

CEC

Community Solar Solutions



Goals for today

VIGOROUS DISCUSSION

- Overview of Rooftop Solar
- What is Community Solar
- Community Solar Business Models
- Why Should you care?





Clean Energy Collective has built or has under development more than 100 RooflessSolar™ projects with 26 utility partners across 12 states serving thousands of customers, representing more than 160 MW of community solar capacity.

- 40** Projects online (2009 through today)
- 26.1** MWdc Online
- 12** States served
- 26** Utility partners (includes Con Ed, Duke)
- 61** Projects under development
- 160** MWdc under development



► Rooftop Solar

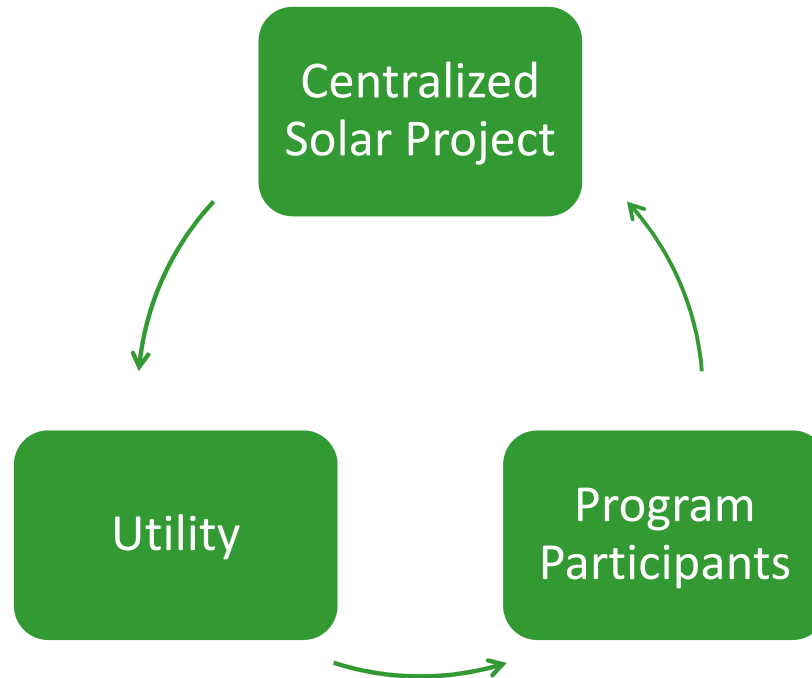
- Residential solar installations grew by more than 50% in 2012, 2013 and 2014
- Residential solar market is up 76% in Q1 2015
- Currently today, one of the top Rooftop Solar companies has more than 218,000 consumers, growing to 1,000,000 by 2018
- Cost to install rooftop solar panels is declining 4% per year



