

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

Austin Energy ("AE") files this Second 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**

**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 5th day of April, 2016, in accordance with the City  
of Austin Procedural Rules for the Initial Review of Austin Energy's Rates.

THOMAS L. BROCATO

AUSTIN ENERGY  
2016 APR -5 AM 10:26

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:

- B. See Supplemental Attachment 1.
- C. See Supplemental Attachment 2.

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



# Value of Solar Study (VOS)

## 2016 Update





# Updated Results

## 2016 Value of Solar Results

	Economic Value (\$/kWh)	Load Match (No Losses) (%)	Distributed Loss Savings (%)	2016 Distributed PV Value (\$/kWh)
Energy Value	\$0.037		4%	\$0.038
Plant O&M Value	\$0.005	100%	6%	\$0.005
Capacity Value	\$0.027	62%	6%	\$0.018
Transmission Value	\$0.024	62%	6%	\$0.016
Environmental Value	\$0.020		0%	\$0.020
<b>Value of Solar (VOS)</b>	<b>\$0.113</b>			<b>\$0.097</b>



# VOS Rate

Year	VOS Current Method (Cents/kWh)
2012 (Oct-Dec)	12.8
2013	12.8
2014	10.7
2015	10.0
2016 Est.	9.7
<b>5-yr Rolling Avg.</b>	<b>10.9</b>

**Current VOS Rate = 11.3**



# VOS Assessment Components

Value Component	Basis
Fuel Value	Avoided cost of fuel to meet electric loads as well as transmission and distribution losses, based on the local solar PV production profile. This is inferred from ERCOT market price data and future natural gas prices.
Plant O&M Value	Avoided costs associated with natural gas plant operations and maintenance by meeting peak load through local solar PV.
Generation Capacity Value	Avoided capital costs of a conventional peaking natural gas plant by meeting peak load through local solar PV, inferred from ERCOT market price data.
Transmission and Distribution Capacity Value	Avoided transmission costs resulting from the reduction in the peak load by local solar PV.
Environmental Compliance Value	Avoided cost to comply with environmental regulations and local policy objectives.



