



# Solar Program Update

Presentation to Generation Task Force  
May 21, 2014





# Agenda

- Solar Goals
  - Progress to date
  - Build out plan to get to local goals
- Incentive Program Review
  - Participation #s
  - Incentives paid out
- Value of Solar methodology
- Grid integration



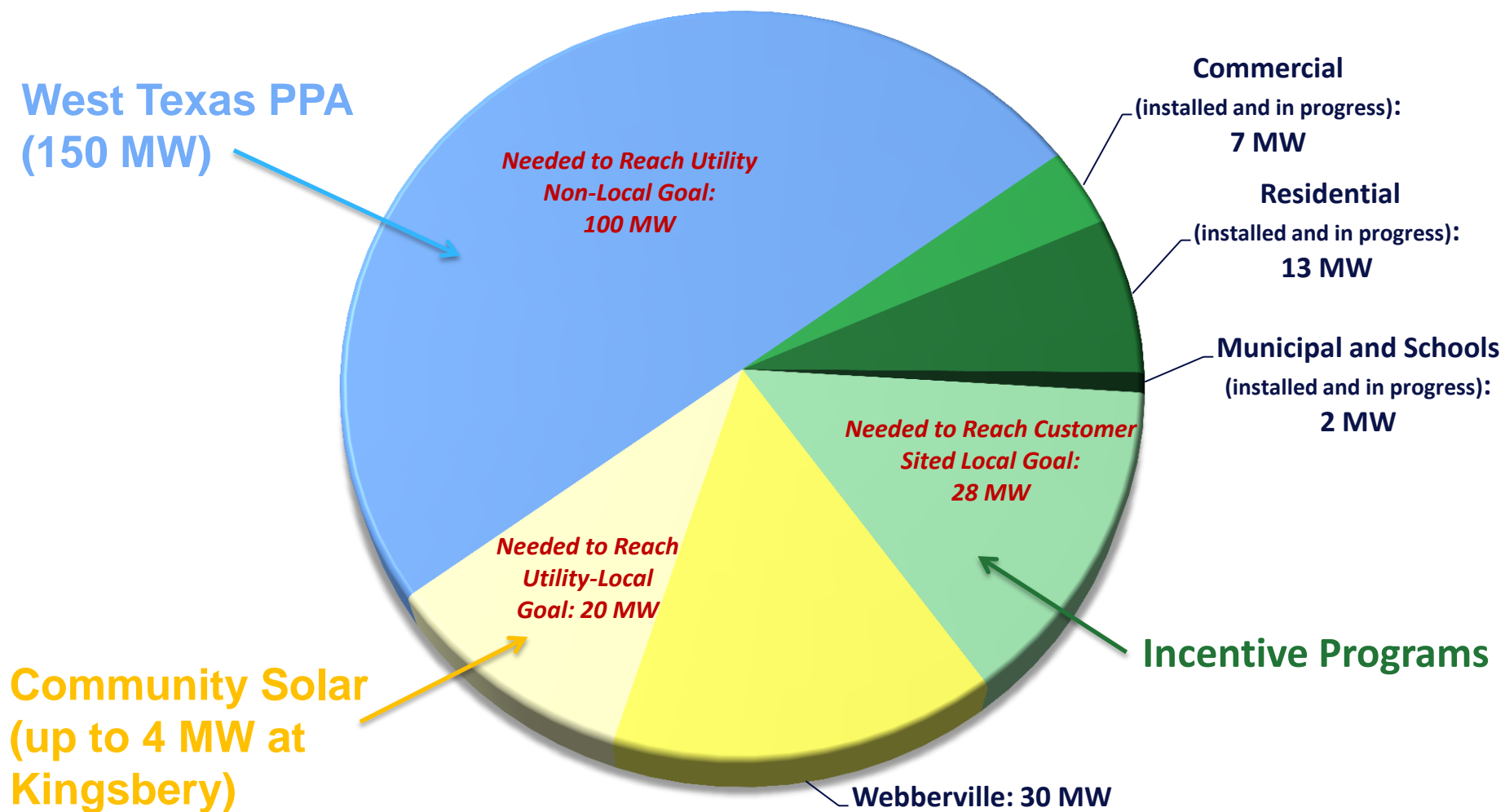
# Austin's Solar Goals





# Austin's Solar Goal: 200 MW by 2020

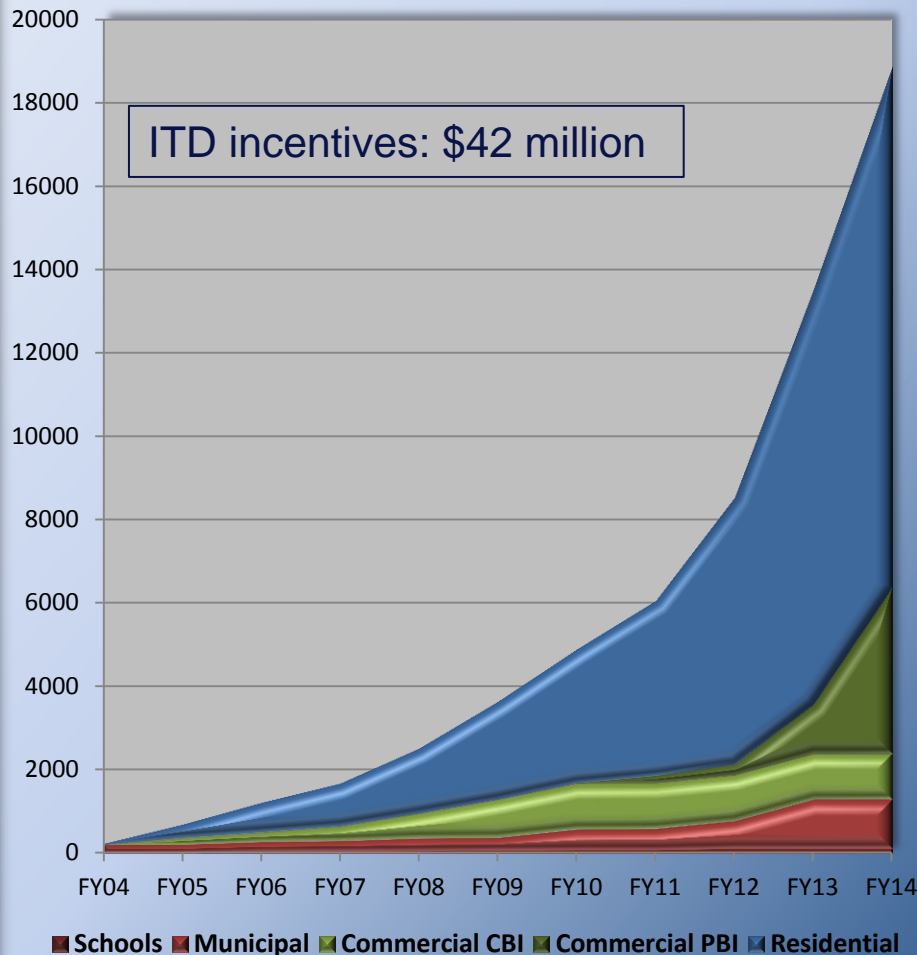
→ Including 100 MW utility scale, 100 MW local (at least 50 MW customer sited)