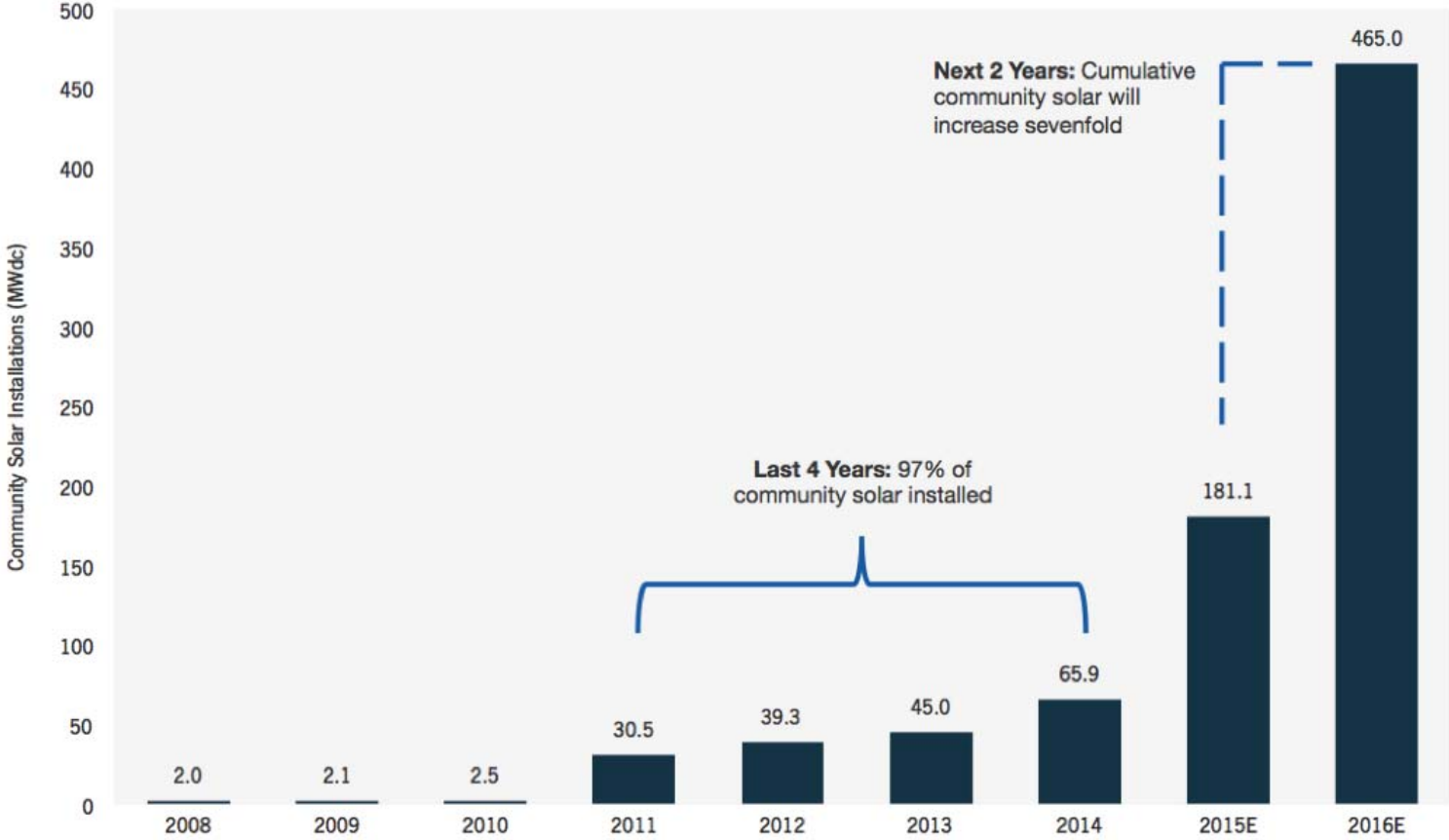
A new solar project is installed every 2.5 minutes

Genesis of the Community Solar Model

What is it?



