



# Value of Solar Update



EUC Meeting December 16, 2013

Debbie Kimberly, Vice President, Customer Energy Solutions

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

*'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.'*

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

# 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% FTC or be construed as taxable gross income

# Timeline for 2013 VoS Review



- 7/23 Finalized contract for work with CPR
- 9/26 Tom 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 that VoS results were being finalized, would be presented to Joint EUC/RMC meeting
- 10/17 Solar contractor meeting - AE informed contractors VoS was changing and would be presented at the joint EUC/RMC meeting
- 10/21 Tom Hoff presentation of results to AE Executive Team
- 10/21 Tom Hoff presentation on VoS to joint EUC/RMC meeting
- 10/22 Larry Weis memo to Council and Commissions announcing VoS change
- 11/21 New VoS announced to contractors at monthly solar contractor's meeting
- 12/6 Press Release & January PowerPlus article
- 12/6 Letters to Customers
- 12/13 Executive summary from Tom Hoff completed and distributed to Council and Commissions

### 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

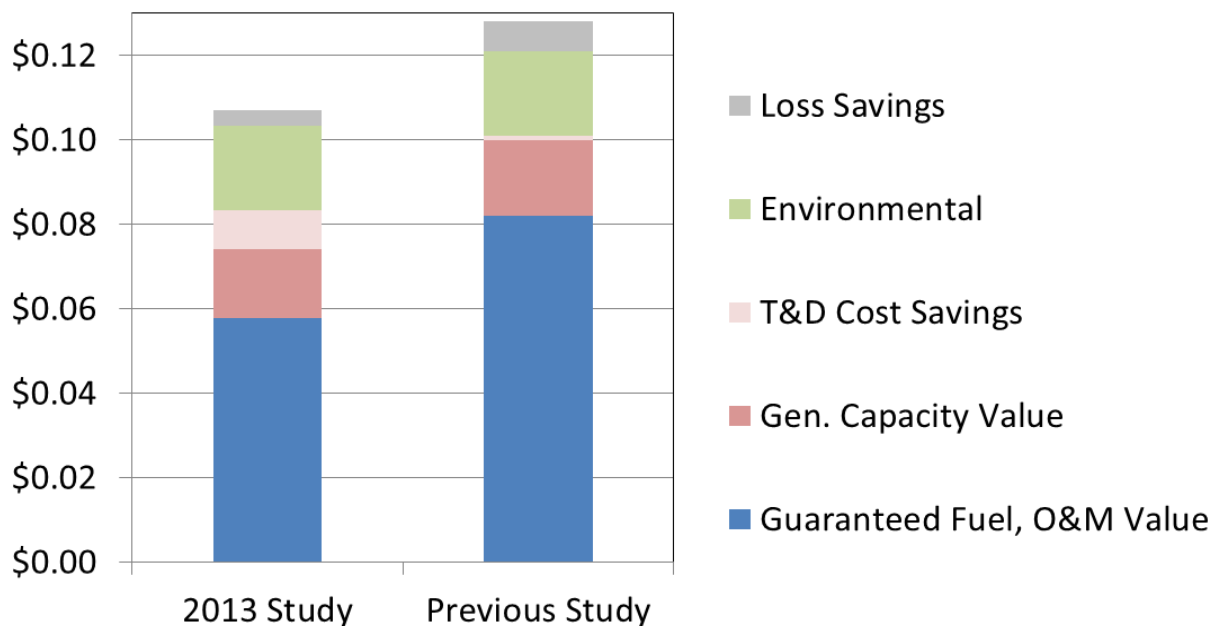
| Value Component                       | Basis   |
|---------------------------------------|---|
| Guaranteed Fuel Value                 | Cost of fuel to meet electric loads and T&D losses inferred from nodal price data & guaranteed future NG prices |
| Plant O&M Value                       | Costs 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