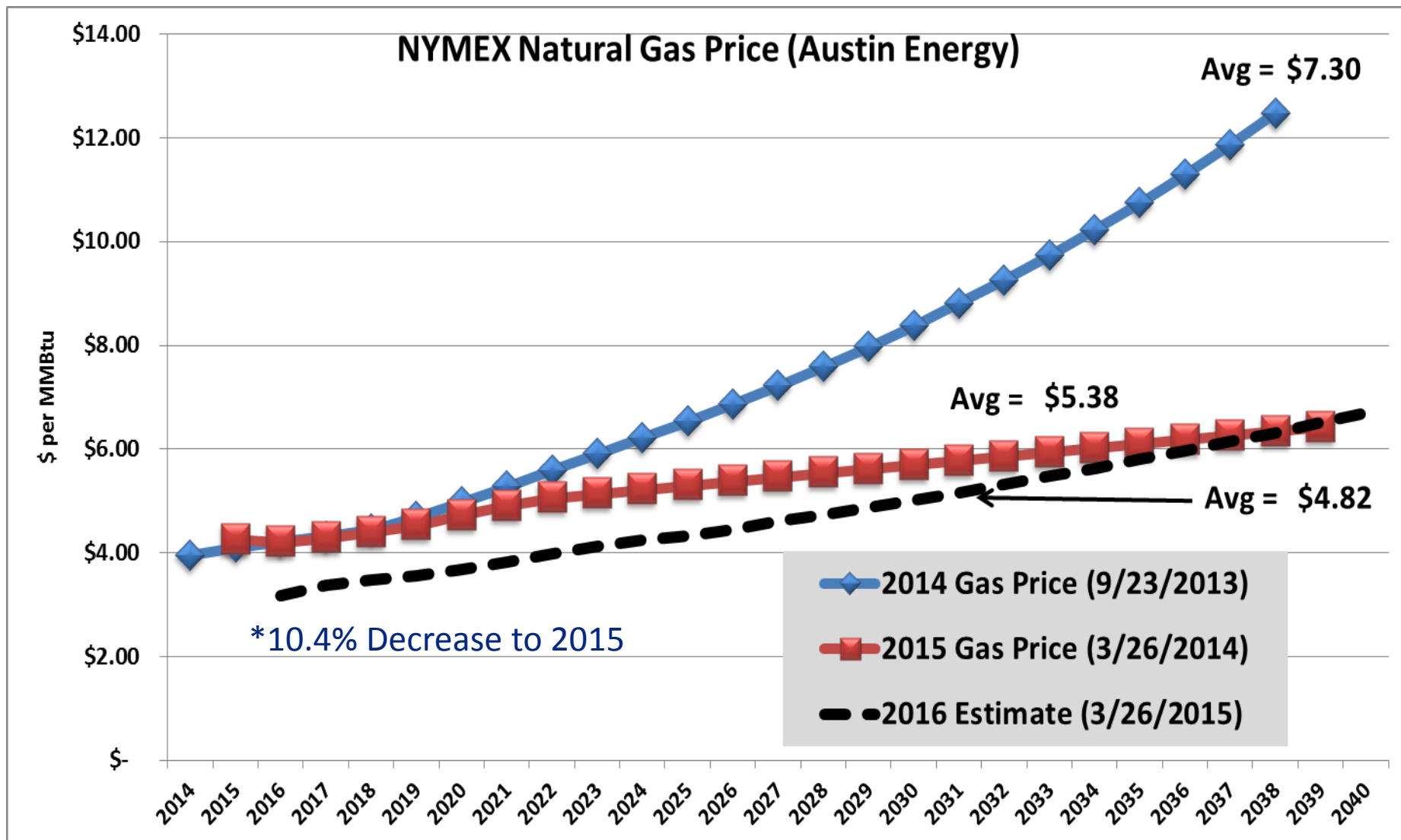
# Updates on the Value of Solar

Value Component	Update	2014 Value	2015 Value	2016 Estimate
<b>Base Year</b>	New Rate Year	2014	2015	2016
<b>NYMEX Natural Gas Price (25-yr price)</b>	Refreshed Quote	Date: 9/23/2013 Avg. \$7.30 per MMBtu	Date: 3/26/2014 Avg. \$5.38 per MMBtu	Date: 3/26/2015 Avg. \$4.82 per MMBtu
<b>Capacity Value</b>	2.10% Inflation	\$676 per kW	\$690 per kW	\$705 per kW
<b>Plant O&amp;M</b>	2.10% Inflation	\$7.04 per kW-yr	\$7.19 per kW-yr	\$7.34 per kW-yr
<b>Avoided T&amp;D</b>	New 2015 Cost that includes CREZ build out	\$28 per kW	\$41 per kW	\$46.40 per kW
<b>Discount Rate</b>	Refreshed 30-yr Treasury Yield	Date: 8/27/2013 Avg. 2.27%	Date: 4/01/2014 Avg. 2.72%	Date: 3/25/2015 Avg. 1.95%

1. Updated 2014 VOS Gas Turbine Capital Cost and Fixed O&M to 2016\$



# Guaranteed Fuel Value Update







# Value of Solar (VoS) Applied

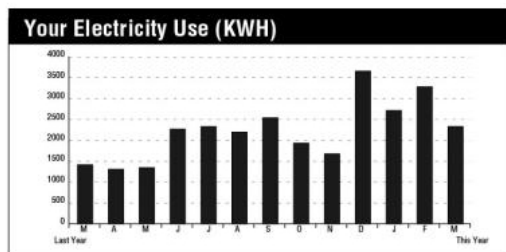
## Residential Solar Tariff:

- Meter consumption and production separately
- Customer billed for whole house consumption
  - Energy delivered (by utility) to home, plus total energy produced by PV, minus solar energy received by utility
- Customer credited for solar production
  - Credited for all solar generation, whether used onsite in real time, 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



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 under 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.



## 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.



# Challenges of Net Metering

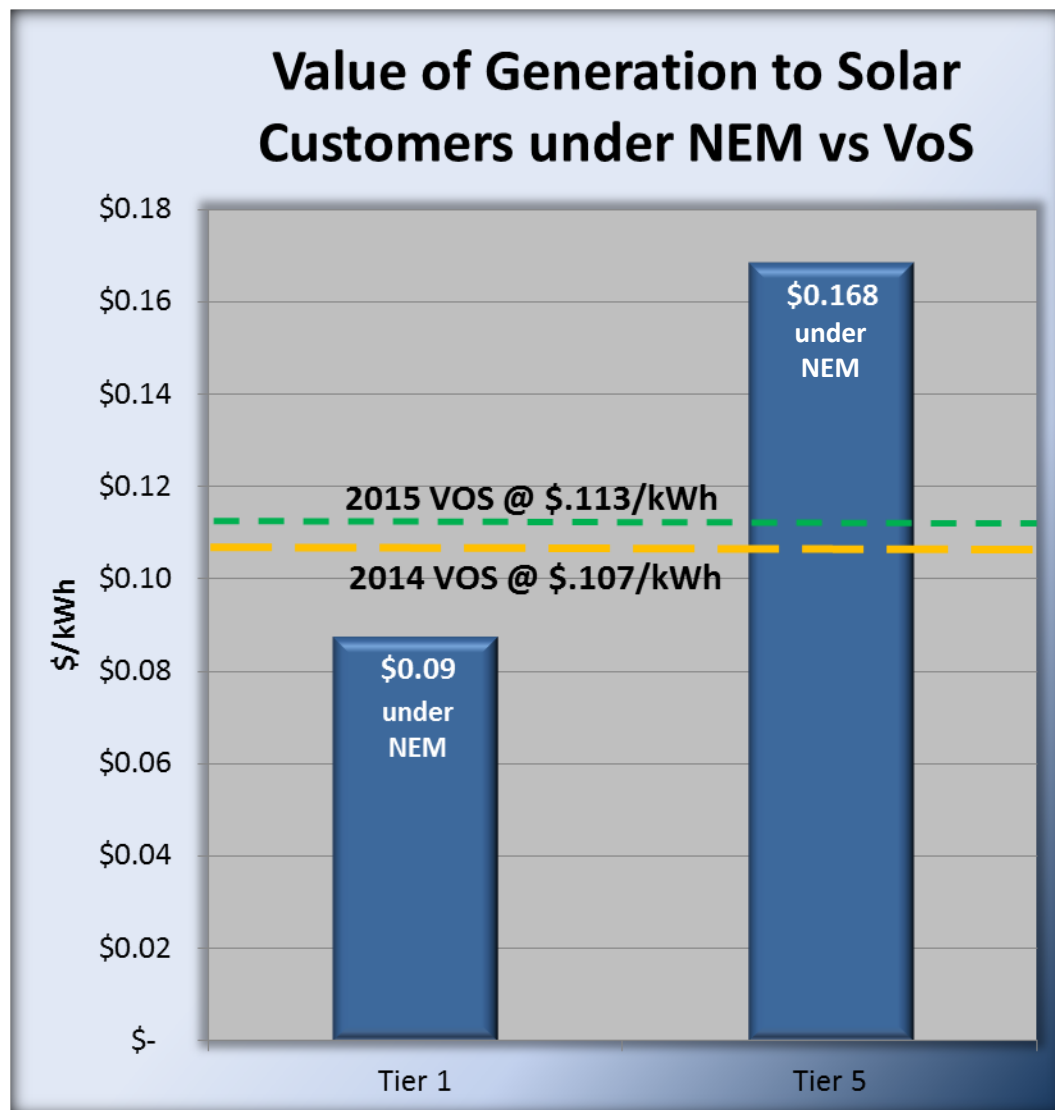
## Under net metering in a tiered rate structure:

