

# **The Right Tone of VOS: Improving the Argument for Local Community Solar**

**Jill K. Cliburn, Cliburn and Associates  
Joe Bourg, Millennium Energy  
John Powers, Extensible Energy**

**ASES National Solar Conference • July 2016**



**Community  
Solar Value  
Project**

[CommunitySolarValueProject.com](http://CommunitySolarValueProject.com)



# Community Solar Value Project

- ✓ Led by Extensible Energy, with expertise of 3 additional firms
- ✓ Funded by U.S. Dept. of Energy SunShot Program
- ✓ Utility-led community solar programs; a variety of project ownership options

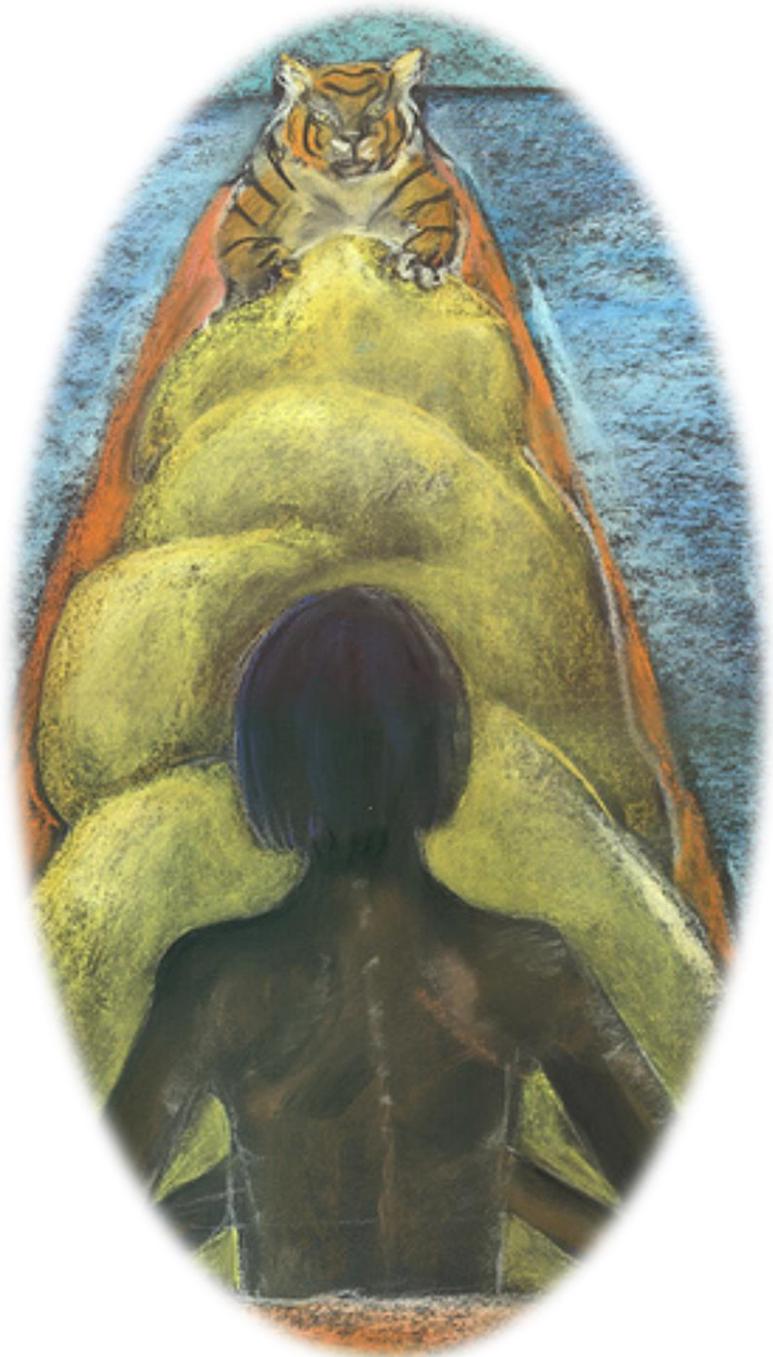
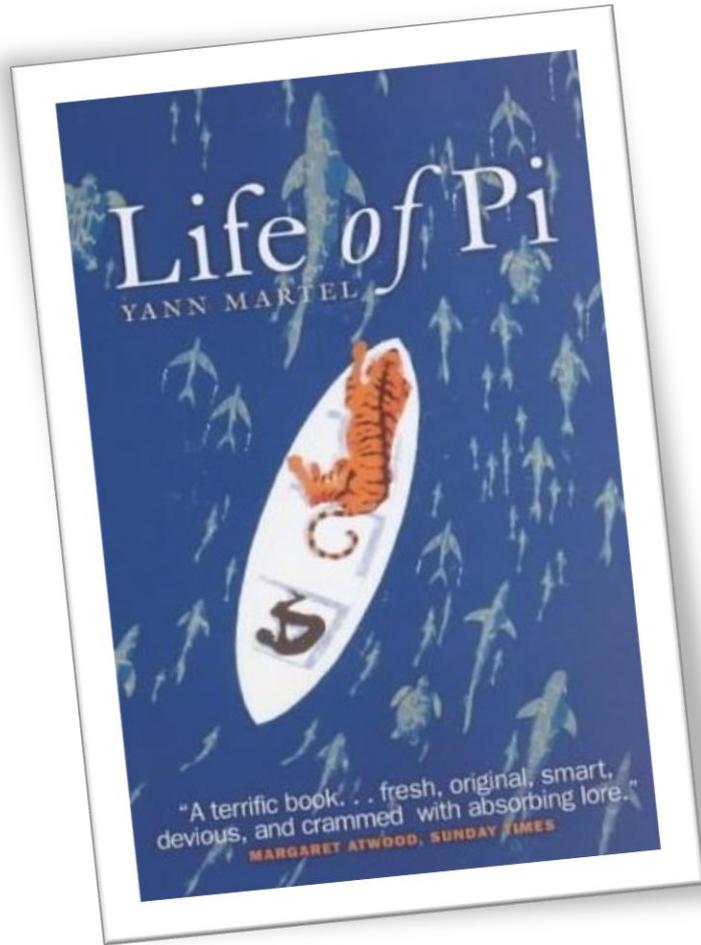


