



Cooperative Solar Rate Option Draft Tariff Amendment

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PEC Cooperative Solar Project

- Up to 15 MW of distributed solar generation
- Constructed on sites throughout PEC's central Texas territory
- Each site will be ~1 MW AC on 7+ acres
- Economies of scale achieved to significantly reduce costs
- PEC is working with Renewable Energy Systems (RES)
- The projects will be constructed throughout 2017
- Provides new "Cooperative" solar rate option for members

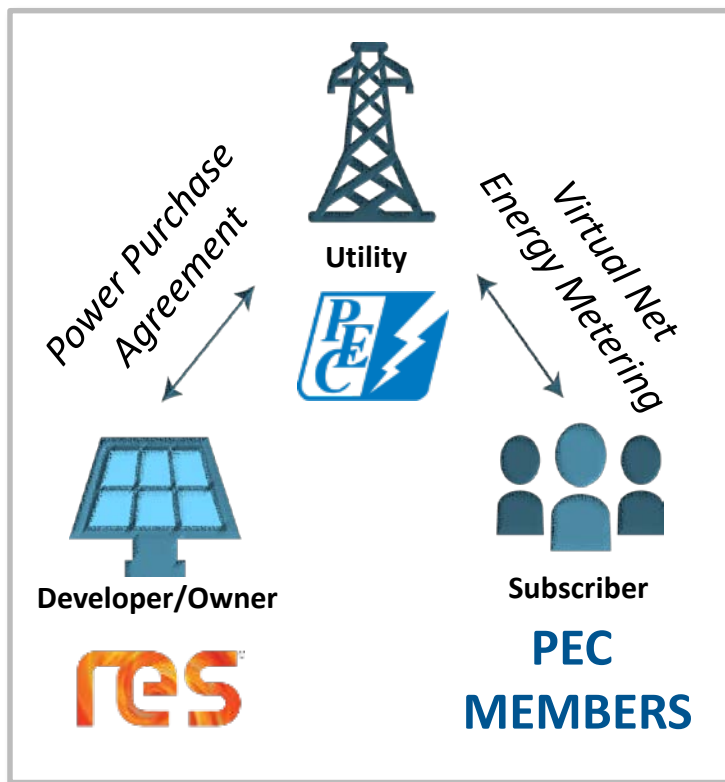
PEC is currently pursuing up to 15 MW of cost-effective, distributed solar generation throughout PEC service territory to manage power and transmission costs and to provide member's a solar rate option



PEC Cooperative Solar Project

Power Supply

- RES develops and owns solar projects
- PEC purchases power from RES
- Power Purchase Agreement (PPA) for each project
- 25 year, fixed price PPA
- Benefits of Investment Tax Credit (ITC) are included in the PPA
- RES is responsible for system performance and operations and maintenance
- PEC provides interconnection



Member Program

- Member subscribes to a share of the available solar capacity – “Program Subscription”
- Member pays a fixed rate for their share of solar energy generation – “Solar Power Rate”
- Member’s total monthly energy usage is reduced by their share of solar energy generation – “Net Energy”
- Member’s Net Energy determines Base Power Cost, TCOS, and Renewable Energy Rider; Service Availability, Delivery, and Capacity Demand Charges are unaffected – “Net Billing”

Community Solar Trends

- Cumulative US community solar capacity will exceed 400 MW in 2017
- 21 Cooperatives using NISC (same as PEC) have community solar programs in operation
- 32 additional Cooperatives using NISC are expected to initiate community solar programs within 1-2 years

Current NISC Cooperatives with “Cooperative” Solar Programs

Richland Electric Cooperative
Missoula Electric Co-op
Barron Electric Cooperative
Bayfield Electric Cooperative
Benton PUD
Boone Electric Co-op
Cass County Electric
Clark Electric Cooperative
Cobb EMC
Consolidated Electric Cooperative
Delta-Montrose Electric Assn.
East Central Oklahoma Electric Cooperative
Eau Claire Energy Cooperative
Heartland Power Cooperative
Itasca-Mantrap Co-op Electrical Assn.
La Plata Electric Assn.
Lane Electric Cooperative
Meeker Co-op Light & Power Assn.
NineStar Connect - Electric Division
Poudre Valley REA, Inc.
Tipmont REMC