- Customers with higher consumption are compensated at a higher value per kWh than customers in lower tiers
  - Equity issue
  - Regressive
  - 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
  - Signal sent to customers is that production offsetting higher tiers of consumption is more valuable to the utility
  - The utility under-recovers the cost of service, having to spread that cost across all customers



# VoS addresses several challenges of Net Metering

- Recovers fixed costs
- Improves equity
  - Between solar customers
  - Between solar and non-solar customers
- Better reflects value of local generation
- Promotes efficiency & conservation





# Austin Energy Community Solar Program

## Final Report Presentation

Nellie Tong  
2-12-2013

# Community Solar Program Design

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The program allows customers to subscribe to a “virtual share” of a PV portfolio and its associated benefits without physically owning a solar system

Features of the program:

- Community PV portfolio that is installed and maintained by Austin Energy
- Customer subscribes to Solar Shares (eg. in 1 kW increment)
- 5- year monthly subscription fee (\$/kW)
- 25 years of solar benefits at Value of Solar Tariff based on the the PV portfolio's performance and number of solar shares
- Target: 6- 8 years payback for the customer

# Benefits to Customers

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- Alternative solar power opportunity to customers who cannot or do not want to install solar on their own property
- Predictable fixed monthly program rate
- Economy of scale
- Minimizes PV performance risk
- Eliminates maintenance hassle
- Enables geographic mobility
- Supports local economy
- Furthers sustainability goals

# Benefits to Utility

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- Accelerates PV penetration
- Increases inclusivity
- Requires customers' long-term commitment to solar
- Gives AE more control over the system's siting, installation, operation and maintenance
- Simplify interconnection and metering
- Allows simple billing
- Supports educational goals

