mainNav/greenPower/solPartners.aspx">http://www.unitedpower.com/mainNav/greenPower/solPartners.aspx</a>

	State	Utility or Project Sponsor Name	Type	Program Name	Participant Information/Eligibility	Participation Mechanism	Participation Benefit/Valuation	Supply Size	Webpage
17	CO*	Xcel Energy	IOU	Solar*Rewards Community (CEC)	All customers within Xcel service territory. Must have at least 10 subscribers per CSG.	Subscription to particular Community Solar program	Total aggregate retail rate less T&D costs ("reasonable charge") less RESA charge less TCA charge. Range from about \$0.055 to \$0.07, depending on customer class plus an \$0.09 - \$0.11 / kWh PBI	Boulder County #1 500 kW (CEC) Jefferson County #1 116 kW (CEC) Jefferson County #2 571 kW (\$0.04 PBI) (CEC) Denver County #1 388 kW (CEC) Denver County #2 500 kW (CEC) Adams County #1 500 kW (CEC) Summit County #1 500 kW (CEC) Summit County #2 500 kW (CEC)	<a href="http://www.coloradocommunitysolar.com">www.coloradocommunitysolar.com</a>
18	DE*	Delmarva Power & Light	IOU	Community Energy Facility (CEF)	All customers within Delmarva's service territory; all subscribers must share "a unique set of interests"	Subscription to particular Community Solar program	If "host customer" for CEF or if on same distribution feeder as CEF: "valued at an amount per kWh equal to the sum of volumetric energy (kWh) components of the delivery service charges and supply service charges for residential Customers and the sum of the volumetric energy (kWh) components of the delivery service charges and supply service charges for non-residential Customers..." [essentially full retail rate] If not on same distribution feeder: "valued at an amount per kWh equal to supply service charges according to each account's rate schedule..." [essentially gen-only/avoided cost] Subscribers retain REC ownership. Delmarva has elected to pay (instead of credit) customers at these rates.	Sum total of capacity limits of each subscriber (25 kW res., 100 kW farm, 2 MW non-res.)	<a href="http://dep.sc.delaware.gov/electric/reg49%207984%20compliance%20filing.pdf">http://dep.sc.delaware.gov/electric/reg49%207984%20compliance%20filing.pdf</a>
19	FL	Florida Keys Electric Co-op	Co-op	Simple Solar Program	Open to FKEC members.	Customers lease 175-watt panels	Members receive monthly bill credits for full retail value of the electricity generated by their leased panel(s). Anticipate approximately \$36 in credits per year per panel and \$1280 in credits total (assuming 3% annual increase in retail price of electricity).	97 kW	<a href="http://www.fkec.com/Green/simpleSolar.cfm">http://www.fkec.com/Green/simpleSolar.cfm</a>
20	FL	Orlando Utilities Commission	Muni	Share the Sun	Residential and Non-demand Commercial	Energy sold in 1-kW blocks as production (kWh's/kW)	Current premium is \$.025/KWH above residential rate	400 KW	<a href="http://www1.eere.energy.gov/solar/pdfs/51055_orlando.pdf">http://www1.eere.energy.gov/solar/pdfs/51055_orlando.pdf</a>
21	GA	Coastal Electric Cooperative**	Co-op	Renewables Solar Farm (pilot program)	Open to members of Coastal Electric Cooperative	Customers can lease one 230-watt panel for \$1,295, for 25 years	kilowatt-hour credit for the energy generated by the panel	2 kW	<a href="http://www.coastalemc.com/CoastalElectricRenewables.aspx">http://www.coastalemc.com/CoastalElectricRenewables.aspx</a>