Community Solar | Exponential Growth



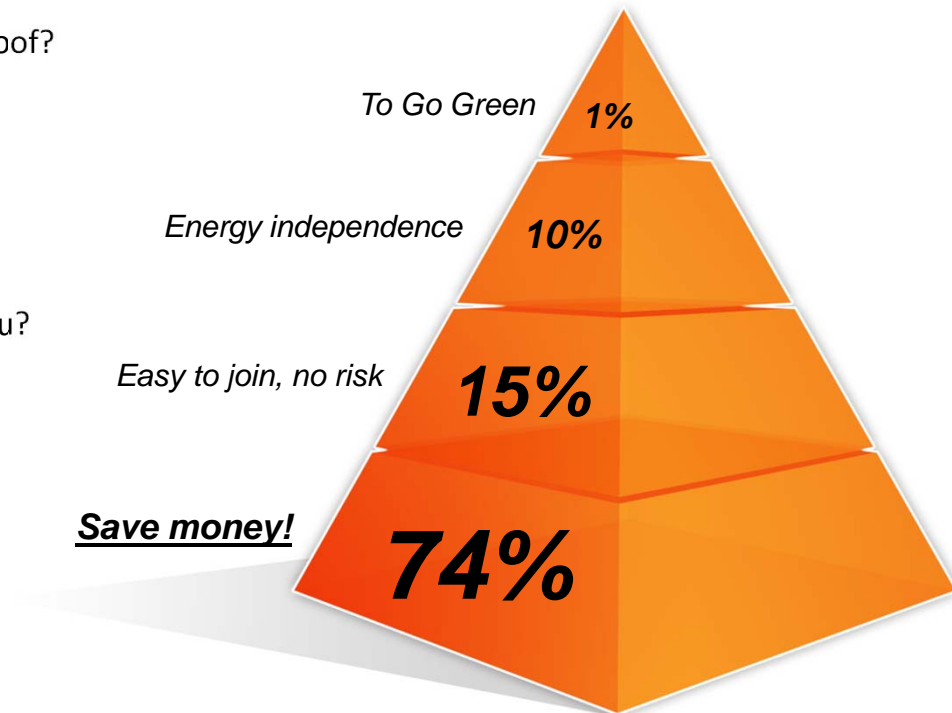
Source: Green Tech Media

Starting a Community Solar Program | Questions to consider

► What do your consumers want?

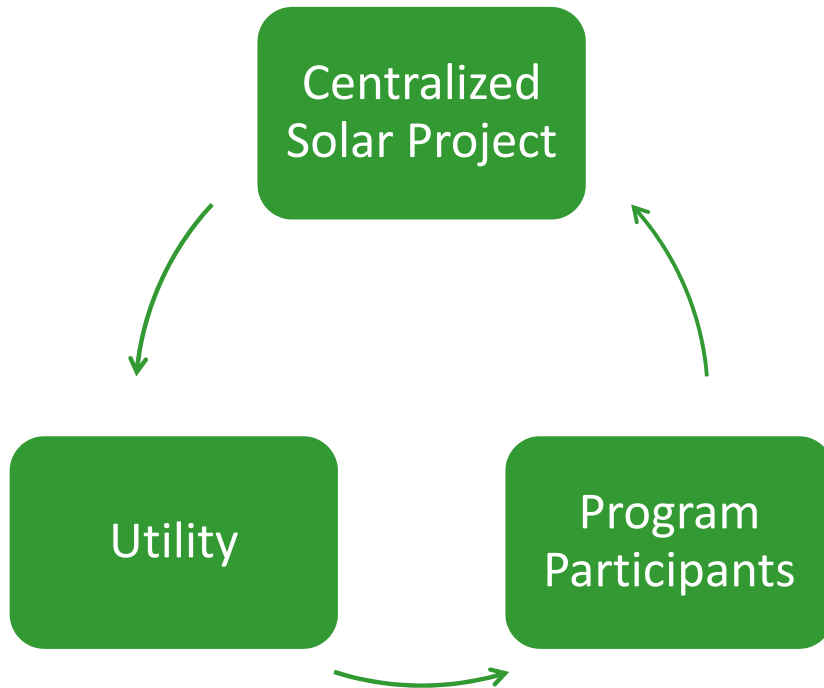
- Savings on their energy bills?
- Easy participation?
- Solar with nothing on their roof?
- No hassles for solar?
- No O&M required?
- Minimal risk?
- To embrace solar through you?

Reasons for community solar participation



Genesis of the Community Solar Model

What is it?