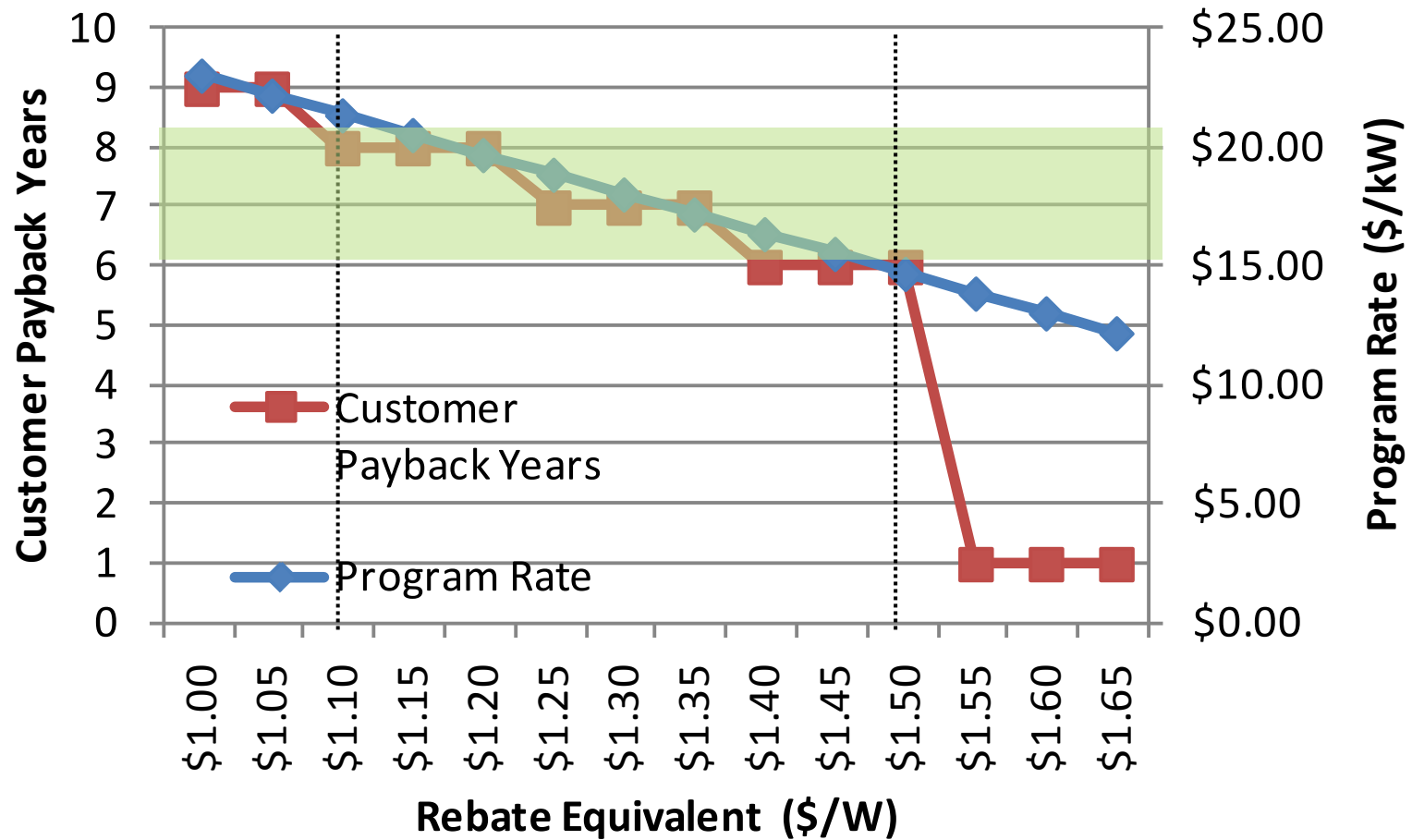


# Program Rate

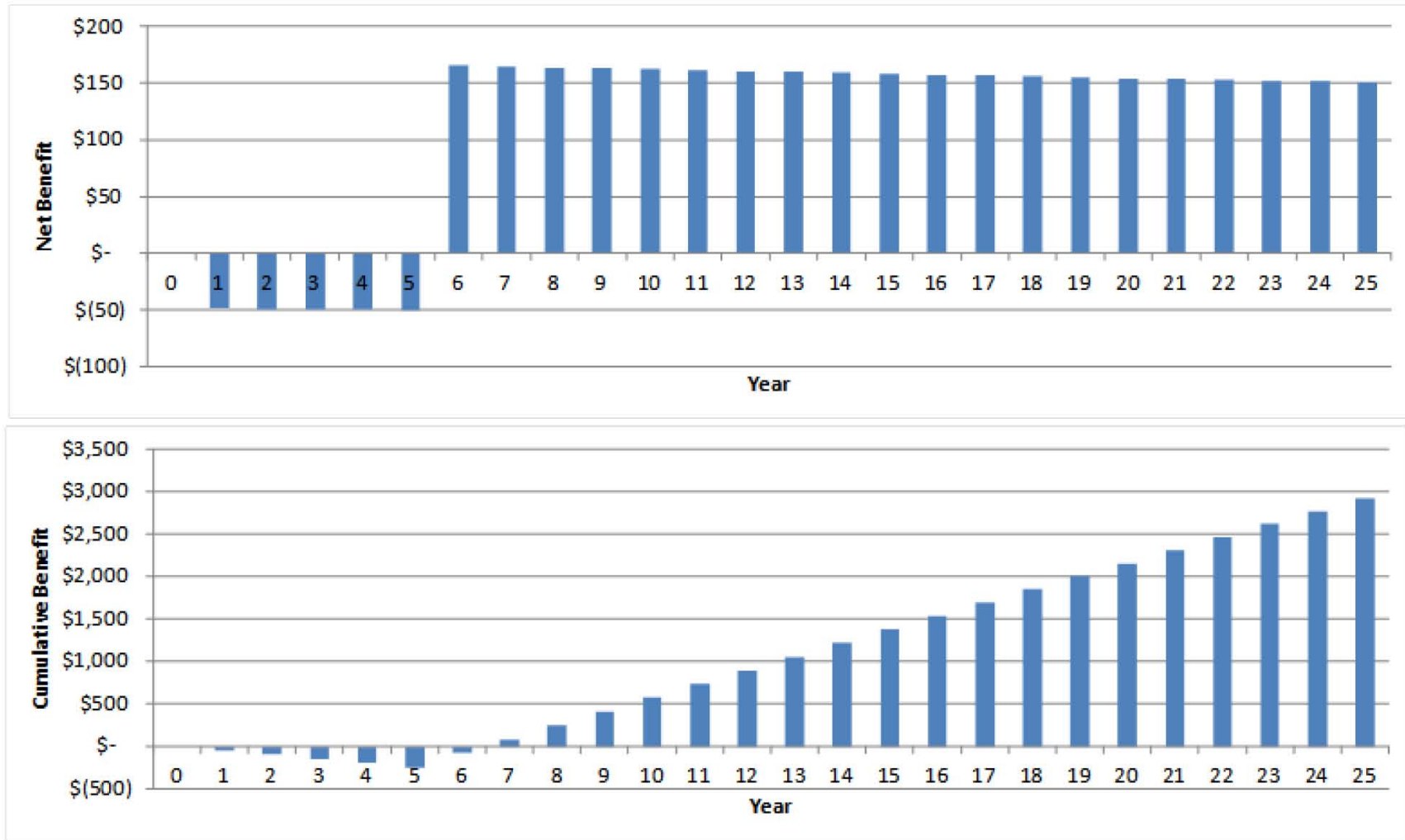
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- A program rate of \$15-21/kW/month would give customers a 6 to 8 years payback
- The program rate incorporates two core elements
  - Expected installation cost of the PV portfolio
  - A discount based on a dollar per Watt (\$/W) solar rebate.
- A financial model was built with the following cost-benefit assumptions:
  - Average installed cost is \$2.5/Watt with an -10% annual adjustment
  - AE does not recover the operation, maintenance, program marketing and administration cost in the program rate.
  - The PV portfolio performs at a capacity factor of 15%
  - The lifetime of each PV installation is 25 years
  - AE installs the same annual capacity of solar over 5 years
  - The program PV portfolio is fully subscribed every year
  - Value of solar tariff (VOST) at 12.8 cents/kWh with no annual adjustment