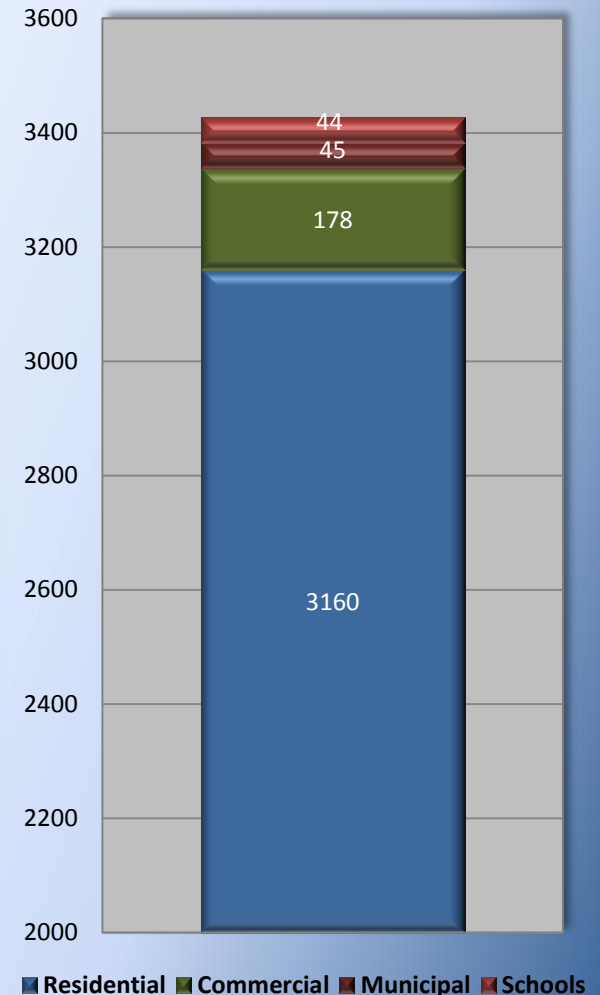


# Customer-Sited Solar

**Customer-Sited Solar Installed**  
(kW-ac as of May 1, 2014)

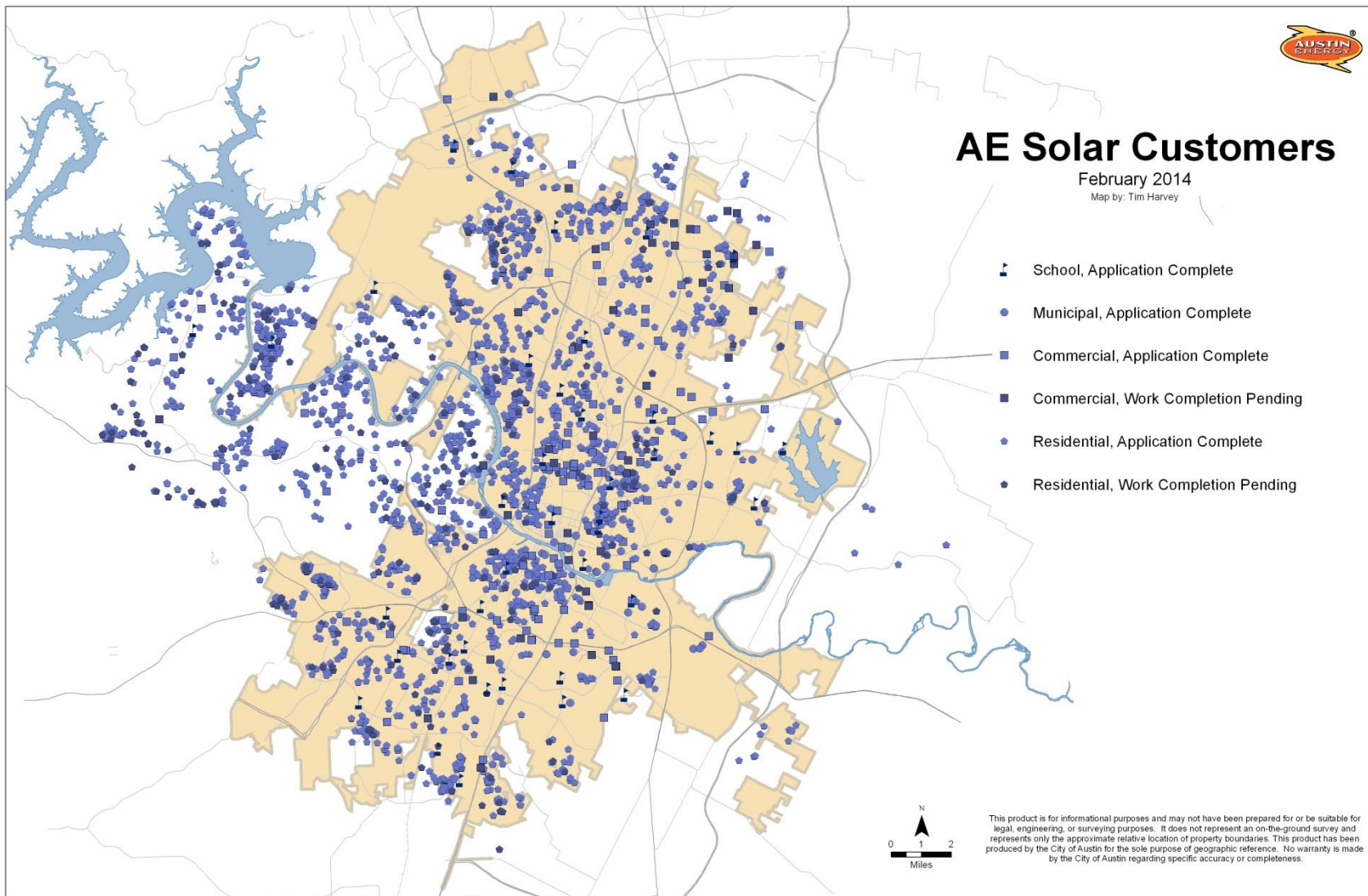


**Number of Participants**





# Map of Solar Installations