Community  
Solar Value  
Project

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

NAVIGANT





# Closing the Pricing Gap

Sticker Price for Utility  
Distributed Community  
Solar

Achievable Price?

Pricing Gap to  
Match Centralized  
Utility Solar

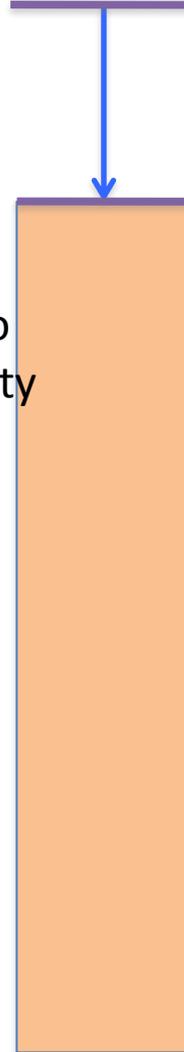
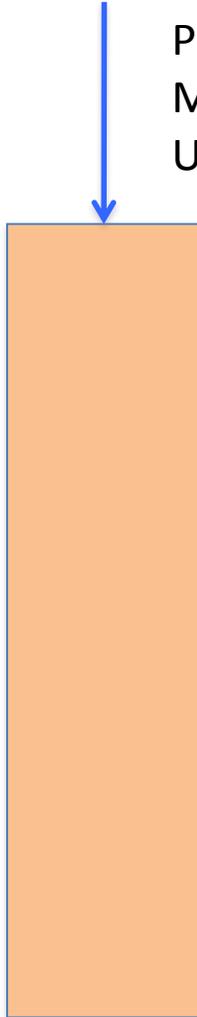
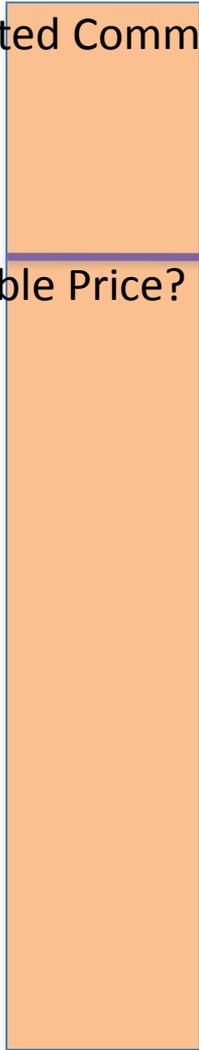
*3<sup>rd</sup> Party*