What it isn't

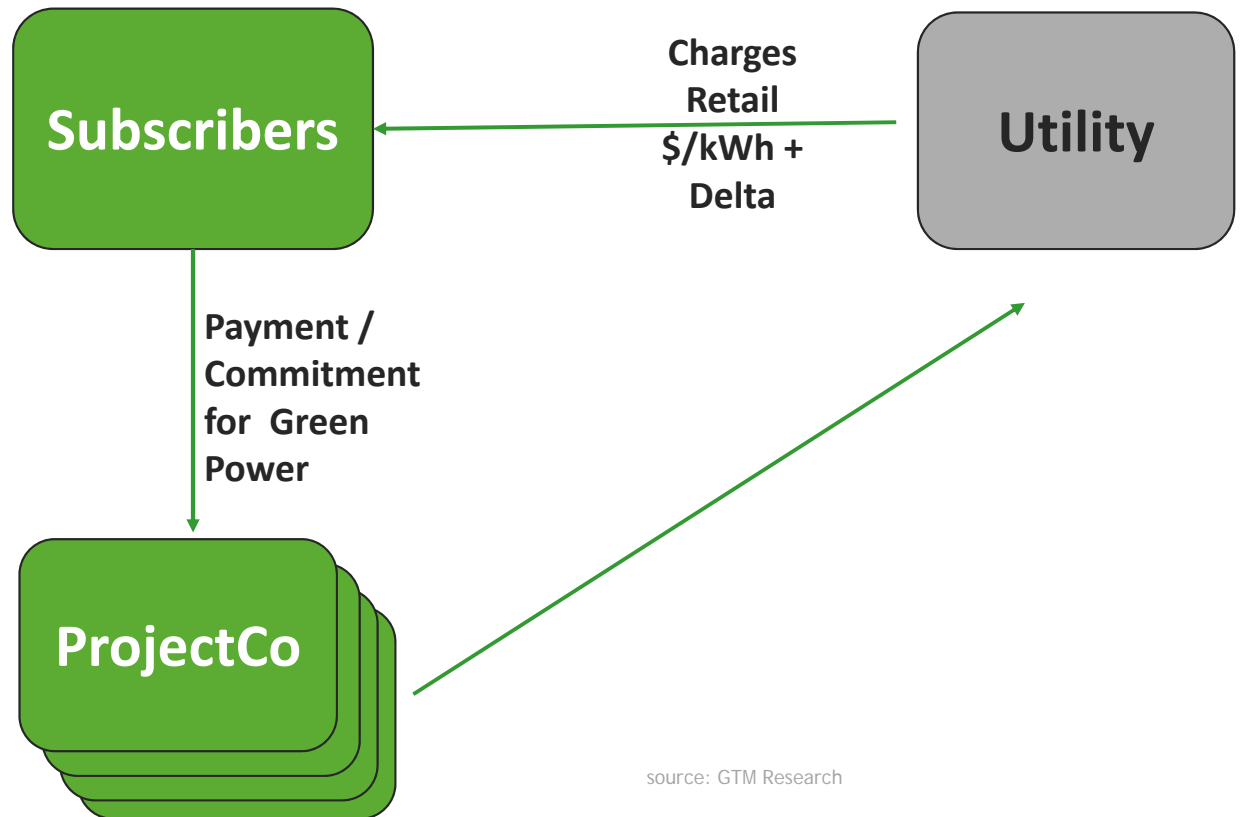
Per Smart Energy Power Association, NREL , CCSA +

- **Green Pricing/REC Purchase Program**
- **Bulk Purchasing/Solarize Program**
- **Community Choice Aggregation**
- **ROOF TOP SOLAR**

- Size: 1 MW (DC)
- Solar PPA Rate: \$0.08/kWh
- Output (Year 1): 1,717,000 kWh
- Annual Output kWh / kW: 1,717
- Total Year 1 Revenue: \$206,040
- Year 1 Expenses: \$137,360
- \$0.02 difference \$34,340