in AE Service Territory





# **Austin's Solar Incentive Programs:**

## **Residential Rebate and**

## **Commercial Performance Based Incentive**





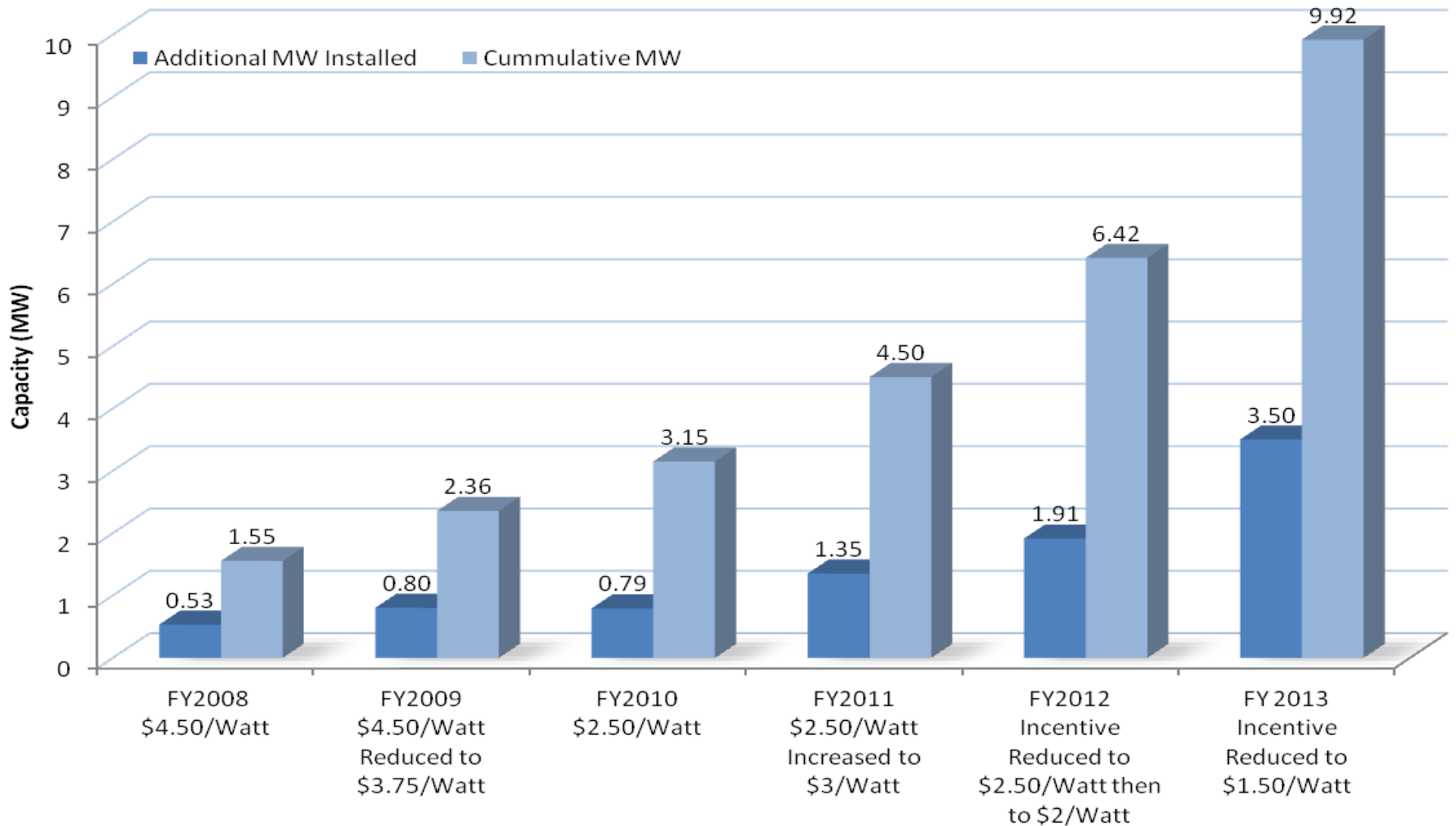
# AE Solar Programs (Program Accrual Data)

