

Solar Financing for Municipalities

*Providing Opportunities to Reduce Electricity Costs &
Generate Resilient Local Economies*



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About Secure Futures

- Solar development company
- Focus on tax-exempt market
- VA market and policy leader
- First to deploy Third-Party Owned (TPO) solar in VA
 - PPA
 - Lease
 - CSGA

www.securefutures.us

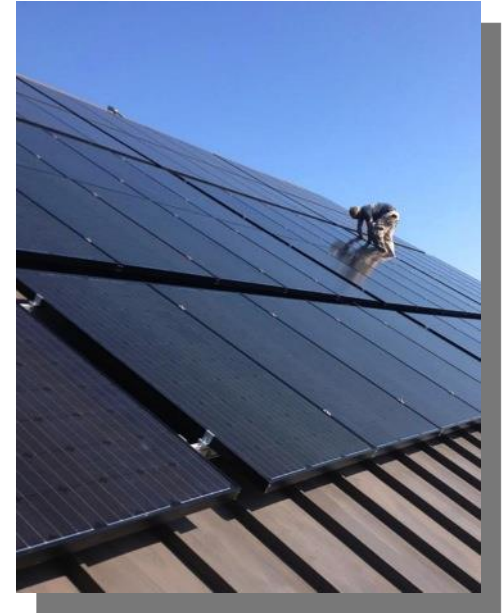
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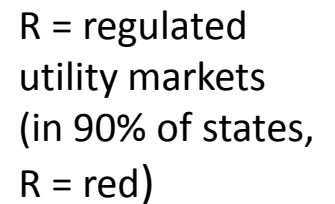
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Proposed Topics

- Introduction
- 4 Procurement Options – Pros and Cons
- The 12 TPO tangible and intangible values
- 2 TPO Types of Solar Services Agreements
- The LAMP procurement process
- 3 Procurement Paths – RFI – RFQ - RFP
- 7 Steps in Developing an RFP for TPO
- The 4 Truths about the True Value of Solar
- Early Purchase Options and FMV
- Q&A

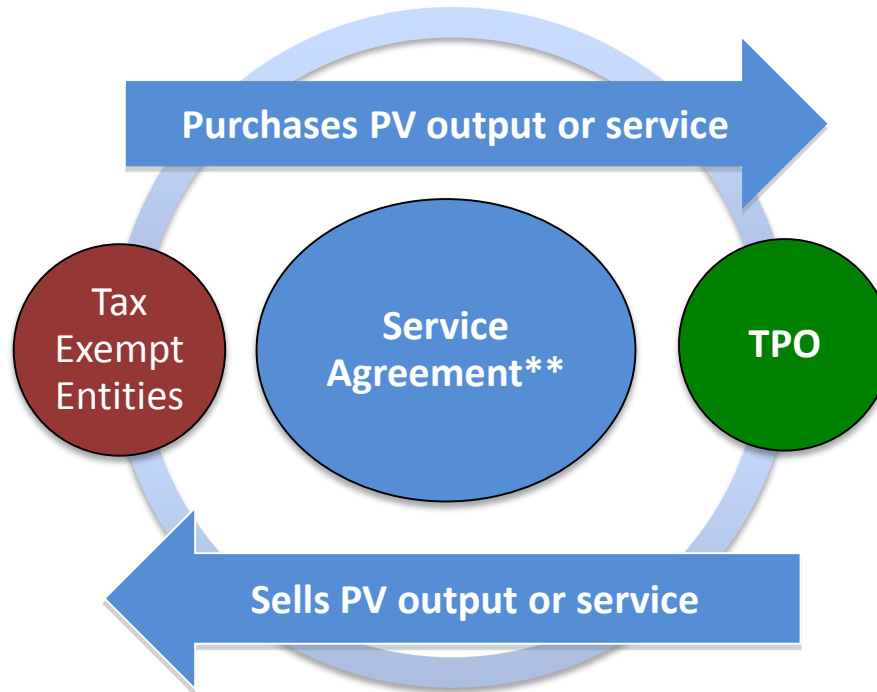




TPO* Laid Out...

Customer

- Hosts system
- Leases roof
- Purchases output and/or services
- Exercises early purchase option at discounted FMV



TPO*

- Finances
- Builds
- Owns
- Operates
- Maintains
- Sells output and/or services
- Guarantees performance