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State	Utility or Project Sponsor Name	Type	Program Name	Participant Information/Eligibility	Participation Mechanism	Participation Benefit/Valuation	Supply Size	Webpage
KY	Berea Municipal Utilities	Muni	Berea Solar Farm	Open to anyone, including people who don't live in Berea, KY.	Customers can purchase a minimum of two 235-watt solar panels for \$750 each, for 25 years.	In return, customers will receive Panel Production Credit (PPC) every billing period for the electricity generated by their panels. The PPC is calculated by dividing the total generation from the system by the number of panels and providing a kWh credit at the customer's rate, on the participant's monthly bill.	28.2 kW	<a href="http://bereautilities.com/?page_id=348">http://bereautilities.com/?page_id=348</a>
MI	Cherryland Electric Cooperative	Co-op	Cherryland Community Solar	Eligible to members of Cherryland Electric Cooperative or Traverse City Light and Power	Individuals will sign a 25-year lease agreement for a one-time fee of \$470 per solar panel. Participants can also apply for an energy optimization rebate of \$75 and a capital credit rebate of \$75.	CEC members that commit to a lease will receive a monthly billing credit for the solar electricity produced in that particular month. One solar panel is estimated to produce 25 kWh per month on average.	Planned in installments based on demand (56 kW by summer 2013)	<a href="http://www.cherrylandelectric.com/content/community-solar">http://www.cherrylandelectric.com/content/community-solar</a>
MN	Wright-Hennepin Cooperative	Co-op	WH Solar Community project (CEC)	Open to members of Wright-Hennepin Co-op	WH members may purchase panels for \$869 each, system includes battery storage	Customers will receive monthly bill credits for the power produced by their panels.	32 kW	<a href="http://www.whsolarcommunity.com">http://www.whsolarcommunity.com</a>
NM	Kit Carson Electric Cooperative	Co-op	Taos Charter School project (CEC)	Open to members of Kit Carson Co-op	Customers purchase 235-watt panels for \$845 each	Credit on monthly bills for proportion of energy produced	98.7 kW	<a href="http://www.kitcarson.com">http://www.kitcarson.com</a>
OR	City of Ashland	Muni	Solar Pioneers II	City of Ashland residents	Customers can purchase the output of panels for 18 years: A full panel for \$743, a 1/2 panel for \$371.50 or a 1/4 panel for \$185.70.	Customer receives monthly kWh credit at retail rates based on power produced by each member's share of project. One panel is estimated to produce \$480 of savings over 20 years (below program goal of equivalent return to on-site systems).	63.5 kW	<a href="http://www.ashland.or.us/Page.asp?NavID=13368">http://www.ashland.or.us/Page.asp?NavID=13368</a>
UT	City of St. George	Muni	SunSmart Program	The Purchaser must be the owner or in lawful possession of residential property located within the geographical boundaries of the City of St. George, Utah.	Customers may purchase 'units' in 0.5 and 1 kW increments.	Customers receive a monthly credit on their electric bill based on the monthly kWh derived from % of system investment and retail rate. A minimum output of 800 kWh is guaranteed.	100 kW Phase 1 150 kW Phase 2 100 kW each Phase 3+ 2 MW max (currently at 250 kW)	<a href="http://www.sgsunsmart.com/index.htm">http://www.sgsunsmart.com/index.htm</a>
VT	Green Mountain Power (GMPSolar)	IOU	The Farm at South Village (South Burlington, VT)	Farm at South Village and South Village Community's energy consumption needs. The array will also provide clean energy to the City of South Burlington for the City's traffic lights.	Group net metering arrangement	SolarGMP provides owners of solar net metering systems in the GMP service area with a \$0.06 payment adder on top of the retail rate.	147.84 kW	<a href="http://www.encoreredevelopment.com/projects/renewable-energy.html">http://www.encoreredevelopment.com/projects/renewable-energy.html</a>

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State	Utility or Project Sponsor Name	Type	Program Name	Participant Information/Eligibility	Participation Mechanism	Participation Benefit/Valuation	Supply Size	Webpage
VT	Green Mountain Power (GMPSolar)	IOU	Putney Solar Garden (CEC)	Open to ownership by all GMP members, credited at full retail rate plus \$0.06 PBI	Group net metering arrangement	Open to ownership by all GMP members, credited at full retail rate plus \$0.06 PBI	148 kW	<a href="http://www.vtsolargardens.com">www.vtsolargardens.com</a>
WA	City of Ellensburg	Muni	Community Renewable Park	Participant must own, rent or lease a business or residence that has an electrical service with the City of Ellensburg if they want to receive the periodic renewable credit toward their utility bill.	Customer’s pay an initial up-front investment (minimum of \$250) to co-own a share of the system	Customers receive quarterly credit on their electric bill at the BPA wholesale energy rate based on kWh’s derived from % of system investment.	36 kW Phase 1 21.6 kW Phase 2 24 kW Phase 3 82 kW Total	<a href="http://www.ci.ellensburg.wa.us/index.aspx?NID=310">http://www.ci.ellensburg.wa.us/index.aspx?NID=310</a>
WA	Seattle City Light	Muni	Seattle Community Solar	City Light customers can buy a portion of the output from the project for \$600 each.	500 solar units available for upfront purchase	Credit of \$0.07/kWh and incentive of \$1.08/kWh. Credit rises with electricity rates. Customers receive annual on-bill credit of 7 cents/kWh (approx. 50 kWh’s/yr/solar unit)	24 kW	<a href="http://www.seattle.gov/light/solar/community.asp">http://www.seattle.gov/light/solar/community.asp</a>