Solar Rebate Program	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
<b>Residential (Capacity Based Incentive)</b>					
Rebate Dollars	\$ 4,228,791	\$ 3,216,535	\$ 4,711,101	\$ 5,721,412	\$ 7,877,289
# Rebates	255	213	328	458	719
kW-AC	803.07	793.26	1352.65	1913.26	3503.00
Avg. Rebate per customer	\$ 16,583	\$ 15,101	\$ 14,363	\$ 12,492	\$ 10,956
Avg. System Size kW-AC	3.15	3.72	4.12	4.18	4.87
\$/kW-AC	\$ 5,266	\$ 4,055	\$ 3,483	\$ 2,990	\$ 2,249
<b>Commercial (Capacity Based Incentive)</b>	<b>(Capacity Based Incentive)</b>	<b>(Capacity Based Incentive)</b>	<b>(PBI)</b>	<b>(PBI)</b>	<b>(PBI)</b>
Rebate Dollars	\$ 2,086,483	\$ 556,649	\$ -	\$ -	\$ -
# Projects	37	11	8	10	19
kW-AC	376.62	106.28	157.90	89.91	925.00
\$/kW-AC (Capacity based incentive)	\$ 5,540	\$ 5,237	-	-	-
PBI Incentive rate (\$/kWh)	-	\$ 0.14	\$ 0.14	\$ 0.14	\$ 0.12
<b>Municipal</b>					
Installed Cost	\$ 48,624	\$ 1,132,206	\$ 117,716	\$ 1,066,867	\$ 5,252,988
# projects	1	6	1	9	3
kW-AC	3.00	178.00	14.00	139.00	1018.00
Avg. Cost per Project	\$ 48,624	\$ 188,701	\$ 117,716	\$ 118,541	\$ 1,750,996
Avg. System Size kW-AC	3.00	29.67	14.00	15.44	339.33
\$/kW-AC	\$ 16,208	\$ 6,361	\$ 8,408	\$ 7,675	\$ 5,160
<b>Schools</b>					
Installed Cost to AE	\$ 73,502	\$ 68,714	\$ 29,707	\$ 601,055	\$ -
# projects	6	4	1	14	0
kW-AC	12.63	8.62	2.77	38.81	0.00
\$/kW-AC	\$ 5,820	\$ 7,971	\$ 10,725	\$ 15,488	\$ -
<b>Weberville</b>					
kW-AC	-	-	-	30000	-
<b>Total Dollars Spent</b>	<b>\$ 6,489,400</b>	<b>\$ 5,062,104</b>	<b>\$ 4,960,964</b>	<b>\$ 7,611,145</b>	<b>\$ 8,072,081</b>
<b>Total Number of Project</b>	<b>326</b>	<b>275</b>	<b>382</b>	<b>581</b>	<b>769</b>
<b>Total kW-AC</b>	<b>1,213</b>	<b>1,131</b>	<b>1,558</b>	<b>32,241</b>	<b>5,464</b>



•Updated Solar rebate program data showing unaudited 2013 numbers to correspond with Table 25 from Annual Performance Report, Numbers exclude application approvals that will be paid in future years.