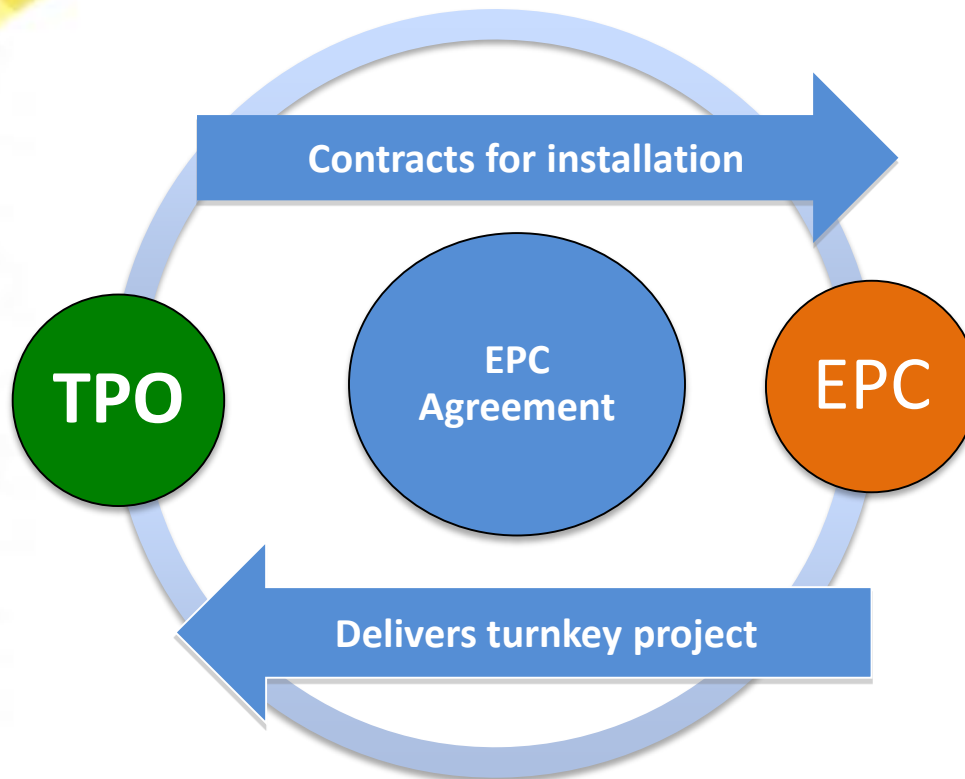
*Third Party Owner

**Power Purchase Agreement (PPA) or Customer Self Generation Agreement (CSGA)

TPO and EPC

TPO

- Contracts with EPC
- Oversees performance
- Provides performance warranties



EPC

- Engineering
 - Electrical
 - Structural
- Procurement
 - System
 - Balance of System
- Contracting
 - Site Prep
 - Installation
 - Commissioning

4 Procurement Options



Utility Owner Solar Options

1. Utility Community Solar Programs

Municipal Financing Options

2. Buy
3. Lease
4. Third-Party Owned (TPO)

Utility Solar Rooftop Leasing

Pros For Customer	Cons For Customer
Receive \$/KW for roof lease	Owned by utility
	Buy All – Sell All approach
	Does not offset usage or demand charges
	Lengthy (and costly) due diligence process
	Taxed as income
	Customer continues using brown energy
	Utility holds REC ownership

Overview: Solar Financing Options

Solar Financing Options			
Financing Options	Buy	Lease	Solar Services Agreement
Purchase Required	Yes	No	No
Financing Required	Yes	No	No
System Expertise Required	Yes	Yes	No
Maintenance Required	Yes	Maybe	No
Performance-based	No	No	Yes
Investor Tax Credit Benefits for Projects with Tax-Exempt Entities	No	No	Yes
Term	No	5 to 20 yrs	15 to 25 yrs
Payback Period for Customer	12+ years	12+ years	Immediate

Buy

Pros For Customer	Cons For Customer
Customer ownership	Large capital investment
	Does not capture federal tax credits
	Long return on investment
	System expertise required
	Maintenance expertise required
	Customer liable for performance risk

Lease

Pros For Customer	Cons For Customer
No capital outlay	Does not capture federal tax credits*
	Recorded as debt on balance sheet (FASB rules)*
	System expertise required
	Maintenance expertise required
	Customer liable for performance risk

**Note that lease agreements with tax-exempt entities do not allow for capture of 30% Investment Tax Credit (ITC) or accelerated depreciation. Also, according to new FASB rules, lease agreements are shown as debt by the Lessee on their balance sheets.*

Third Party Ownership (TPO)

Pros For Customer	Cons For Customer
No capital outlay	Complexity of transaction
No maintenance costs	20-year term
No output/performance risk	
Immediate operational savings	
Predictable payments for life of system	
Provides path to ownership	
Captures federal tax benefits	

Tangible/Intangible Value of TPO

Tangible Values

- Grid parity equivalent pricing of services
- No capital outlay or debt
- Net cash benefit for each solar kWh generated
- Peak demand electricity savings across all usage
- 25 year performance warranties
- Ownership and maintenance by Secure Futures
- Early purchase option after 6 years

Intangible Values.

- Builds brand as thought leader through highly visible solar arrays
- Marketing and PR support for customer
- Engage, recruit, retain businesses, corporations, community
- Increase revenue streams and job growth

PPA & CSGA Defined

PPA

- “A Power Purchase Agreement (PPA) is a financial arrangement in which a third-party developer owns, operates, and maintains the photovoltaic (PV) system, and a host customer agrees to site the system on its roof or elsewhere on its property and **purchases the system’s electric output** from the solar services provider for a predetermined period”*
- Only permitted in 20 states.