Distributed and “Cooperative” Solar Project Update

- PEC Distributed Solar Projects
 - 5 Sites under lease by RES
 - 8 MW of Power Purchase Agreements (PPAs) completed with RES
 - Remaining site leases and PPAs for 7 MW are nearing completion
- Member “Cooperative” solar rate option
 - NISC Metering and Billing system capability established and verified
 - Rate option will be created within the confines of the existing capability, little to no customization is needed
 - Draft Tariff amendment in April with final approval consideration in May 2017
- Member communications and engagement to begin in June



Cooperative Solar Rate Option Elements

- **Applicable** to Residential, Small and Large Power Rate Classes
 - Not applicable to accounts enrolled in Time of Use (TOU) rates (at this time)
- **Subscribes** to a Share of Solar Capacity up to a Maximum
 - Maximum set at 75-90% of member's lowest monthly usage during the previous 12 Mo. Period
- **Fixed Rate** for Share of Solar Output
 - Initial rate established at \$0.05608/kWh
 - Rate is fixed for a minimum of 3 years
- **Commitment Period** of 12 Months
 - Early rate opt-out requires 12 month wait period to re-subscribe and subject to availability
- **Virtual Net Metering**
 - Share of Solar Output offsets members usage (kWh) used to determine TCOS and Power Cost Charges
 - Share does not offset Service Availability Charge, Delivery Charge, or Demand Charges
- **Limited Availability** subject to Total Capacity
 - Program subscription availability is determined on first come, first serve basis
 - pre-determined maximum subscription allotments by Member rate class
 - 73% residential
 - 12% Sml. Power and 15% Lrg. Power

Optional member rate option that provides the attributes of solar through Cooperative Solar “Virtual” Net Metering



Cooperative Solar Rate Option Billing Example

			Standard	With Cooperative Solar
Member Usage	kWh		1,000	1,000
Solar Share	kWh		N/A	600
Net Energy	kWh		N/A	400
Charges				
Service Availability Charge (SAC)	\$/Mo.	20.00	\$20.00	\$20.00
Delivery Charge	\$/kWh	0.02712	\$27.12	\$27.12
TCOS	\$/kWh	0.01158	\$11.58	\$4.63
Base Power Cost	\$/kWh	0.06050	\$60.50	\$24.20
Power Cost Adjustment (PCA)	\$/kWh	-0.01400	(\$14.00)	(\$5.60)
Cooperative Solar Rate	\$/kWh	0.05608	N/A	\$33.65
Total	\$/kWh		\$105.20	\$104.00
Difference				(\$1.20)
Effective Rate	\$/kWh		\$0.1052	\$0.1040

- Solar share does not offset Service Availability Charge or Delivery Charge
- PEC distribution system is used to “transport” solar share to member
- Fixed rate solar share (0.05608 \$/kWh) offsets usage for net TCOS and Power Cost based rate (0.05808 \$/kWh)
- TCOS and Power Cost charges are variable and passed through to members with cost based rates
- Cost or benefit realized by member will depend on PEC rates for TCOS and Power Cost

Cooperative Solar Maximum Share Approach

Cooperative Solar Allocation by Rate Class		Member Maximum Share	Approximate Total Number of Shares
Total Capacity	15 MW		
Annual Energy Production	32,000 MWh		
Monthly Average Energy Production	2,667 MWh		
Residential Allocation	73%		
Monthly Residential Energy Allocation	1,947 MWh		
Monthly Residential Member Average	1,275 kWh		
Monthly Residential Member Minimum	800 kWh		
Solar Energy Allocation @ 90%	720 kWh	0.027%	2,704
Solar Energy Allocation @ 75%	600 kWh	0.023%	3,244
Small Power Allocation	12%		
Monthly Small Power Energy Allocation	320 MWh		
Monthly Small Power Member Average	2,340 kWh		
Monthly Small Power Member Minimum	1,872 kWh		
Solar Energy Allocation @ 90%	1,685 kWh	0.281%	190
Solar Energy Allocation @ 75%	1,404 kWh	0.234%	228
Large Power Allocation	15%		
Monthly Large Power Energy Allocation	400 MWh		
Monthly Large Power Member Average	63,548 kWh		
Monthly Large Power Member Minimum	50,838 kWh		
Solar Energy Allocation @ 90%	45,755 kWh	3.259%	9
Solar Energy Allocation @ 75%	38,129 kWh	2.716%	10

Limited capacity necessitates a cap on solar energy allocation per member to enable broader member participation across the cooperative and to prevent excessive allocations

Approximate number of share allocations by Rate Class:

- Residential: 2,704 – 3,244
- Small Power: 190 – 228
- Large Power: 9 - 10



Draft Tariff Amendment

Applicability – This tariff is applicable to all rate classes except Water Well, Power Plant Start Power, Industrial, and Area Lighting. Additionally, this rate is not applicable to accounts enrolled in TOU rates.