## Residential Solar Installations



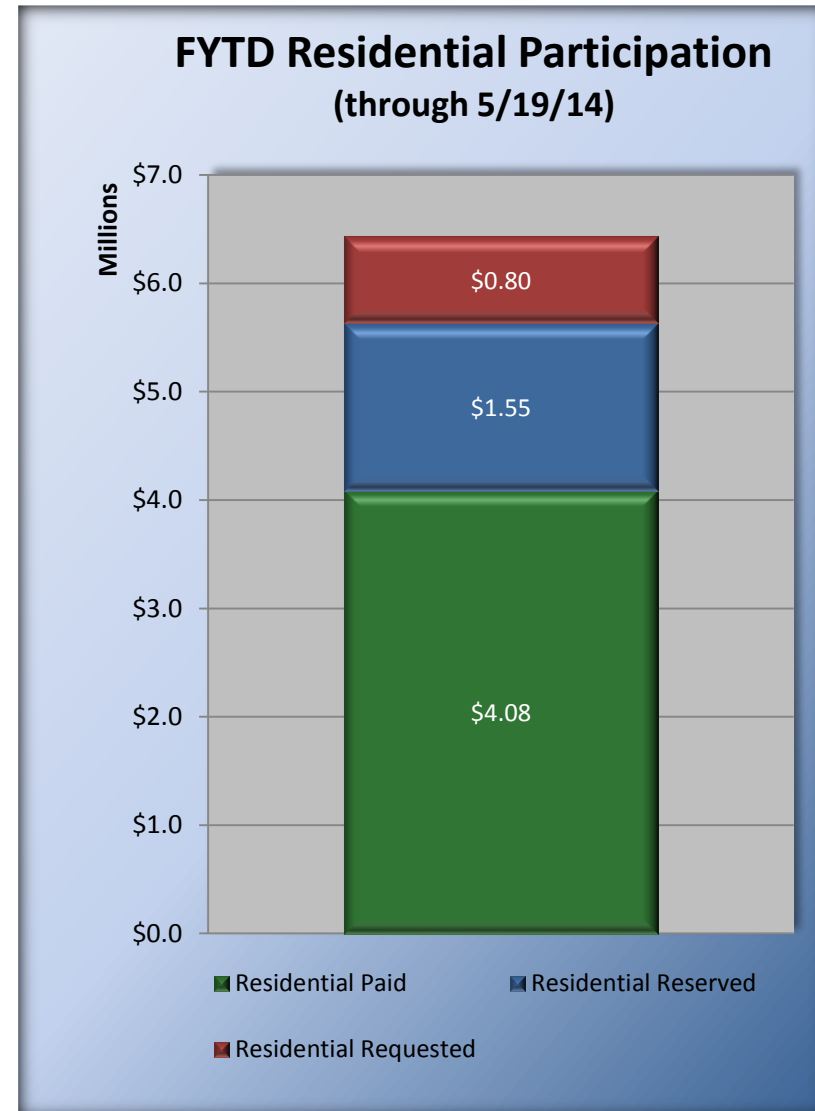


# Current Status of Solar Incentive Programs

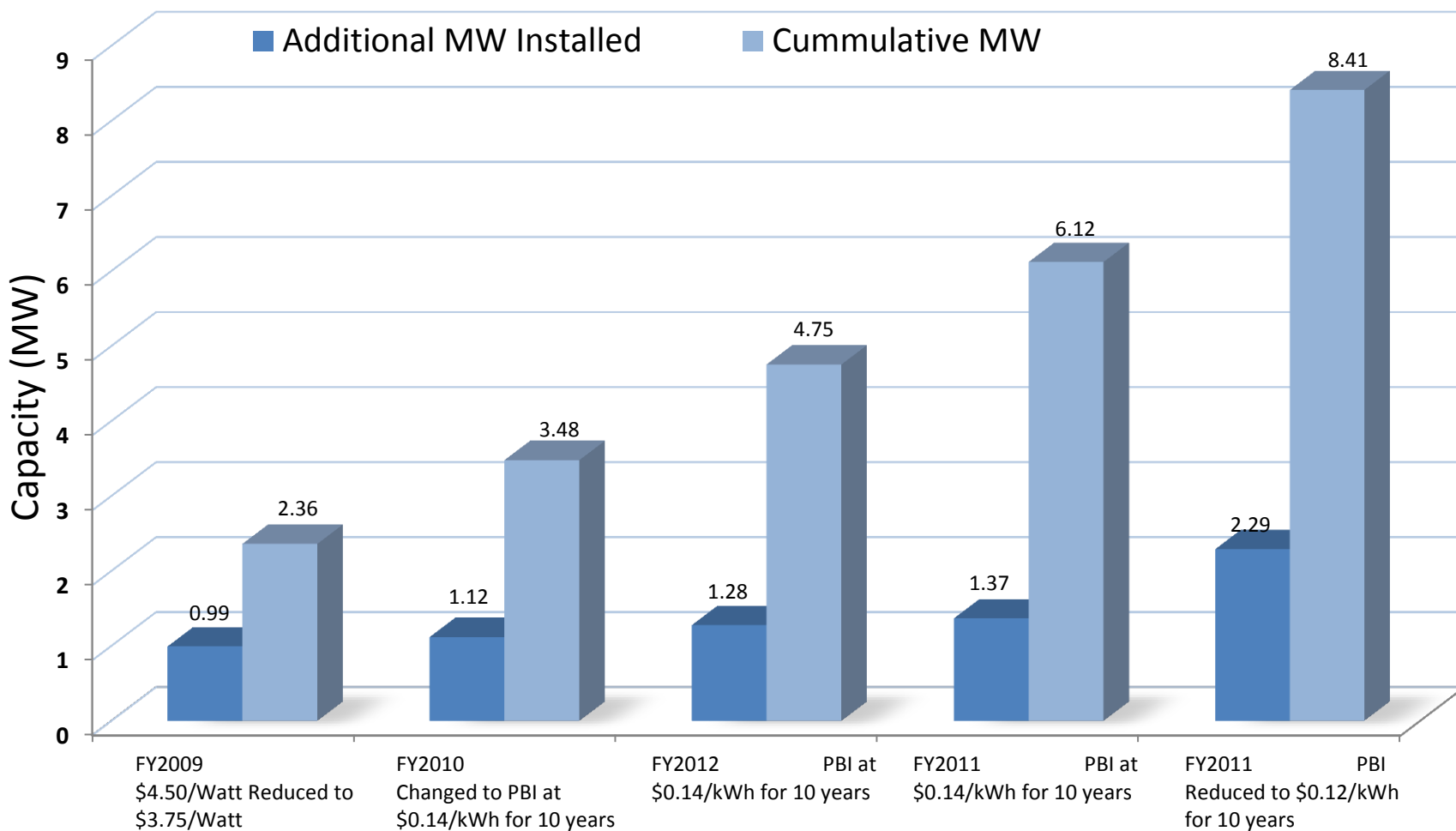
## Residential

- 2.2 MW residential solar added to date in FY14
- On target to hit \$6 million incentives paid in FY14

*The lag time in processing applications and construction makes it look like the program is more heavily subscribed than it actually is; \$2.2m of residential paid this year was committed in FY13.*



