

“How to Incorporate Perspective When Performing a Solar Value Analysis”

Thomas E. Hoff, President
SolarPower 2006



Clean Power Research: Software Services

1



Potential PV Owner
Assesses Economic
Feasibility Using:

Clean Power Estimator

2

Potential
PV Owner
Finds A
Contractor



3



Contractor Makes
Cost Estimate
With Aid Of:

QuickQuotes™

4



Agency Processes
Incentive
Application Using:

PowerClerk®

5

PV System
Installed



6



Assess System
Performance After
Installation Using:

PV Output Estimation

Two things to remember

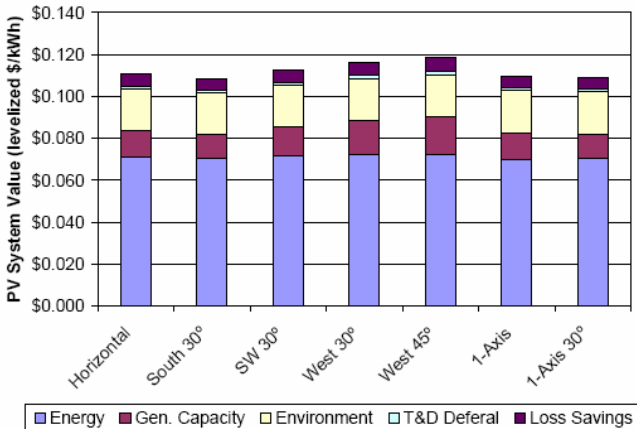
1. Types of value include
 - Cost savings (directly quantifiable)
 - Added benefits (difficult to quantify)
2. Incorporation of perspective is key

Acknowledgements



- Austin Energy
- NREL
- We Energies

Google "Austin Energy PV Value"



Google "PV Clearinghouse"

Distributed PV Documents - Microsoft Internet Explorer

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Address <https://www.clean-power.com/EvaluationMatrix/Matrix/Summary.aspx> Go

Distributed PV Clearinghouse

Evaluation Matrix

Documents

Summary

Details

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Resource Evaluation Matrix (201 documents)

Benefit Cost Category	Participant	All Ratepayers	Utility	Industry	Local Government	State Government	Federal Government
Investment	10 / 26	1	2 / 7	12 / 2		2	1 / 1
Utility Bill	27 / 2	8 / 12	1				
Incentives	19	1	1 / 4	1	1	1 / 13	1
Tax Effects	4 / 1		1			1 / 2	2 / 3
Utility Cost Savings	6	1	65 / 3		1		1
Environmental	3	23 / 2	7			2	1 / 1
Jobs			1	12	1	6	4
Reliability	7	5	25		1	1	
Risk Factors	8	4	19		1		3

Assumptions

- All costs are in ¢ per kWh
- Commercial customer with tax benefits
- Utility cost savings equal customer bill savings
- Incentive selected to make customer breakeven
- Ratepayer benefits equal 5¢ per kWh

Customer purchases system

Customer

System Cost

(50¢)

Net

(50¢)

... gets tax benefits

Customer

System Cost

(50¢)

Tax Benefits

15¢

Net

(35¢)

...and utility bill savings

Customer

System Cost	(50¢)
Tax Benefits	15¢
Utility Bill	10¢

Net

(25¢)

...which translates to a
revenue reduction for utility

Customer

Utility

System Cost

(50¢)

Tax Benefits

15¢

Utility Bill

10¢

(10¢)

Net

(25¢)

(10¢)

... but also costs savings
(energy, capacity, etc.)