- Customer Ownership Models
- Virtual Net-Metering models
- (DA) - Direct Access
- (PCIA) - Power Charge Indifference Adjustment

Utility or Project Sponsor Name	IOU	Program Name	Supply Size (kW)	Participants purchase panels	Credit for kW/kWh	Minimum Commitment	Maximum Commitment	Minimum Initial Investment	Opt-Out?	Bill Credit/PBI/Premium	Date Launched	% Subscribed	Outside Funding	Incentives for customer installed PV?	Incentives included in price? Sourced Admin?	RPS	
Arizona Public Service	IOU	Community Power Project Pilot	1500	No	kW							100		State Tax Incentives		State: 15% by 2025	
Salt River Project	Muni	Community Solar Program--Copper Farm Solar Farm	20	No	kWh	1000 W	50%	None	Cancel at any time	Fixed rate of \$ 0.09/kWh up to 5 yrs	Sep-11	67.14	None	\$ .05/W Rebates	No	State: 15% by 2025	
Trico Electric Cooperative	Co-op	Sunwatts Sun Farm Program	227	Yes	Fixed kWh	67.5 W	Average Consumption	\$230.00	Sell back to utility	Net Metering	Jan-11	19.5	Almost \$1MM from ARRA	Incentives	rebate program was recently cancelled	State: 15% by 2025	
Tucson Electric Power	IOU	TSP Bright Tucson Community Solar Program	4130	No	Fixed kWh	150 kWh	Average Consumption	None	1 yr minimum	\$3 charge/block (+\$0.02/kWh premium)	Jan-11		None	State Tax Incentives	No mention	State: 15% by 2025	
UniSource Energy Services	IOU	Bright Arizona Buildout/ Bright Arizona Community Solar Program	1700	No	Fixed kWh	150 kWh	Average Consumption	None	1 yr minimum	\$3 charge/block (+\$0.02/kWh premium)	Jan-11		None	State Tax Incentives	No mention	State: 15% by 2025	
Pacific Gas and Electric **	IOU	Green Tariff Shared Renewables Program	TBD	No	kWh	TBA	TBA	TBA	1 yr minimum	TBA			Not yet launched	Only for new green homes		Same as below	
										Monthly charge and credit rate are determined by customer's consumption. Charge is fixed through length of subscription.						State of CA: 20% by December 31, 2013 25% by December 31, 2016 33% by 2020	
Sacramento Municipal Utility District	Muni	SolarShares Program	1000	No	kWh	500 W		None	1 yr minimum		2008	~95%	\$1.55/W from SB-1	None beyond net metering	No		
San Diego Gas & Electric**	IOU	Share the Sun and Sun Rate Pilot programs	10000	No	kWh		Average Consumption					Not yet launched		State Rebates		Same as above	
Colorado Springs Utilities	Muni	Community Solar Gardens	2000	Yes	kWh	225 W	120% of Average Consumption	\$698.00	May be sold at any time	Net Metering		See below*		\$1.50/W Rebates	Yes, as explained on FAQ page	Yes	See Below*
Delta Montrose Electric Association	Co-op	The Community Solar Array Program	20	No	kWh	2.67 W		\$10.00	Only if relocating	Net Metering	Mar-11	100%	None	None beyond net metering	No	See Below*	
Empire Electric Association	Co-op	Solar Assist Cooperative Garden	10	Yes	kWh	225 W		\$1,250.00		Net Metering	May-11	45.8	None	None beyond net metering	No	See Below*	
								\$15/month for 5 years or \$850 up front per panel									
Grand Valley Power	Co-op	Solar Farm	20.68	Yes	kWh	1 panel	41 panels		Cancel at any time	net metering	Aug-11	46.6	None	None beyond net metering	No	3% in 2013	
Hoey Cross Energy	Co-op	El Jebel, Garfield County Airport (near Rifle, CO) CEC	1000	No	kWh	230 W	Average Consumption	\$725.00	May be sold at any time	1.37x retail rate (17% premium)		See below*		\$1.50/W Rebates	Yes, as explained on FAQ page	Yes	See Below*
Poudre Valley Rural Electric Association	Co-op	Poudre Valley REA Community Solar Farm (CEC)	616	Yes	kWh	300 W		\$618.00	May be sold at any time	Net Metering		See below*		\$1.50/W Rebates	Yes, as explained on FAQ page	Yes	See Below*
San Miguel Power Association	Co-op	SMPA Community Solar--Paradox Valley (CEC)	1100	Yes	kWh	235 W		\$747.00	May be sold at any time	Net metering		See below*		\$1.00/W Rebates	Yes, as explained on FAQ page	Yes	See Below*