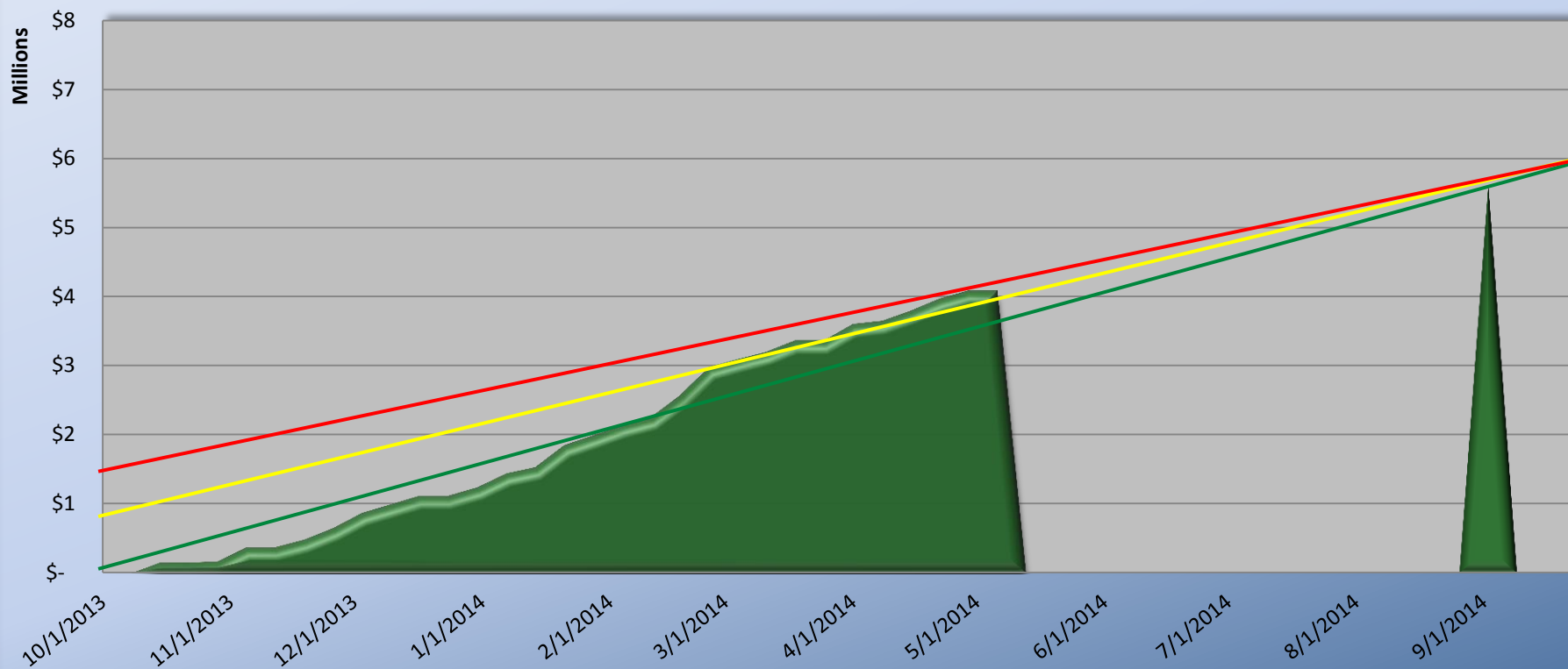
## Commercial Solar Installations





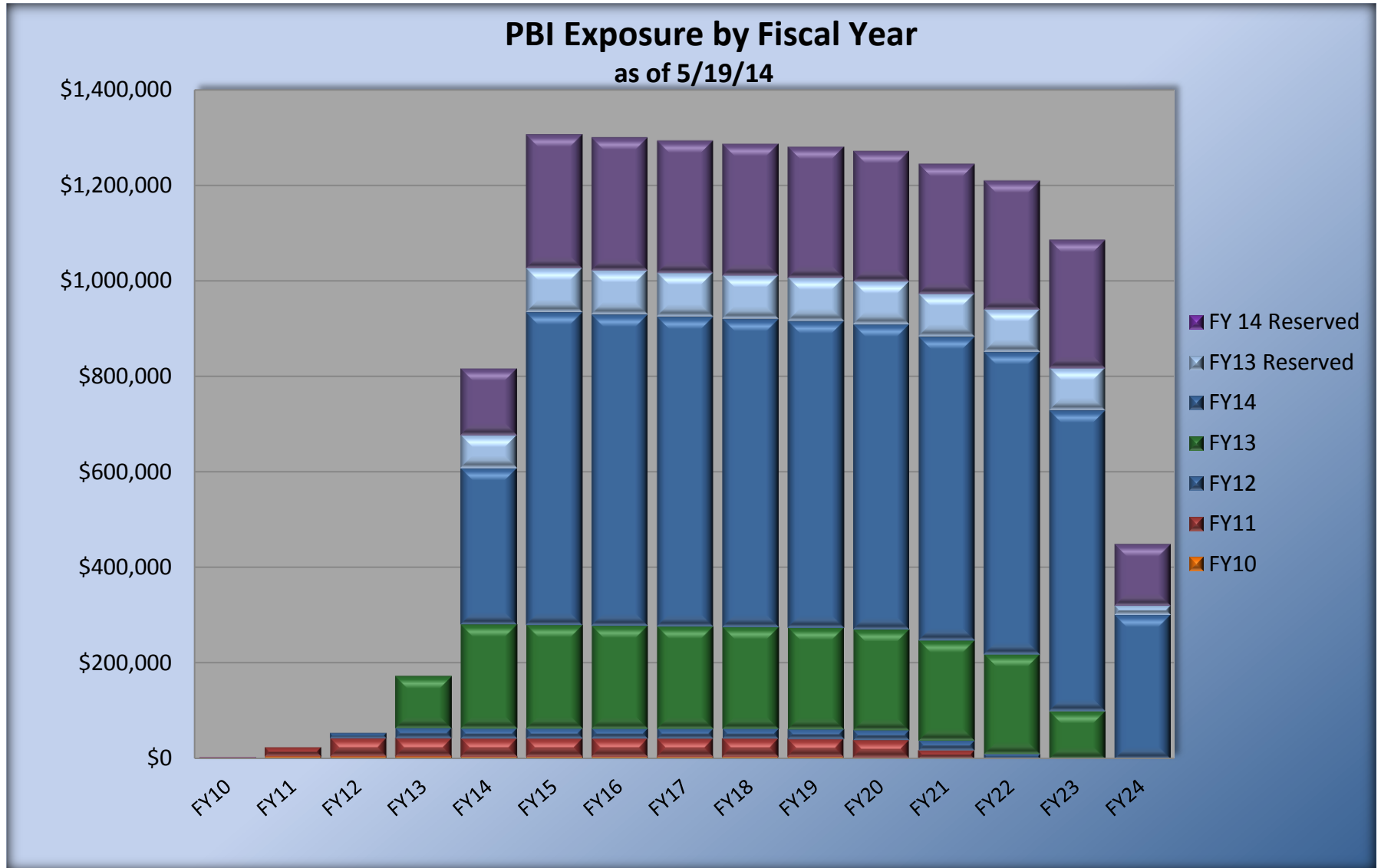
# Performance Based Initiative (PBI) Current Status (FY14 To Date)