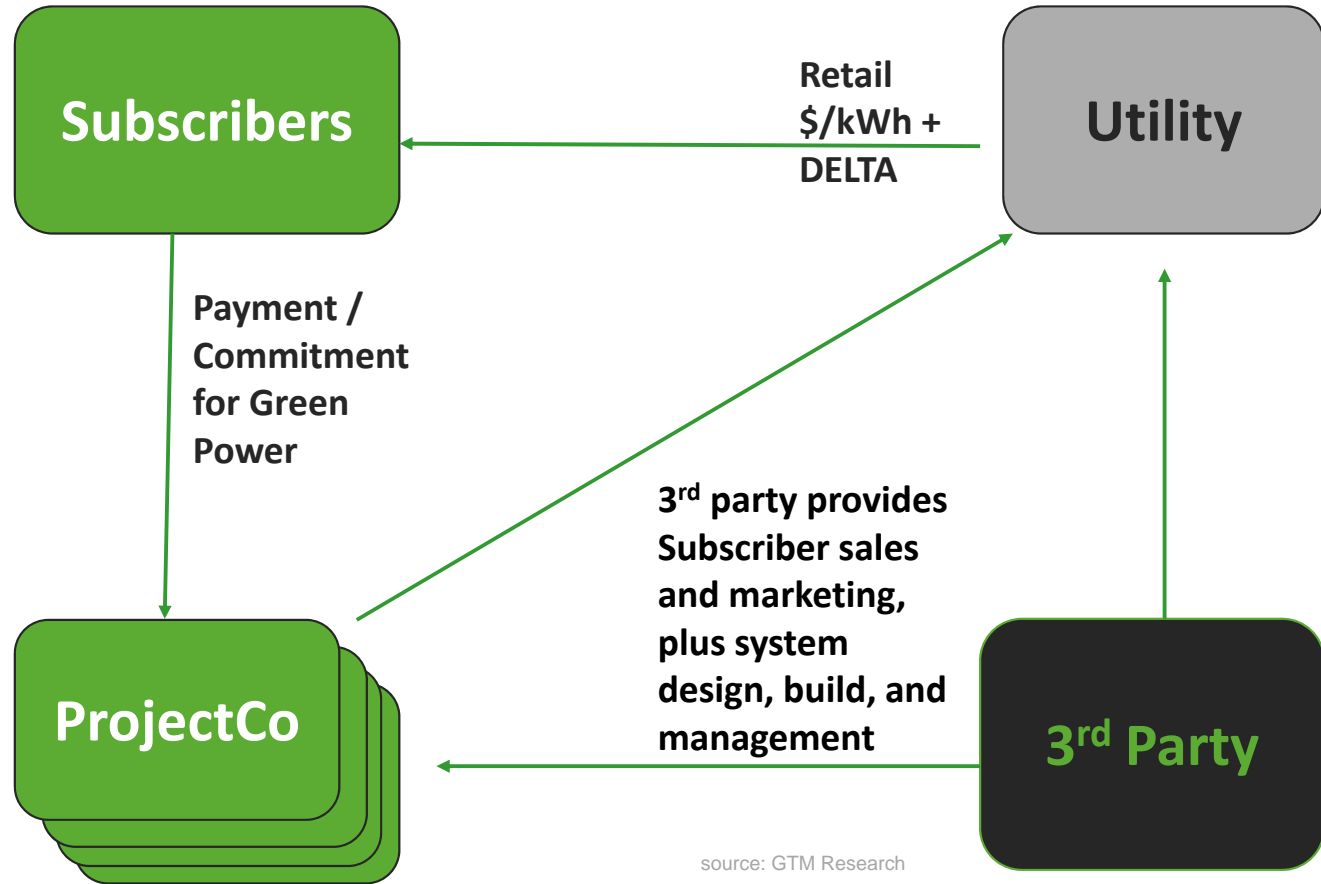
Revenue = output x \$0.12/kWh

Expenses = output x \$0.08/kWh



source: GTM Research

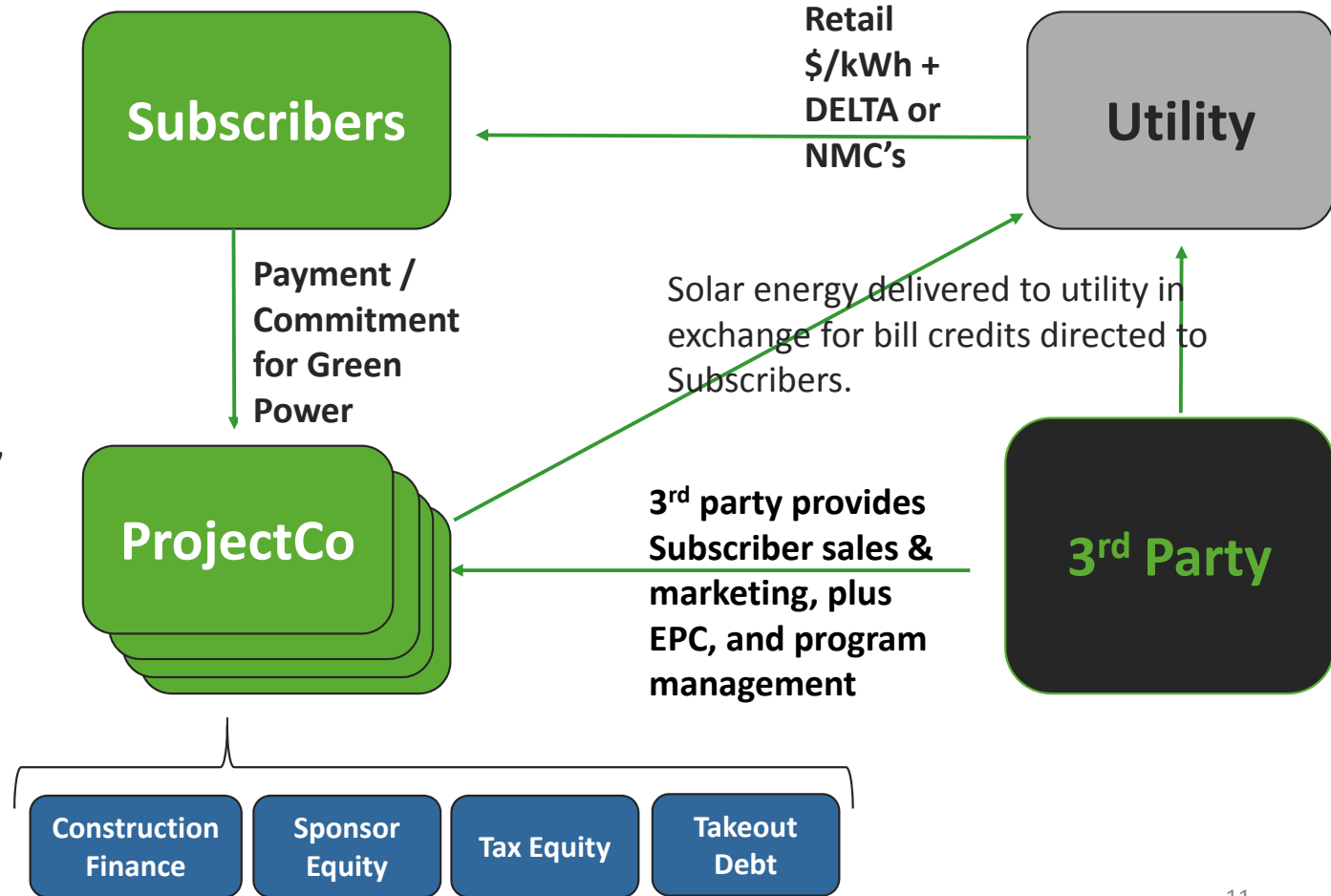
