

Rate Design Subcommittee



Why Cooperative Solar?

Pricing

\$25/month/block No contract

5.7 panels (1.8 kW)

180 – 260 kWh

Bill Example







emcsecurity.com

To Report a Power Outage call (770)267-2505

To Report a Gas Leak Emergency call (770) 907-4231 or Toll Free 1-877-427-4321

Statement Date	Due Date	Amount Due
06/11/16	07/05/16	124.86
Previous Balance Payment(s) Balance Forward		99.58 -99.58 0.00
Current Charges Total Amount Due		124.86 124.86

Thank you for your business.

Electric Service	Svc Loc: HOR	SE FERRY	(RD 0604		BOTTON	E JAME	SM		770-982-5893
	Account: 455	5322003			Meter: 1171	83724			
1120	FROM	то	DAYS	LAST READ	CURRENT	MULT	PCA	KWH	AMOUNT
	05/06/16 0	6/06/16	31	15505	16183	1	0.02	678	
376 0 JJASONDJFMAMJ	May Co Cooperative S Taxes Current Electr Previous Bala Thank You Fo Operation Rou Total Accourt	operative Ne Solar (\$25 ric Charge Ince or Your Pa und Up	Solar Cred et kWh Bille /Block) es ayment 06/0 e	it 0 d 01/16	0			-277 401	61.10 25.00 5.16 91.26 65.00 -65.00 0.74 92.00
			-	TO BE PA	ID BY DRA	т			







kWh per Block



N. N. H. W.

Project 2



Project 3



Totals

6.75 MW Cooperative Solar

5062 Blocks Available

4172 Blocks sold

2,500 Customers

233 Drop outs



Rate Design Subcommittee

RATE DESIGN COMMUNITY SOLAR WASHINGTON, DC

Dan Cleverdon

District of Columbia Public Service Commission

2018 NARUC Winter Meetings

DISCLAIMER

 Opinions, conclusions, observations are my own and do not represent the opinions or conclusions of the DC PSC or any DC PSC Commissioner.

DC Characteristics

- Population 693,972
- Area 68.34 mi² (7 mi² water) net 61.3 mi² land area
- Electrical
 - 2017 Number of Customers 296,455 (90.7 % Residential, 9.3% Commercial)
 - 2017 Load 2117 MW (24.1% Residential, 75.9% Commercial)
 - 2017 Usage 10,243,007 MWH (20.2% Residential, 79.8% Commercial)

Net Energy Metering (NEM) in DC

- Restructuring legislation allowed DCPSC to institute NEM
 - DCPSC created NEM rules in 2005 for renewable generators
 - NEM facilities limited to a size no larger than to serve 100% of typical usage
 - Max size 1 MW
 - Excess generation (injections to grid) valued at:
 - <100 kW full retail rate
 - >100 kW energy portion of retail rate
 - Values of excess generation expressed in monetary units, not kWh
- Currently:
 - 3,408 PV systems registered with the Commission
 - 47.6 MW

- Legislatively determined, Commission has very little discretion
- Designed to allow electric ratepayers to own renewable generation who don't have suitable roofs.
- Max size 5 MW, ownership share up to 120% of customer/subscriber annual usage
- Needs to have at least two distinct subscribers
- Any form of legal DC ownership allowed

- Works through a Community Renewable Energy Facility (CREF)
- Deliberately made flexible in size and ownership to allow for wide adoption.
- CREF Subscriber pays normal utility bill, but has a monetary credit offset based on subscriber's share of the CREF output.
- Key is how to value CREF output
 - Original legislation had CREF output to subscribers valued at an Standard Offer Service (SOS) rate;
 - CREF sold to SOS Administrator at SOS rate, SOS administrator sold CREF output to SOS customers at SOS rate
 - Purchase and sale at same price, a wash for the SOS Administrator

- Solar advocates noted that the compensation scheme did not credit CREF subscribers with "full" retail rate including non-energy portion and claimed that this made CREF subscribers "second class solar citizens."
- Went to legislature and had the law changed so that residential CREF subscribers received "full retail rate" credit for their share of a CREF output.
- Non-residential CREF subscribers are limited to receiving just the energy portion of the retail rate.