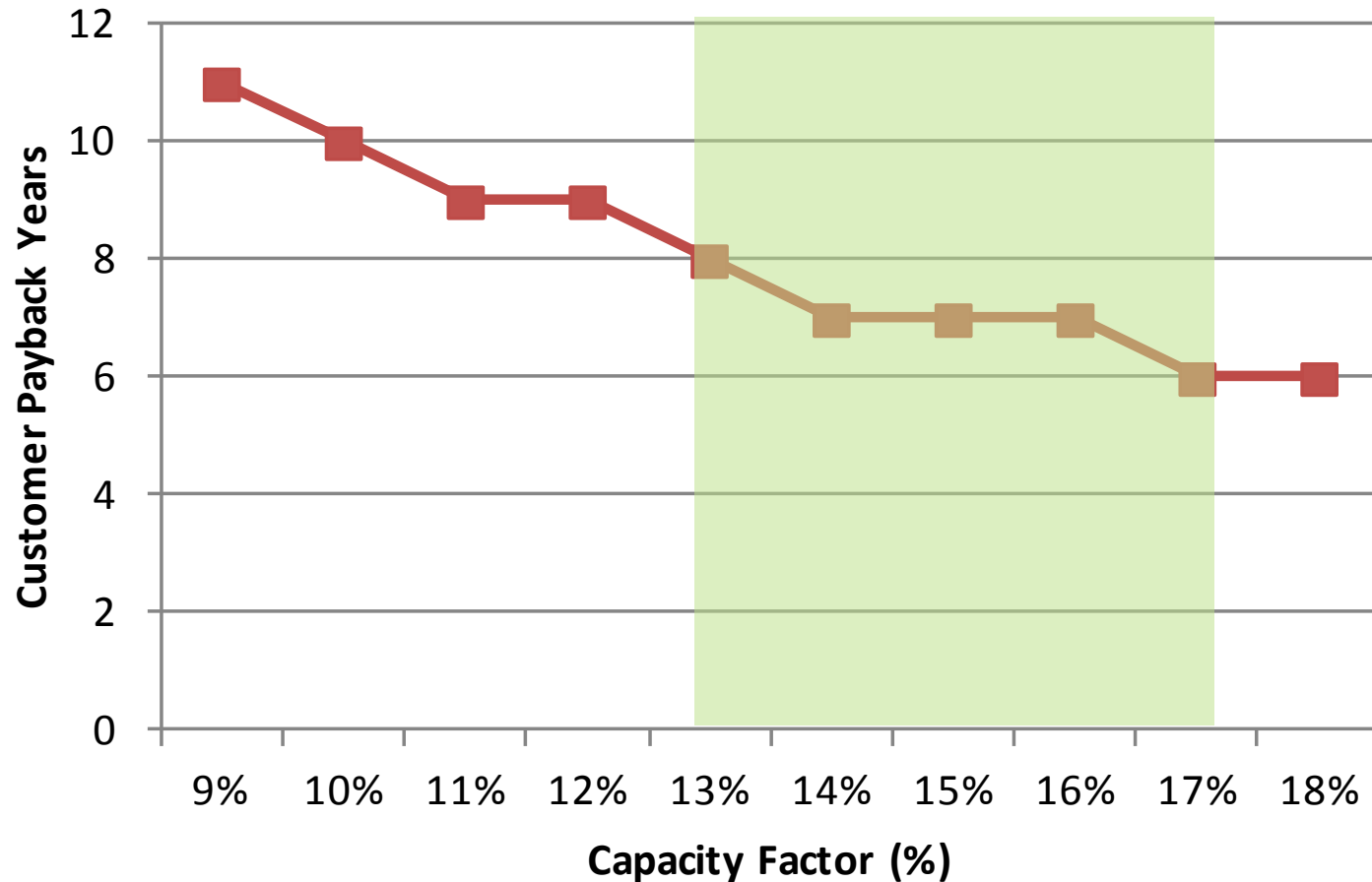
# Program Rate Sensitivity to Solar Rebate