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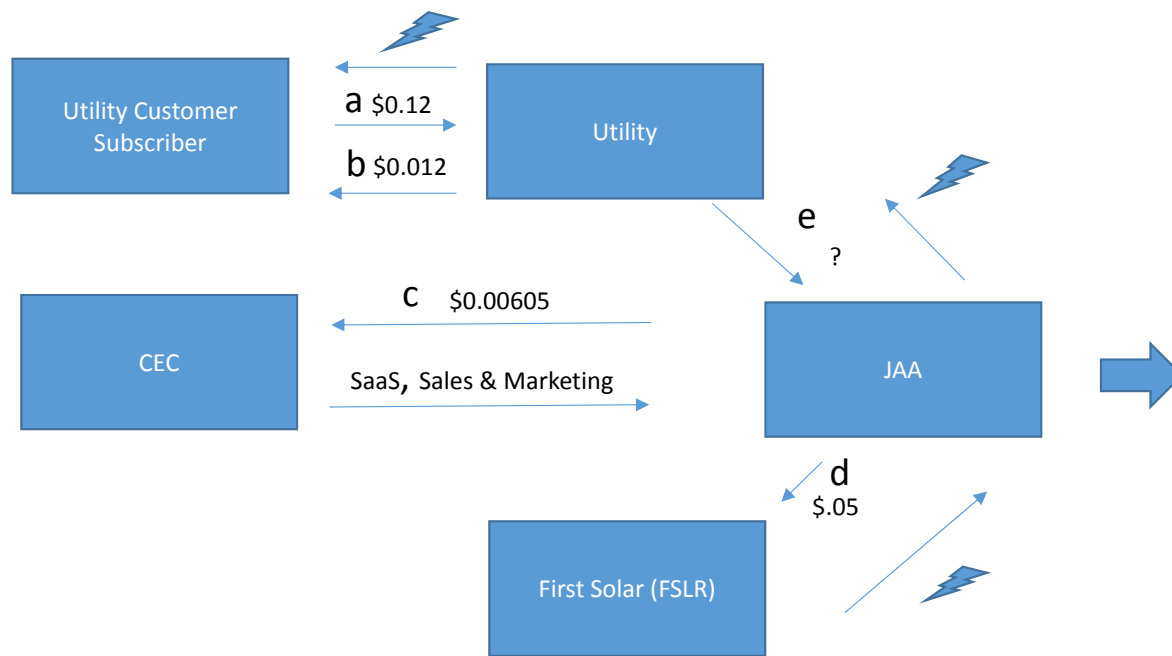
Community Solar | **Market Deployment Tariff Market**