**Paid (\$) vs. Unpaid Reservations (\$) FY14**  
**Paid (\$) Forecast Identified by Green Spike**





# Performance Based Initiative (PBI)



\$14 million committed to date, including reservations



# Value of Solar & the Residential Solar Rate



# What is Value of Solar (VoS)?

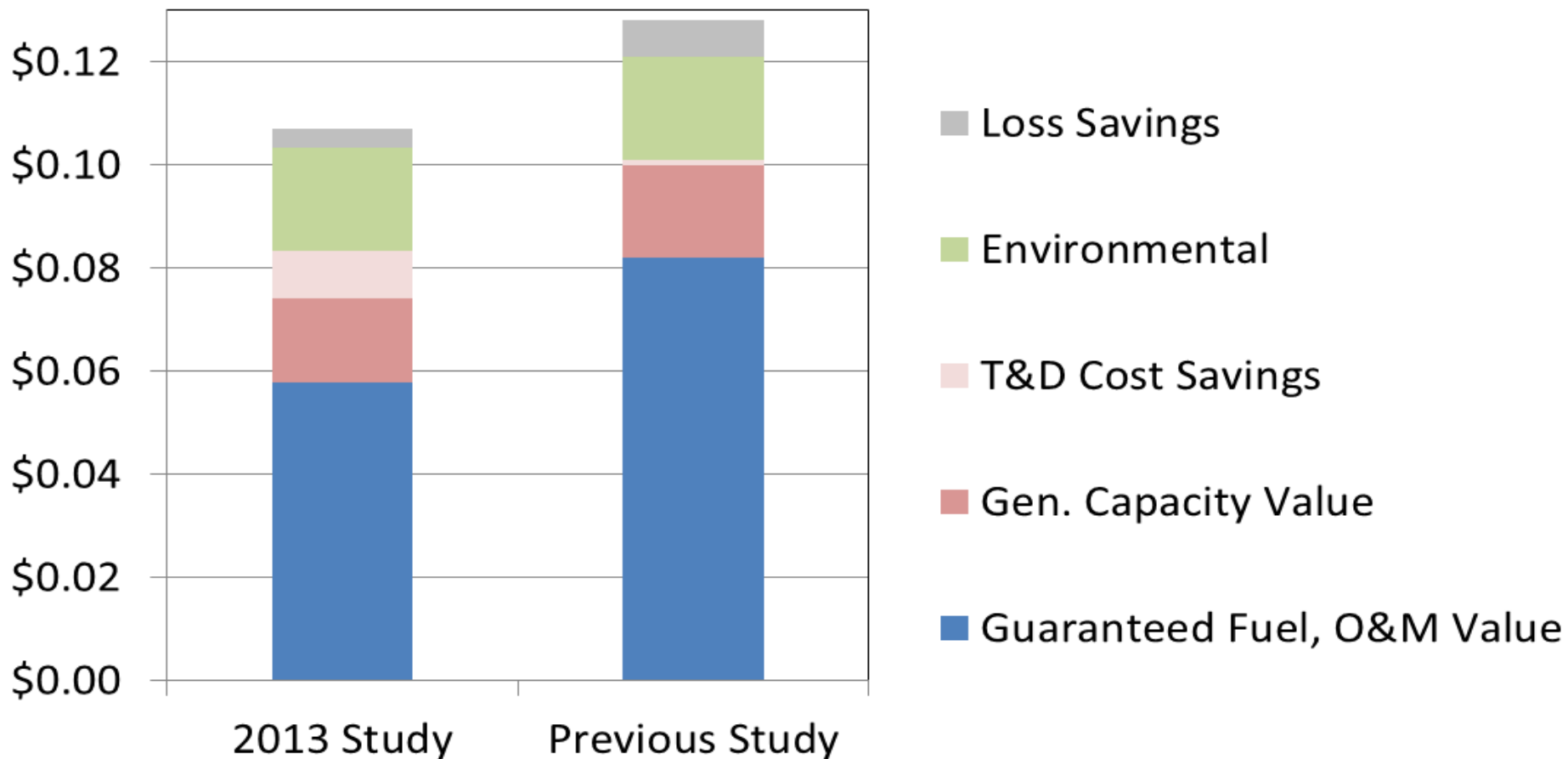
- Avoided cost study
  - Attempts to quantify value at which the utility is “neutral” to paying for locally generated PV
- First study conducted in 2006 by Clean Power Research, value used internally
- Value has fluctuated historically based on market changes
- Integrated into residential solar tariff in 2012 and reviewed annually
- In July 2013, Clean Power Research was hired again to review the study
- In October 2013
  - CPR presented the study results to the Joint EUC/RMC meeting
  - VoS for 2014 was announced to be effective from Jan 1<sup>st</sup>, 2014



# How is the VoS calculated?

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.