														No, but customers may participate in community solar and receive home-sited panel rebates.			
United Power	Co-op	Sol Partners Cooperative Solar Farm	21	Yes	kWh	210 W	Initially 420 W, then none	\$1,050.00	25 yrs--May be transferred	Net Metering	2009	100	\$50,000 state	\$ .75/W Rebates		20% by 2020	
Not Energy	IOU	Solar Rewards Community (CEC)	500	No	kWh				May be sold at any time			See below*				See Below*	
Delmarva Power & Light	IOU	Community Energy Facility (CEF)	25	No	kWh									None beyond net metering	No mention	20% by 2019	
Florida Keys Electric Co-op	Co-op	Simple Solar Program	97	Yes	kWh	175 W	None	\$999.00	All costs are up-front, credits last up to 25 yrs		Aug-10	100	\$1MM Clean Renewable Energy Bond	None beyond net metering	No	None	
										Rate fixed at \$ 1.13 for up to 25yrs	Mar-13	100	None	Net metering + \$ .05/kWh	No mention	Self-imposed	
Orlando Utilities Commission	Muni	Share the Sun	400	No	kWh	1000 W	15000 W	\$50 Refundable Deposit	2 yr minimum								
Coastal Electric Cooperative**	Co-op	Renewables Solar Farm (pilot program)	2	Yes	kWh	230 W	Initially 230 W, then none	\$1,295.00	25 yrs--May be transferred	Net Metering				None		None	
Berea Municipal Utilities	Muni	Berea Solar Farm	28.2	Yes	kWh	240 W		\$750.00	All costs are up-front, credits last up to 25 yrs	Net Metering	Oct-11					None	
Cherryland Electric Cooperative	Co-op	Cherryland Community Solar	16	Yes	kWh			\$470.00	All costs are up-front, credits last up to 25 yrs	Net Metering						State: 10% by 2025	
Wright Hennepin Cooperative	Co-op	WH Solar Community project (CEC)	32	Yes	kWh	180 W	Average Consumption	\$869.00	May be sold at any time	Net Metering		See below*		None	Yes, as explained on FAQ page	Yes	State: 25% by 2025 for Coops
Kitt Carson Electric Cooperative	Co-op	Taos Charter School project (CEC)	98.7	Yes	kWh	235 W		\$845.00		Net Metering		See below*		Yes, as explained on FAQ page	Yes	Yes State: 10% by 2020 for coops, 20% solar	
City of Ashland	Muni	Solar Pioneers II	63.5	No	kWh	43.75 W		\$185.70	May be sold at any time	Net Metering	Summer 2007	50%	Sold state tax credits to partner; CREB bonds	\$ .75/W residential, \$1/W commercial	No mention	No	5% by 2025
City of St. George	Muni	SunSmart Program	2000	No	kWh	500 W	4000 W	\$2,500.00	19 yr minimum	Net Metering	Oct-08	13.20%	Some ARRA funding	\$2/W up to 3kW	Website only explains that there is no federal tax credit. another utility	Shared with	State: 20% by 2025
Green Mountain Power (GMP)Solar	IOU	The Farm at South Village (South Burlington, VT)	147.84	Yes	kWh							See below*			Yes, as explained on FAQ page		
Green Mountain Power (GMP)Solar	IOU	Pottery Solar Garden (CEC)	148	Yes	kWh							See below*			Yes, as explained on FAQ page		
City of Ellensburg	Muni	Community Renewable Park	82	No	kWh					Net Metering + state RFI of \$ 30/kWh pending legislation	Nov-06		Phases added as subscribed, currently Phase III			State: 15% by 2020	
Seattle City Light	Muni	Seattle Community Solar	24	No	kWh	1 unit	125 units	\$150.00	All costs are up-front, credits last to 2020	\$1.16/kWh credit	Sep-13		First project sold out, others now open.	State Incentives	Yes, as explained on FAQ page	State: 15% by 2020	

\*According to a CEC rep, about 8 of their programs are fully subscribed, some before construction was completed, others within a year of completion.

\*Colorado State RPS: Investor-owned utilities: 30% by 2020 Electric cooperatives serving fewer than 100,000 meters: 10% by 2020 Electric cooperatives serving 100,000 or more meters: 20% by 2020 Municipal utilities serving more than 40,000 customers: 10% by 2020

Legend

IOU

Muni

Co-op

Clean Energy Collective

Identical Programs