- This causes a major problem:
- Say SOS rate is \$0.083/kWh and the balance of the retail rate, is \$0.048/kWh. Total retail rates is %0.131/kWh.
- SOS Administrator purchases CREF out put for \$0.131/kWh, but can only sell it at \$0.083/kWh. There is a shortfall of \$0.48 kWh per kWh.
- There is no mechanism for the SOS administrator to recover this amount
- If a CREF subscriber offsets his entire annual usage that subscriber would on average received a \$370 transfer from other ratepayers.

- A regular NEM customer offsetting his entire annual usage would be expected to receive \$0.00 transfer from other ratepayers.
- For every 1 MW of CREF capacity the transfer to the CREF subscribers is over \$638,558 per year from other ratepayers.
- To date there has not been a long enough history for this transfer to become a problem.
- It is something that the Commission will have to deal with in the near future.
- How would you and/or your Commission solve this dilemma?



Rate Design Subcommittee

Community Solar in the Southeast

Caroline Golin, PhD NARUC, February 11, 2018



VOTE SOLAR

BACKGROUND SNAPSHOT







CURRENT MODELS





UNDERSTANDING THE TRADEOFFS





WHAT IS DRIVING THE COMMUNITY SOLAR 'PREMIUM'

SOFT COSTS!

Billing, Program Design, Marketing, etc.

Cost Category	Projected Estimated Costs
PPA @ approximately \$65/MWhr	\$284
Marketing and Customer Engagement	\$131
Enrollment/Billing/Credit	\$37
Call Center	\$9
Program Management	\$39
TOTAL	\$500

DEP and DEC Community Solar Application





Rate Design Subcommittee



Community Solar: Rate Design Considerations

Sean Gallagher Vice President, State Affairs Solar Energy Industries Association

Defining Community Solar

- Clarifying what Community Solar is:
 - Distinguish from green tariff and offsite projects for single offtakers
 - Customers can directly participate in a shared solar system
 - Enable participation across rate classes (ensure residential and small commercial participation)
 - Customers realize direct economic benefits from their participation in the program
- Where is community solar?
 - Market is in excess of 700MW installed capacity currently, expected to meet 1 GW later this year
 - 16 states and Washington, DC have state-level community solar programs
 - excluding cooperative and municipal utility programs, which typically do not need legislative or PUC authorization



http://www.sharedrenewables.org/community-energy-projects/

Key rate design principles and considerations

- Principle: bill credits are <u>transparent and predictable</u>, and provide subscribers with an <u>equitable economic benefit</u>
- Overarching bill credit approaches:
 - Retail-rate-based approach
 - Resource Valuation approach
- Methods for implementing approaches
 - kWh credits for kWh of generation from community solar project
 - Monetary crediting: translate generation into monetary credit applied against customer's bill

Different State Programs, Different Rate Approaches

		Bill Credit	Analysis
	Minnesota	Retail rate crediting for initial buildout; changing to VOST approach for projects that submitted interconnection app after Dec 2016. Project size cap changing from 5 MW to 1 MW.	~300 MW to be installed thru 2018. But VOST values subscriber credits considerably less than the prevailing ARR value that grandfathered projects receive.
	California	There are a number of charges which fluctuate over time. Only credits are a generation credit and a time-of-delivery credit.	Credit instability and lack of value for transmission and distribution value of projects means there is a net premium for customers. No projects have been developed after 3 solicitations
	Illinois	Energy credited at supply rate in addition to a REC payment that is monetized by community solar providers. REC adders are provided for different types of projects	Provisions in legislation intended to ensure robust participation among small commercial and residential customers
	New York	Uses a "value stack" (currently under further development). A Market Transition Credit is being applied to bring "value stack" closer to retail rate and is stepping down as penetrations increase and Commission continues development of VDER tariff.	Market transition credit has allowed for development while VDER is under development though some utilities have exhausted capacity under existing tranches. Some elements of value stack are unfinanceable due to short duration and volatility. Full analysis won't be possible until tariff development is complete.
	Maryland	Retail rate credit. Utilities have discretion over applying kWh credit or monetary credit. Credits roll over month-to-month.	Well-intentioned LMI provisions may be too steep to enable successful project development.37