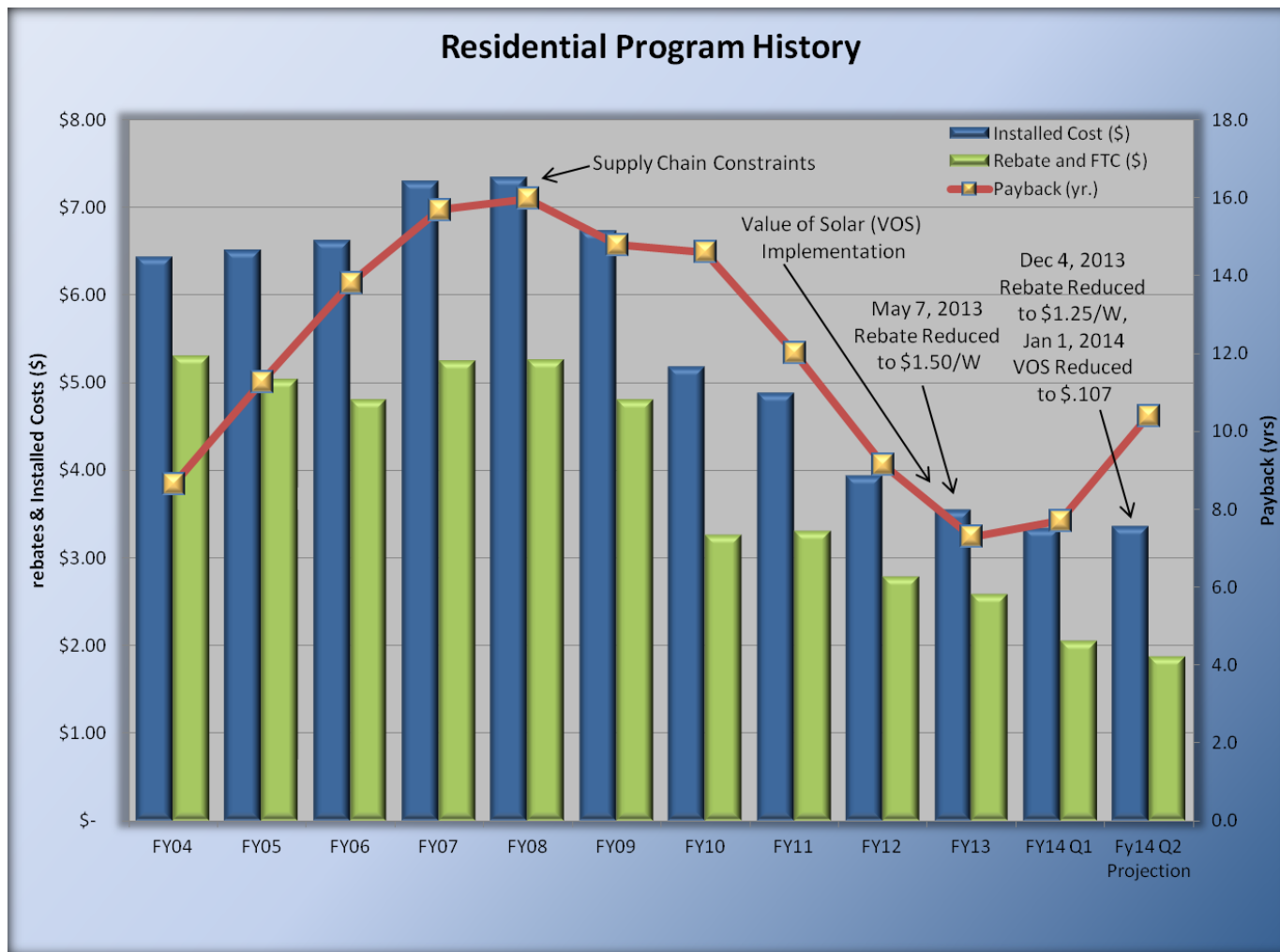
4

### Why Have Results Changed?

- Natural gas prices have declined
- Assumed life is 25 rather than 30 years
- Loss savings are slightly lower
- Transmission savings results have increased
- Methodology has been refined for ERCOT market



# Installed Costs, Rebates and Payback



Payback with a \$1.25/watt rebate and VoS @ 10.7¢ is approx. 10 yrs

# FY14 Solar Program Review



- FY13 excess credits applied to Customer Assistance Program
- Reassess sweep protocol
  - Timing
  - Allowance for non-refundable rollover
- Develop multi-year analysis of requirements to achieve goal(s)
- Provide information to customers to assist in proper system sizing
- Adjust program caps to ensure incentive program aligns with Residential Solar Rider
- Other

# Questions

# 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

# Projected VoS Credit Resets @ 12.8 ¢



| VOS @ \$.128      | Jan-Dec   |            | Oct-Sep   |            | Nov-Oct   |            |
|-------------------|-----------|------------|-----------|------------|-----------|------------|
| Credit Amount     | Count     | Percentage | Count     | Percentage | Count     | Percentage |
| \$0 - (\$50)      | 208       | 14%        | 34        | 2%         | 120       | 8%         |
| (\$50) - (\$100)  | 74        | 5%         | 33        | 2%         | 35        | 2%         |
| (\$100) - (\$200) | 52        | 4%         | 41        | 3%         | 39        | 3%         |
| (\$200) - (\$400) | 49        | 3%         | 48        | 3%         | 48        | 3%         |
| (\$400) -         | 21        | 1%         | 22        | 1%         | 22        | 1%         |
| Total             | 404       | 27%        | 178       | 12%        | 264       | 18%        |
| Ave Credit \$     | 107       |            | 202       |            | 139       |            |
| Total Credit      | \$ 43,228 |            | \$ 35,956 |            | \$ 36,696 |            |

Based on 1483 solar customers with full year data

Actual data is production and consumption for October 2012 through September 2013



# Projected VoS Credit Resets @ 10.7 ¢



| VOS @ \$.107      | Jan-Dec   |            | Oct-Sep   |            | Nov-Oct   |            |
|-------------------|-----------|------------|-----------|------------|-----------|------------|
| Credit Amount     | Count     | Percentage | Count     | Percentage | Count     | Percentage |
| \$0 - (\$50)      | 196       | 13%        | 26        | 2%         | 86        | 6%         |
| (\$50) - (\$100)  | 48        | 3%         | 19        | 1%         | 21        | 1%         |
| (\$100) - (\$200) | 30        | 2%         | 30        | 2%         | 28        | 2%         |
| (\$200) - (\$400) | 20        | 1%         | 20        | 1%         | 20        | 1%         |
| (\$400) -         | 2         | 0%         | 2         | 0%         | 2         | 0%         |
| Total             | 296       | 20%        | 97        | 7%         | 157       | 11%        |
| Ave Credit        | \$ 64     |            | \$ 151    |            | \$ 96     |            |
| Total Credit      | \$ 18,944 |            | \$ 14,647 |            | \$ 15,072 |            |

Based on 1483 solar customers with full year data

Actual data is production and consumption for October 2012 through September 2013

# 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.
  1. 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.

# Impacts of VoS & Net Metering on Mid-High Consumption Customers with the 5-tiered Rate



## 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 onto all rate payers
- Under a five tiered rate structure, the signal sent to customers is that production off-setting higher tiers of consumption is more valuable to the utility, a misconception