*Benchmark*

*Price  
w/out  
NEM*

*Perceived  
Pricing Gap to  
Match 3<sup>rd</sup> Party  
NEM Offer*

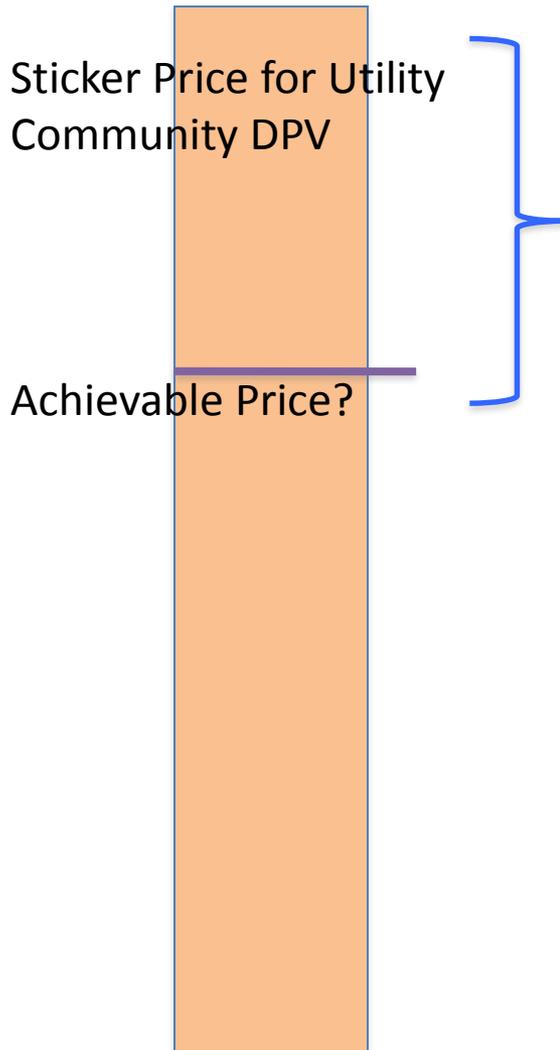
*Price w/  
NEM*



# The Process

- 1) Create a realistic hypothetical scenario, envisioning a mixed portfolio of CPV and DPV comprising a strategic community solar fleet
- 2) Set baseline CPV and DPV values (energy, capacity)
- 3) Analyze select benefits (LBOE). For each, consider a range of benefit values and derive a conservative net LCOE that can help to fill the cost gap
- 4) Complete a compelling narrative, which may also include strategic values that are hard to monetize

# What's Packed In the Process



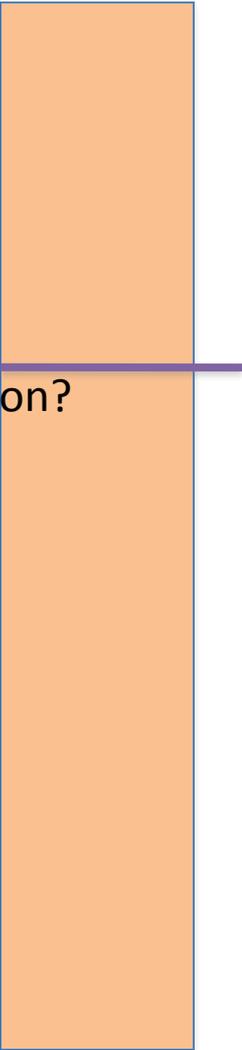
## Provide a Narrative Including Any of These:

1. Ways to Lower PPA/Resource Cost
2. Ways to Lower Net Wires Cost
3. Ways to Manage Risks
4. Credit for Added DR or Storage Value
5. Ways to Retain Customers/Revenue
6. Proactive Compliance Benefits
7. Customer-Satisfaction Strategies
8. Other!