# How Do 2013 Results Compare to Previous Study?

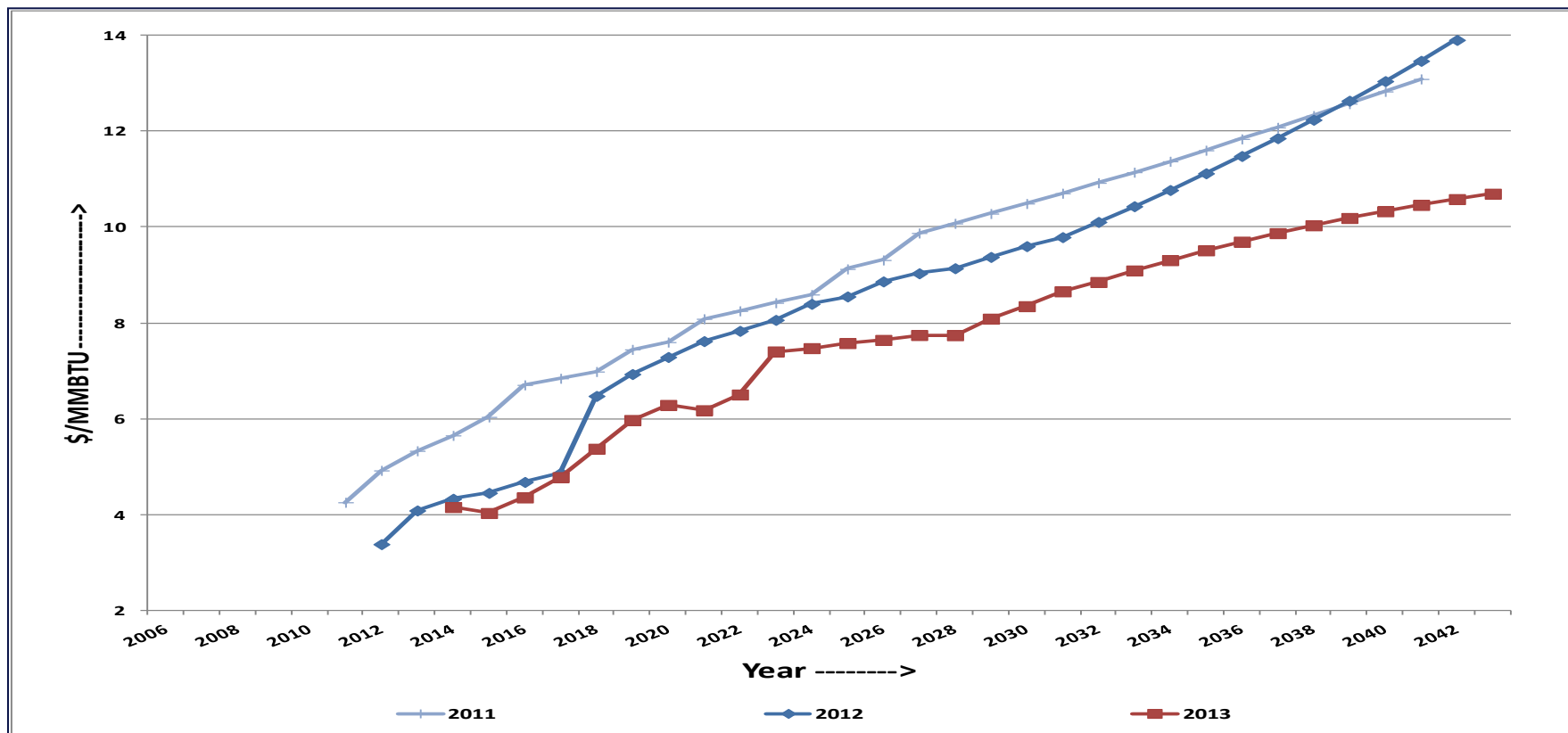




## Why did results change in 2013?

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

- The avoided fuel cost is a large portion of the VoS
- The VoS and the future price of natural gas generally trend with one another, as other variables in VoS are less volatile
- NG futures prices have dropped each of the last 3 years





# Value of Solar (VoS) Applied

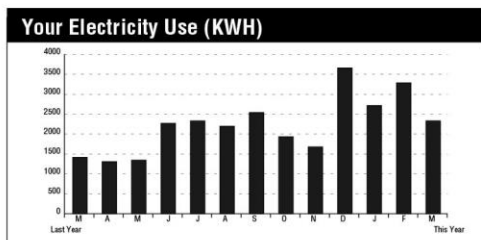
## Residential Solar Tariff:

- Meter consumption and production separately
- Customer billed for whole house consumption
  - All energy consumed onsite, whether from grid or solar system
- Customer credited for solar production
  - Credited for *all* solar generation, whether used onsite or sent back to grid
    - Solar credit = Total kWh produced x VoS factor
  - Balance applied to electric bill until it zeroes, remaining credits roll over month-to-month



# Understanding the Residential Solar Bill

## Service Details



**Current Month**  
Days of service 30  
kWh used 2332  
Avg. kWh per day 77.7  
Avg. cost per day \$8.93  
13 month avg. consumption: 2231.23

The solar customer is billed on Whole House Consumption which is applied to the five tier rate schedule. Whole House Consumption is calculated by adding the net energy consumed from the grid to the PV production.

The solar customer is then credited for their PV production at the Value of Solar Rate.

If the Total Current Charges result in a negative amount, a credit will roll forward to the next month's bill. Credits are non-transferrable and non-refundable and may only be applied to the electric bill they are associated with, or other electric accounts on the same premise, in the same customer's name.



## ELECTRIC SERVICE

PowerLink Number: 0000000000  
111 Anywhere Street

### Meter #

Read Date	02/15/2014	03/17/2014	Read Diff.
Delivered Read	38358	40849	2491
Received Read	471	631	160
Net Read	37886	40218	2332

### Meter #

Read Date	02/15/2014	03/17/2014	Generation
Solar PV Read	9372	9815	443
Total Generation in KWH			443

### Whole House Consumption in kWh

COA - Electric Residential	
Customer Charge	\$10.00
Tier 1 first 500 kWh at \$0.018 per kWh (winter)	\$9.00
Tier 2 next 500 kWh at \$0.056 per kWh (winter)	\$28.00
Tier 3 next 500 kWh at \$0.0717 per kWh (winter)	\$35.85
Tier 4 next 1,000 kWh at \$0.0717 per kWh (winter)	\$71.70
Tier 5 remaining 275 kWh at \$0.0717 per kWh (winter)	\$19.72
Regulatory Charges 2,775 kWh at \$0.00794 per kWh	\$22.03
Temporary Regulatory Charge 2,775 kWh at \$0.00057 per kWh	\$1.58
Community Benefit Charges	\$14.37
Power Supply Adjustment 2,775 kWh at \$0.03709 per kWh	\$102.92
Solar Credit 443 PV kWh at \$-0.107 per kWh	-\$47.40
Residential Sales Tax	

**TOTAL CURRENT CHARGES** ..... **\$267.77**

Want to save money on your electric bill? Visit [austinenenergy.com](http://austinenenergy.com) for information on our rebate programs and energy saving tips.





# VoS addresses several challenges of Net Metering

## Under net metering in a tiered rate structure:

- Customers with higher consumption are compensated at a higher value per kWh than customers in lower tiers
  - Equity issue, as high consumers tend to be higher income
  - Doesn't encourage energy efficiency
- Customers with lower levels of consumption are compensated at a level below the value of the energy to the system
  - Disincentive for energy efficient homes to go solar
- 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 customers
- Under a tiered rate structure, the signal sent to customers is that production offsetting higher tiers of consumption is more valuable to the utility



# Residential Solar Rate Review

- Remove year-end credit sweep
  - allow *non-refundable* credits to roll over until customer ceases to be an AE customer
  - credits are *non-transferable*, applicable only to electric bills; may apply credits to customers' other electric accounts on same premise
- Improve surety for customers
  - Solar rate volatility a concern to contractors and solar customers; looking at options to improve surety and stability.
- VOS will be set annually through the budget process
  - Integrating forward commodity reports released in April



- Updating Incentive Program Guidelines
- Working with Industry on Streamlining Incentive Application, Permitting & Inspection processes
- Developing robust community solar program
  - Expanding access to solar, diversity of participation
- Grid Integration
  - Addressing power quality impacts: VARS, voltage flux



Questions?