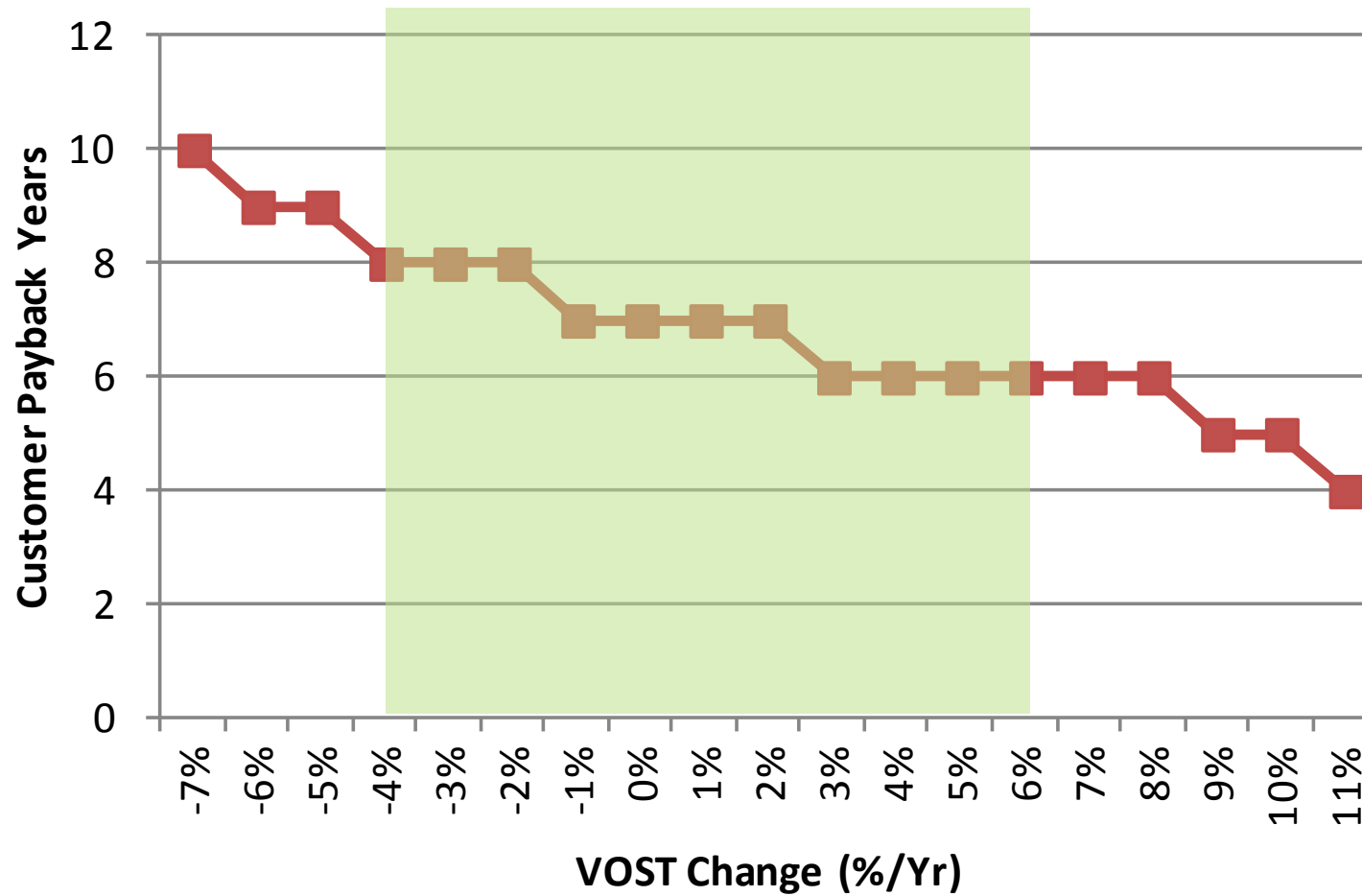
# Customer Cost-Benefit



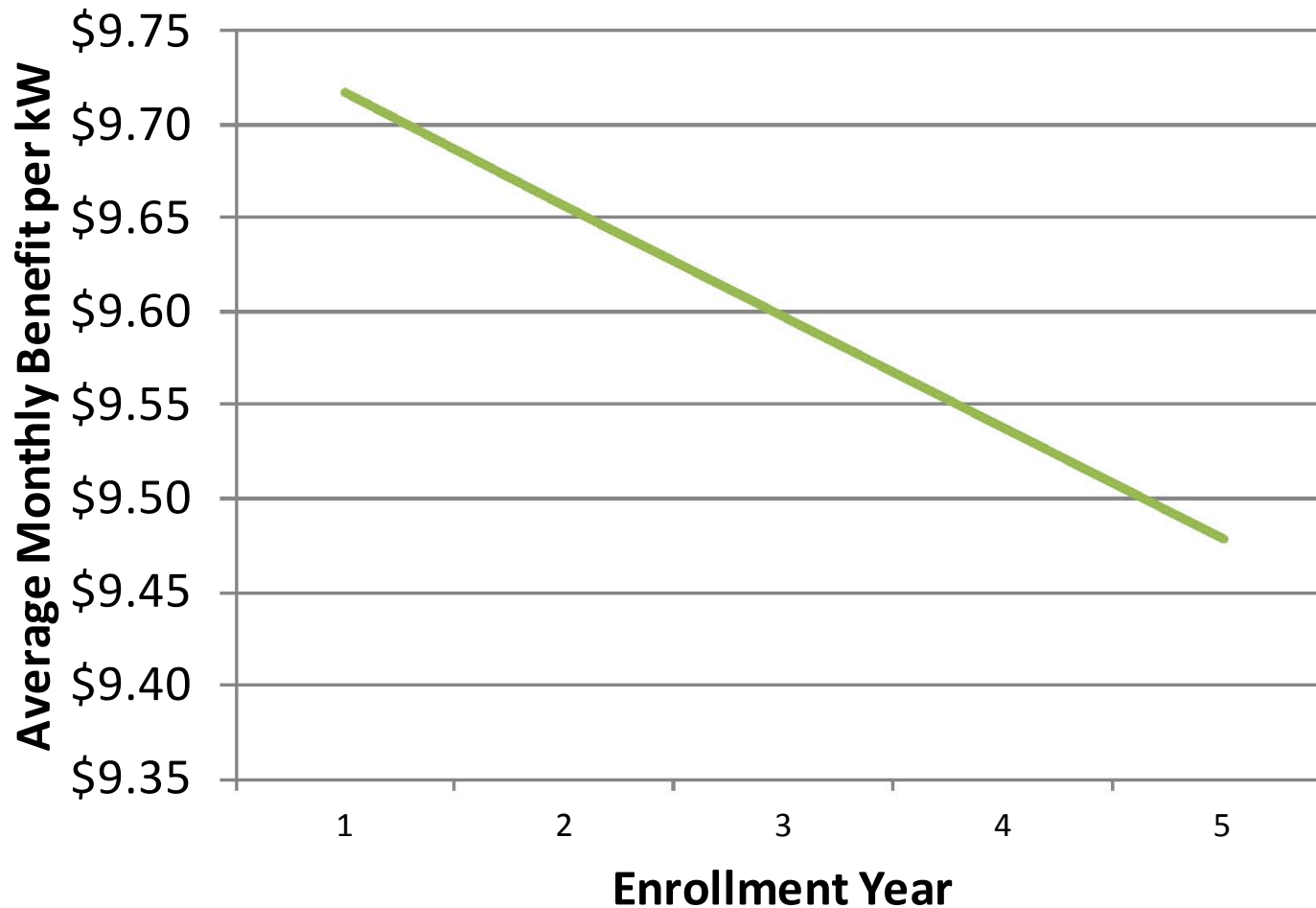
# Payback Sensitivity to PV