- Use economic (VOS) metrics sparingly
- Prefer ranges to set \$ costs/benefits
- Map narrative onto real utility drivers
- Map narrative onto real internal stakeholders with pressing needs
- Prioritize values to meet the target
- Aim for a flexibility

# Realistic Hypothetical

Solution?



## For This Case:

- Northern CA muni
- 2015 Low-Cost FT CPV: \$0.05/kWH
- Initial average cost, DPV options: \$0.075
- Utility-led CS program; 30-yr PPA/s on resource
- Tariff-based program, inc. non-wires charge as applicable
- NEM-based lease or purchase rooftop: hard to beat
- Another concern: long-term customer retention

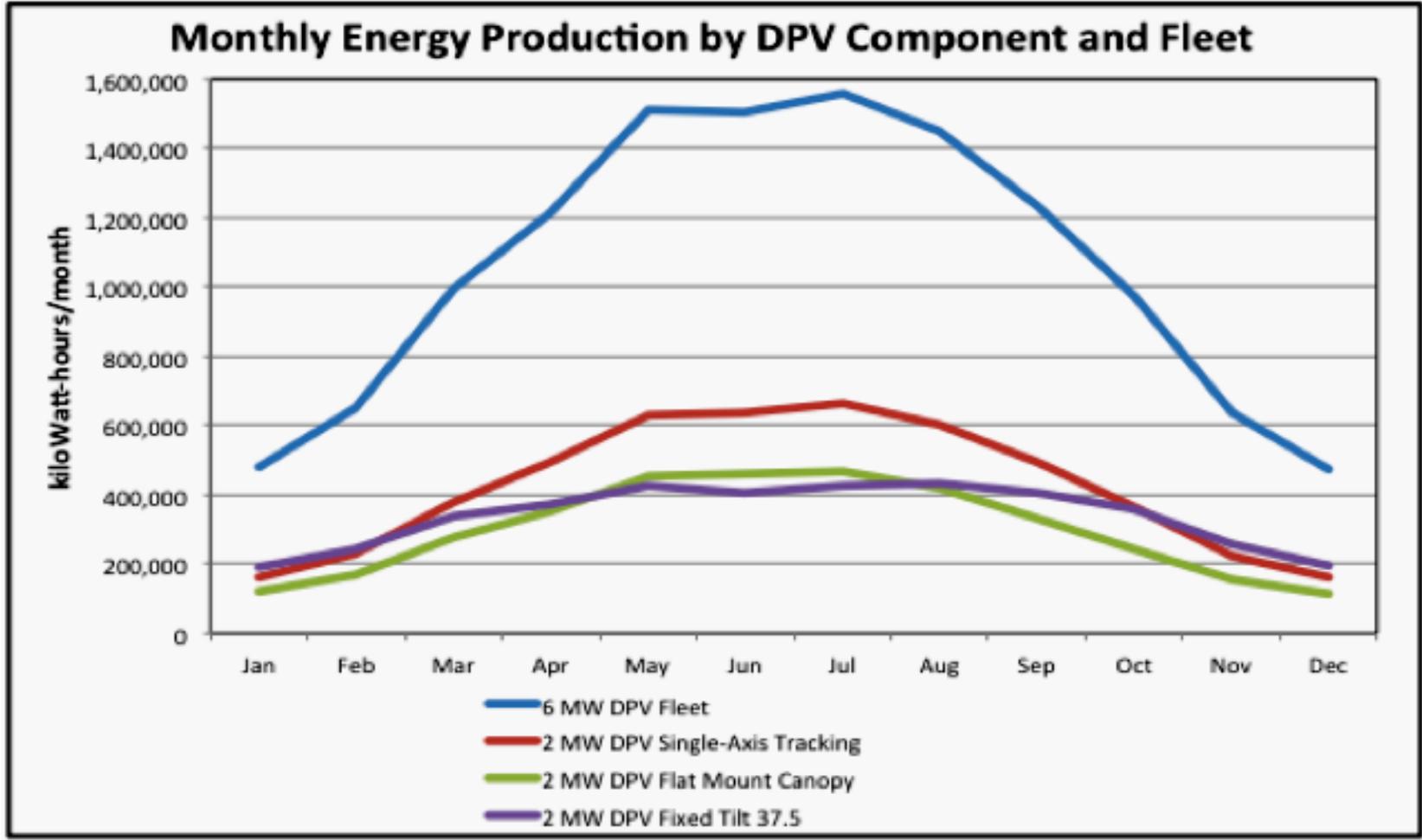
- **Fleet approach**
- **20 MW CPV**
- **6 MW DPV: rooftop, SAT, carports**
- **Successive DPV project-cost reductions reflected in the fleet rate**
- **Increasing DPV to be considered**
- **$\text{LCOE}_{\text{dpv net}} = \text{LCOE}_{\text{dpv gross}} - \text{LBOE}_{\text{dpv net}}$**