Customer

Utility

System Cost

(50¢)

Tax Benefits

15¢

Utility Bill

10¢

(10¢)

Utility Cost Savings

10¢

Net

(25¢)

0¢

Customer needs incentive to purchase

Customer

Utility

System Cost

(50¢)

Tax Benefits

15¢

Utility Bill

10¢

(10¢)

Utility Cost Savings

10¢

Incentive

25¢

Net

0¢

0¢

... so utility provides it

Customer

Utility

System Cost

(50¢)

Tax Benefits

15¢

Utility Bill

10¢

(10¢)

Utility Cost Savings

10¢

Incentive

25¢

(25¢)

Net

0¢

(25¢)

... and also gets other benefits

Customer

Utility

System Cost

(50¢)

Tax Benefits

15¢

Utility Bill

10¢

(10¢)

Utility Cost Savings

10¢

Incentive

25¢

(25¢)

Ratepayer Benefits

5¢

Net

0¢

(20¢)

Conventional perspective – customer breaks even & utility has cost

	Customer	Utility
System Cost	(50¢)	
Tax Benefits	15¢	
Utility Bill	10¢	(10¢)
Utility Cost Savings		10¢
Incentive	25¢	(25¢)
Ratepayer Benefits		5¢
<hr/>		
Net	0¢	(20¢)

But the ratepayers perspective must be considered

	Customer	Ratepayers	Utility
System Cost	(50¢)		
Tax Benefits	15¢		
Utility Bill	10¢		(10¢)
Utility Cost Savings			10¢
Incentive	25¢		(25¢)
Ratepayer Benefits			5¢
<hr/>			
Net	0¢		(20¢)

Ratepayers pay incentives and get benefits

	Customer	Ratepayers	Utility
System Cost	(50¢)		
Tax Benefits	15¢		
Utility Bill	10¢		(10¢)
Utility Cost Savings			10¢
Incentive	25¢	(25¢)	
Ratepayer Benefits		5¢	
<hr/>			
Net	0¢	(20¢)	0¢

Expanded perspective – customer & utility break even; ratepayers have near-term cost

	Customer	Ratepayers	Utility
System Cost	(50¢)		
Tax Benefits	15¢		
Utility Bill	10¢		(10¢)
Utility Cost Savings			10¢
Incentive	25¢	(25¢)	
Ratepayer Benefits		5¢	
<hr/>			
Net	0¢	(20¢)	0¢

Year 5: Lower system cost and incentive, but the ratepayer benefits are the same

	Customer	Ratepayers	Utility
System Cost	(35¢)		
Tax Benefits	11¢		
Utility Bill	14¢		(14¢)
Utility Cost Savings			14¢
Incentive	10¢	(10¢)	
Ratepayer Benefits		5¢	
<hr/>			
Net	0¢	(5¢)	0¢

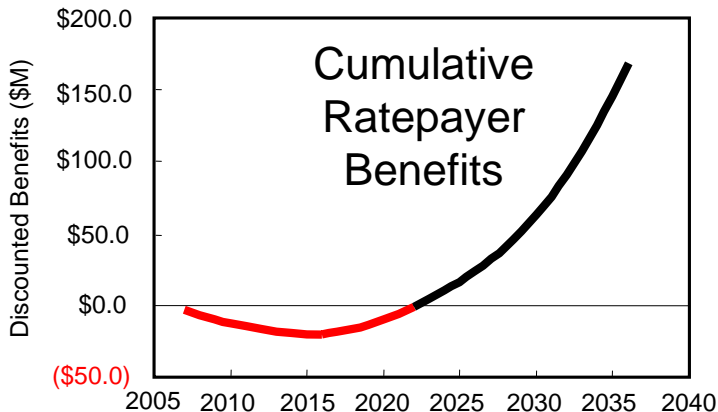
Year 12: Incentive no longer required

	Customer	Ratepayers	Utility
System Cost	(22¢)		
Tax Benefits	5¢		
Utility Bill	17¢		(17¢)
Utility Cost Savings			17¢
Incentive			
Ratepayer Benefits		5¢	
<hr/>			
Net	0¢	5¢	0¢

Ratepayer cost-effectiveness improves over time

- The required incentive rate decreases over time as PV prices decrease and utility rates increase
- Even if ratepayer benefits remain constant, the result is a positive net benefit to ratepayers at some point

Program is cost-effective over the long-term



Conclusions



- Some benefits are difficult to quantify (environmental, disaster recovery, retail price cap, backup power, national security ...)
- These benefits may flow to a party other than the utility
- It is critical to incorporate perspective into a long-term analysis