Program Subscription – This rate requires a twelve (12) month commitment to purchase a portion of the monthly energy usage from the solar power generated by PEC's Distributed Solar Projects. Each Member will be allowed to subscribe up to a number of units equivalent to 75% of the lowest usage at any given month during the last 12 month period. The total kWh attributed to the Member is not a fixed amount, but a percentage of total production, and will vary monthly depending on PEC's total distributed solar project generation.

If a Member opts out of the Community Solar Rate option prior to fulfilling the twelve (12) month commitment, the option will not be available to the Member for a period of twelve (12) months and only if there are available shares.

Subscription availability will be determined by submission to the Cooperative of an application and subject to pre-determined maximum subscription allotments per Member rate class.

Net Billing –

Service Availability Charge: Service Availability charges will apply according to the applicable rate for the Member's rate category.

Delivery Charge: Delivery charges will apply to the total energy monthly usage (kWh), according to the applicable rate for the Member's rate category.

Capacity Demand Charge: Capacity demand charges will apply to the total energy demand (kW) for the month, according to the applicable rate for the Member's rate category.

Solar Power Cost: The solar generation (kWh) allocated to the Member will be based on PEC's total solar generation (kWh) multiplied by the percentage share subscribed by the Member. This member's allocation will be rounded down to the nearest whole number. The total kWh attributed to the Member will be billed at the Solar Power Rate each month.

$$\text{Solar Power Rate} = 0.05608 \text{ \$/kWh}$$

The Solar Power Rate will be revised every three (3) years to ensure it covers costs related to solar production, in accordance with PEC's Rate Policy.

Net Energy: On a monthly basis the Net Energy (kWh) will be calculated by subtracting the solar generated energy subscribed by the Member from the Delivered Energy.

Base Power Cost – The Net Energy(kWh) will be used to determine Base Power Costs using the Flat Rate Power Cost and Power Cost Adjustment as defined in the Power Cost Recovery (PCR) Tariff.

Transmission Cost of Service: The Net Energy (kWh) will be used to determine transmission costs for transmission cost of service charges as stated in the Transmission Cost of Service Tariff.

Renewable Energy Rider: The Net Energy (kWh) may be used to determine additional charges related to the Renewable Energy Rider as stated in the Renewable Energy Rider (Section 100.8).

If the Net Energy (kWh) is less than 0 kWh then the Net Energy shall be credited at the Solar Power Rate. Service Availability and Capacity Demand Charges may still be applicable according to the applicable rate for the Member's rate category.

Cooperative Solar Project and Rate Option Timeline

Activity	Timing	Status
Letter of Intent	January-April 2016	Complete
Develop Template PPA	April-October 2016	Complete
Site Assessment and Lease Acquisition	April 2016-August 2017	In Progress
Engineering and Construction Planning	January-May 2017	In Progress
Member Rate Option Policy and Tariff	April 2016-May 2017	In Progress
Site Specific Power Purchase Agreements (PPAs)	February-May 2017	In Progress
Configure Metering and Billing Systems	December 2016-June 2017	In Progress
Establish Member Communications and Interface	April – June 2017	Pending
Construction	May-December 2017	Pending
Commercial Operation Date (COD)	September-December 2017	Pending
Member Program Go-Live	June-December 2017	Pending



Next Steps

- Validate proposed Cooperative Solar Power Rate at 0.05608 \$/kWh
- Finalize share subscription process and maximum share formulation
 - 75-90% of member's lowest monthly usage during the previous 12 Mo. Period
- Finalize 15 MW total capacity allocation levels to applicable Rate Classes
 - 73% residential
 - 12% Small Power and 15% Large Power
- Configure NISC metering and billing system
- Develop member communication and engagement systems
- Prepare final proposal for Tariff amendment





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