# 1. Strategic DPV Design Benefit

- Incremental benefit for each system type, relative to CPV
  - 2 MW fixed-tilt rooftop PV system
  - 2 MW flat-mount parking canopy PV system
  - 2 MW ground-mount single-axis tracking PV system
- Taken together, the incremental benefit of this fleet, relative to CPV
  - $LBOE_{DPV\ GROSS} = 0.64$  cents

*In Northern CA, flat-mount carports offer summer-peak production benefits that supplant high-priced CAISO resource. Construction-cost and siting benefits are also considerable, but not counted here.*





**\* By contrast, CPV is overwhelmingly fixed-tilt**

## 2. Transmission Avoided Cost Benefits

- Not all transmission costs are avoided on a 1:1 basis
- Yet we know now that DPV avoids significant T costs; several beyond EIA's "postage stamp" avoided cost.
- Example: Clean Coalition findings on TAC escalation rate for CAISO—supported by the even more robust avoided-cost findings in other studies—suggests \$0.03/kWh
- Palo Alto's record-low CPV deal has been reported to have an additional ~\$0.03/kWh in transmission delivery and line-loss costs (San Jose Mercury News)
- For this hypothetical case, we settled on a conservative \$0.01/kWh incremental LBOE

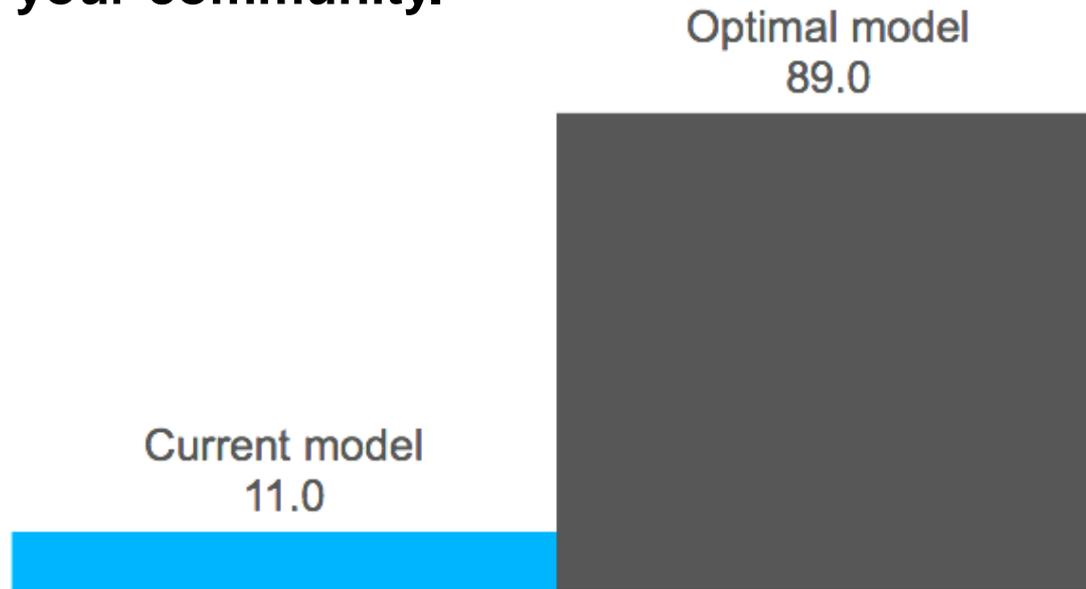
### 3. Utility Customer Retention Benefit