Minnesota Subscriber Base



Source: Xcel November Solar*Rewards Community Compliance Report

Source: Xcel November Solar*Rewards Community Compliance Report

February 14, 2018

Resources

- Coalition for Community Solar Access (www.communitysolaraccess.org)
 - Model Community Solar Legislation
 - One version for vertically integrated markets, one for restructured/competitive electricity markets
 - Policy Matrix
 - Outlines options and best practices for key program design elements

An Act Relating to the Establishment of a Community Solar Program For Vertically-Integrated States

Whereas, solar energy is an abundant, domestic, renewable, and non-polluting energy resource.

Whereas, local solar energy generation can contribute to a more resilient grid, and defer the need for costly new transmission and distribution system build out.

Whereas, community solar can provide access to local, affordable, and clean energy options to all energy customers.

Whereas, community solar provides consumers including homeowners, renters, and businesses access to the benefits of local solar energy generation, unconstrained by the physical attributes of their home or business, like roof space, shading, or ownership status.

Whereas, community solar programs empower consumers with additional energy choices.

Whereas, community solar programs can also expand access to solar energy to low-income households.

Whereas, community solar can foster economic growth as well as opportunities for competition and innovative business models.

Whereas, the deployment of solar energy facilities including community solar can reduce the cost of energy for consumers, while lowering carbon emissions and reducing fossil fuel consumption in [State].

Whereas, it is the intent of [State] to expand the state's energy innovation and provide its residents with access to community solar, therefore, ¹

Be it enacted by the [General Assembly of the State], that the Laws of [State] be amended to read:

Section 1. Definitions The definitions in this section apply throughout this Act

 "Applicable Bill Credit Rate" means the dollar-per-kilowatt-hour rate as determined by the [Public Utilities Commission] used to calculate a Subscriber's Bill Credit. The Applicable Bill Credit Rate(s) shall be set such that the Community Solar Program is

¹ Stakeholders or legislators should modify the Preamble to express policy goals, or in consideration of existing market and political conditions.

1. Program Structure

	Key Questions to Ask	Options to Consider	CCSA Recommendations	Rationale	Example Language	Notes	
	What types of entities should be permitted to own and/or manage projects?	Community solar providers	Open, competitive markets with as many ownership options as possible.	Competition and inno- vation are necessary to drive the market forward, ultimately resulting in lower costs and more options for consumers.	A Subscriber Organization shall be any for-profit or not-for-profit entity permitted by [State] law that (A) owns or operates one or more community solar facility(ies) for the benefit of subscribers, or (B) contracts with a third-party entity to build, own or operate one or more community solar facilities.	In a program where utilities are allowed to participate as project owners/managers, protocols should be out in place to ensure a	
		Utility				level playing field and safeguard competitive markets. Considerations include equal access to data, financing, intercon- nection opportunities and other issues.	
		Other (e.g. Customer, retail supplier)					
	Who should fill the role of program administrator? (i.e. who should determine project/ subscriber organization eligibility and, if a program is capped, determine which projects are	State agency (such as the public utilities commis- sion)	A state agency, utility, or contracted third-party administrator may fill this role, but the entity must have adequate systems	Program administration should be designed to run transparently and efficiently. ⁴	[State agency] shall ad- minister the community solar program.	If a utility oversees program administration and that utility is also participating as a Sub- scriber Ornanization in	
		Utility	and staffing in place to ensure a smooth process.		An Electric Company shall administer the communi- ty solar program based on regulations set forth by	the program, additional oversight will be neces- sary to ensure conflicts of interest are avoided.	