- **Size: 1 MW (DC)**
- **Solar PPA Rate: \$0.08/kWh**
- **Output (Year 1): 1,717,000 kWh**
- **Annual Output kWh / kW: 1,717**
- **Total Year 1 Revenue: ?**
- **Year 1 Expenses: ?**





20 MW LEAST COST LOSS OPTION



* Estimated data points

20 MW Community Solar program cost = **\$.015 / installed watt**

Or

Lose revenue from Rooftop Solar at **\$.12 / kwh**

CEC | Customer/System Benefits of Community Solar Deployment

Customer/System Benefits:

1. Greater solar build-out utilizing sparsely populated areas thereby giving customers in densely populated areas access to solar
2. Joint planning with other systems, if necessary, results in lower cost to the utility and, therefore, to the customer (economies of scale is a key objective)
3. Solar option coupled with lower costs equates to higher customer satisfaction

4. Technical Benefits

- A. May help reduce grid congestion
(places a power supply resource between the congestion point and the load)
- B. May improve grid efficiency and prevent or deter costly system upgrades
- C. Helps with power factor improvement on circuits
- D. Matches local resources to local needs
- E. Utility control over the electric distribution system design, operations and revenue
(not a behind the meter installation)

5. Public Relations Benefits

- A. Strengthens relationship between the utility and the customer
(system provides power options)
- B. Positive media reaction
- C. Elected officials react positively
- D. Allows customers who might be prevented from participating to have access
(don't want or can't have rooftop solar, shading, low income, etc.)

Public Power systems have only one focus and reason to exist—THE CUSTOMER!!

Clean Energy Collective

THE POWER TO...

THANK YOU!

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