Performance



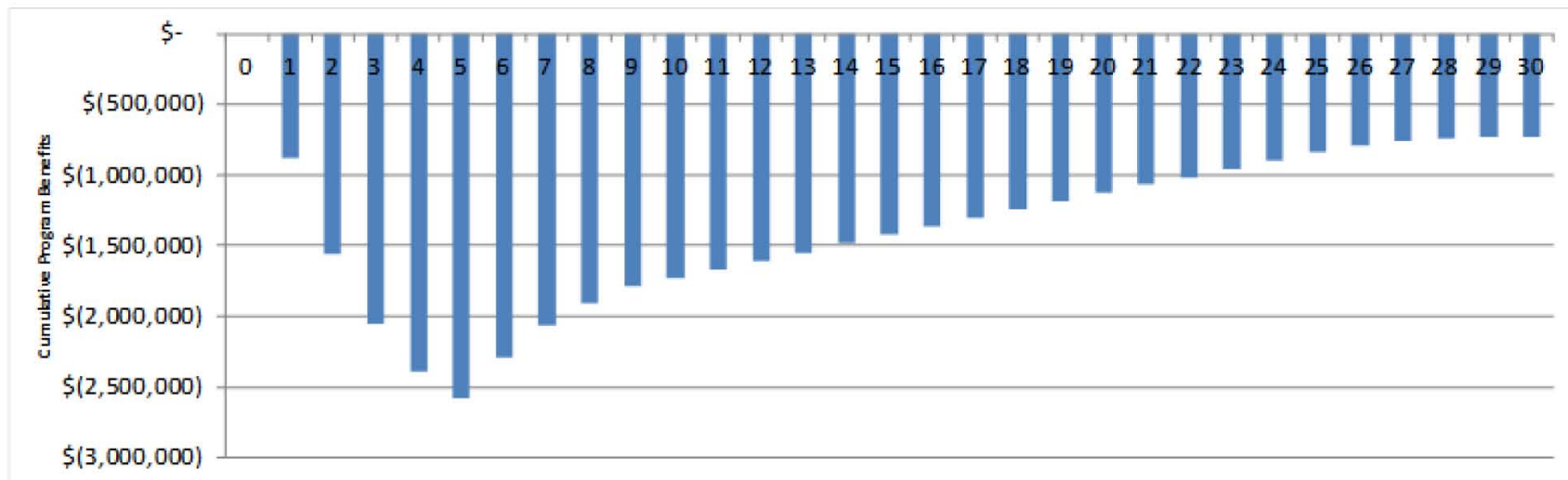
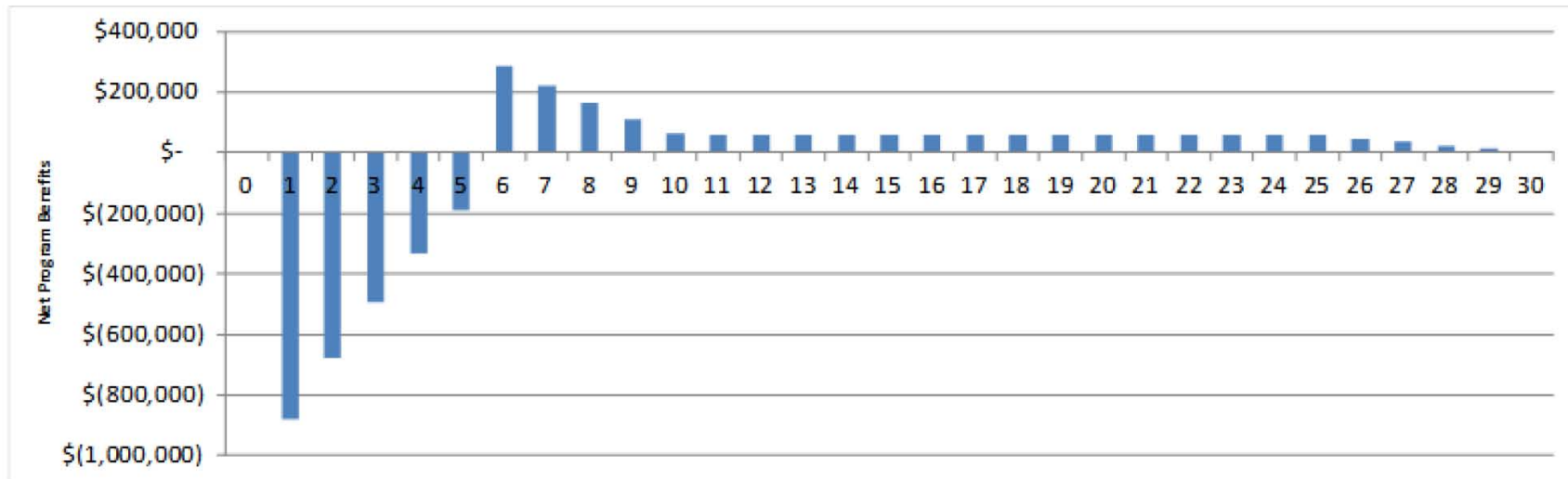
# Payback Sensitivity to VOST Change