- 1) Novel, and yet widely understood by utilities.
- 2) The Customer Retention Benefit is the value of DPV in attracting and keeping customers in a utility-based program that collects *reasonable* non-bypassable wires charges.
- 3) If the utility incorporates this benefit, it could reduce the non-bypassable wires charge for the community solar program, making it more affordable and growing the solar market: a win-win.
- 4) This may also move the needle for all DPV

### 3. Utility Customer Retention Benefit (continued)

- Q1: To what extent is customer preference fluid between community solar and lease or purchase rooftop options?
- Q2: Does the availability of local, DPV have an impact on customer preference for community solar?
- A1 Quite a bit, in both directions.
- A2: Yes. Customers like their community solar local, and they are willing to pay for it (up to a point).

**An example:** One of several result screens from Shelton Group (2016) for SEPA. Here, showing how improving a community solar tariff-based program on 5 metrics affects customer preference. One of these improvements: **Local projects, in your community.**



	Program sponsor	Subscription block price	Sign-up fee	Location	Product information
Current model	Solar company w/ utility partnership	\$0.03/kWh premium	\$100 non-refundable fee	60 minutes from home	No power production info
Optimal model	Local utility company	\$0.01/kWh premium	No sign-up fee	In your community	Info via website portal

n=515

Source: Shelton Group presentation for SEPA Community Solar Workshop, 2016

### 3. Utility Customer Retention Benefit (continued)

For this hypothetical case, we propose a long-term LBOE of \$0.0117/kWh, which again, is quite conservative.



# Results!

$$\text{LBOE}_{\text{DPV GROSS}} = 0.64 \text{ cents} + 1.0 \text{ cent} + 1.17 \text{ cents}$$

$$\text{LBOE}_{\text{DPV GROSS}} = 2.81\text{-cents/kWh}$$

**Tab. 2. Economic Analysis for a Hybrid Community-Solar Fleet**

20 MW CPV $\text{LCOE}_{\text{GROSS}}$	6 MW DPV $\text{LCOE}_{\text{GROSS}}$	26 MW Hybrid Fleet $\text{LCOE}_{\text{GROSS}}$	26 MW Hybrid Fleet $\text{LCOE}_{\text{NET}}$
\$0.0500/kWh	\$0.0750/kWh	\$0.0556/kWh	\$0.0493/kWh

# ***The Presenter and the Project***

**Jill K. Cliburn** leads Cliburn and Associates, LLC and is program manager of CSVP. She focuses on integrated DER solutions, including business model innovation and assessment of policy and regulatory options. Contact her at [jkcliburn@cliburnenergy.com](mailto:jkcliburn@cliburnenergy.com)

***The Community Solar Value Project*** is focused on improving community-solar program value, through solar + storage + DR and other strategies, at electric utilities in Sacramento and beyond. Led by Extensible Energy, LLC, and drawing on expertise from three energy consulting firms. Contact John Powers, [john@extensibleenergy.com](mailto:john@extensibleenergy.com) or [info@communitysolarvalueproject.com](mailto:info@communitysolarvalueproject.com)



Community  
Solar Value  
Project