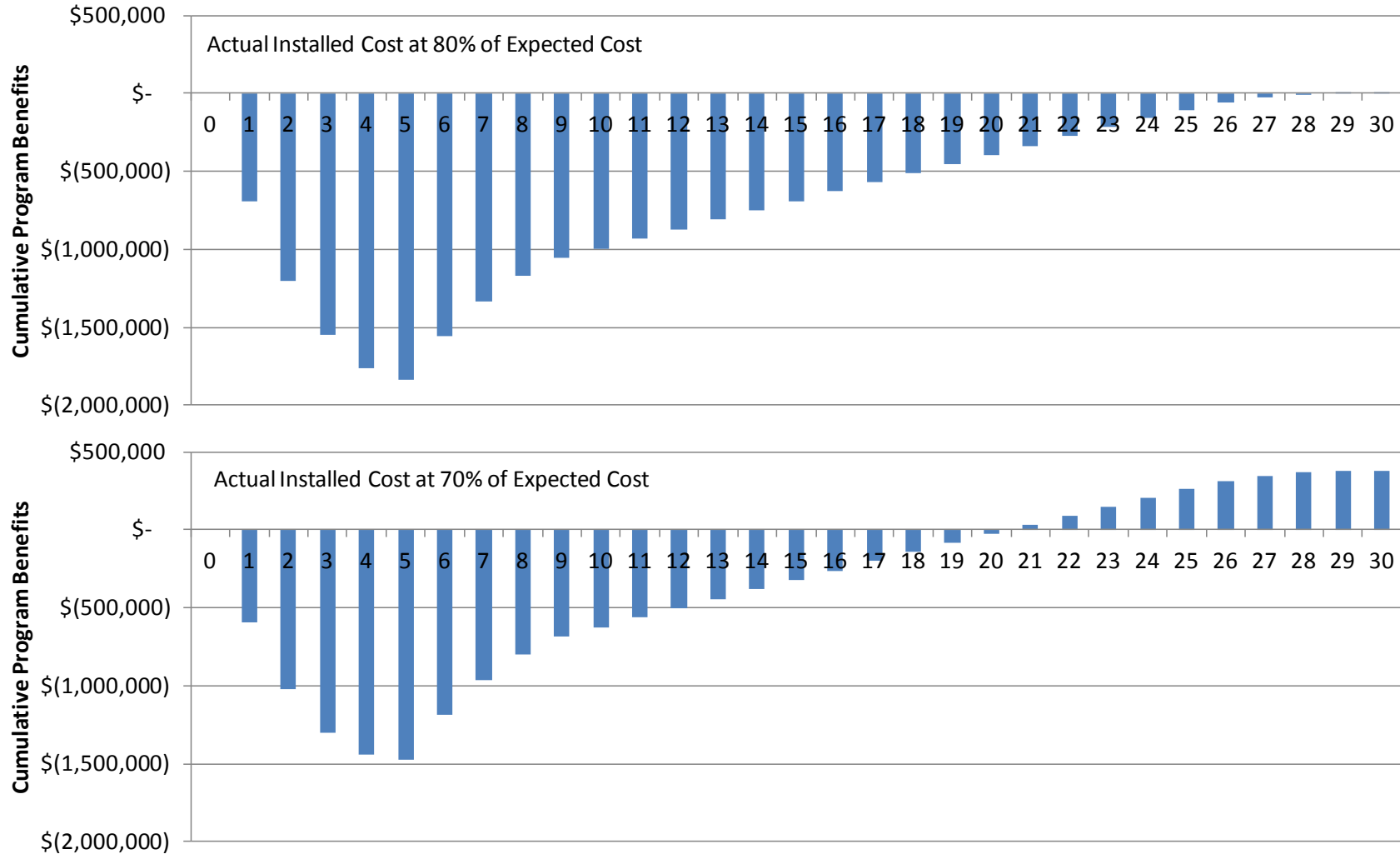
# Payback Sensitivity to PV Performance



# Utility Cost-Benefit (based on 1.6 MW in 5 years)



# Actual Installed Cost Impact on Utility Cost-Benefit





# Recommendations

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- Set the program rate at \$18/kW per month (which includes an effective rebate rate of \$1.3/W) to give customers a payback period of 7 years
- Set an installed cost price cap when procuring PV projects
- Conduct a market study to gauge customers' interest to avoid under-subscription
- Start with a conservative fleet capacity
- Locate PV sites in areas to maximize the value of existing investments in distribution infrastructure
- Select sites with high visibility, such as public spaces, schools and well-established non-profit entities, to encourage program growth
- Allow program subscribers to participate in the selection of additional pre-screened projects for the PV portfolio (eg. 1 vote per share)
- Structure the program so that customers never legally own individual panels or any portion of the physical solar portfolio

# Thank you!

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Senior Consultant

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