*[*Defined by the EPA](#)*

CSGA

- “A Customer Self Generation Agreement (CSGA) is a financial arrangement in which a third-party developer owns, operates, and maintains the photovoltaic (PV) system, and a host customer agrees to site the system on its roof or elsewhere on its property and **purchases the solar services** from the provider for a predetermined period”
- Deployable anywhere in US.



Solar Financial Service Models

PPA

- Customer purchases power for a fixed period (usually 20 years)
- Customer makes no capital investment
- Customer has no maintenance costs
- Customer shows no debt on its balance sheet
- Developer assumes weather risk
- Customer only pays for output actually generated.

CSGA — differs from PPA in that...

- Customer self-generates electricity
- Customer pays fixed service fee
- Customer assumes weather risk
- Developer guarantees performance of system

Overview: TPO Financing Options

Solar Service Agreement Options			
Financing Options	PREPAID PPA*/CSGA**	CSGA**	PPA*
Minimum System Size in kW	100kW to 500kW	400kW to 5MW	400kW to 100MW
Scale of Project	Small Commercial	Small Commercial to Industrial	Small Commercial to Utility
Utility Service Area	Depends	Anywhere	20 states
Grid Parity Pricing	Yes	Yes	Yes
Payback Period for Customer	5 to 10 years	Immediate	Immediate
*PPA = Power Purchase Agreement **CSGA = Customer Self Generation Agreement			

Pilot Testing CSGA in Virginia

Secure Futures has deployed Customer Self-Generation Agreements (CSGAs) in VA since 2012:

- Park View Mennonite Church – Harrisonburg, VA – Municipal Electric Company Territory
- United Church of Christ – Chesterfield, VA – Dominion Territory
- Harrisonburg Redevelopment & Housing Authority – Municipal Electric Company Territory
- Stone House Non-Profit Center – Municipal Electric Company Territory

Reviewed with the VA State Corporation Commission (SCC) and the VA Department of Mines, Minerals and Energy (DMME)



(Solar) Large Asset Management Procurement (LAMP)

Procurement Process



*3 to 18 months... + 3 to 6 mos installation
Good planning can compress the timeline**

**Federal ITC and MARC
reduced in December 2016
(28 months)*

Paths to Procurement

	PROS	CONS
Request for Intent (RFI)	Easiest to administer	Less comprehensive
	Obtain information quickly	A preliminary step to an RFQ or RFP
Request for Qualifications (RFQ)	Moderately easy to administer	Does not address economics
	Ideal for procuring services at lower costs	Contract administration another step
	Allows for negotiated design and economics	
Request for Proposals (RFP)	Most comprehensive	Most difficult to administer for services
	Ideal for procuring known commodities	Precludes negotiated design and cost

7-Steps Towards Developing RFPs for Solar Services

- **Step 1** – Obtain solar feasibility study
- **Step 2** – Clarify terms/conditions to allow variety of financing options (PPA or CSGA)
- **Step 3** – Specify hardware standards for Tier-I solar components
- **Step 4** – Minimize unnecessary bonding & insurance requirements that increase costs
- **Step 5** – Specify NREL PV-Watts D-Rate factors & grid escalation rates for economic analysis
- **Step 6** – Encourage SWAM participation
- **Step 7** – Specify cooperative purchasing agreement for other public entities

The Value of Solar: Local Realities

State of Local Economies

- State budget uncertainties and shortfalls
- Tightening revenue stream
- Increased competition for scarce public resources
- Increased competition to recruit industry leaders, businesses and corporations

Value of Solar

- Reduce energy expenses
- Free up operational capital
- Attract businesses
- Attract national corporations
- Increase tax revenue
- Increase job opportunities
- Develop resilient local economies

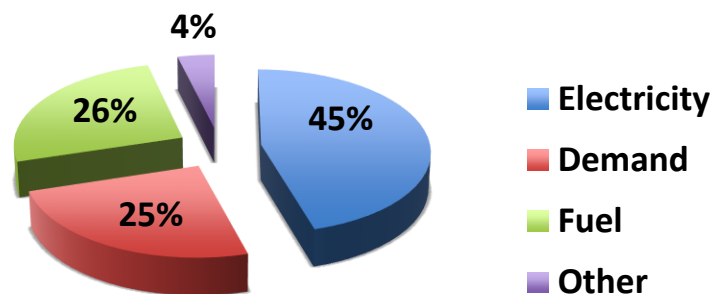
The Value of Solar – 4 Truths

Avoided Grid Electric Costs

1. Electricity (kWh)
2. Fuel and Riders (based on kWh)
3. Demand (based on demand – kW)

Renewable Energy Credits (REC) generated by solar

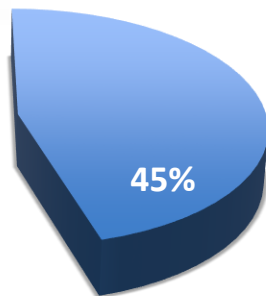
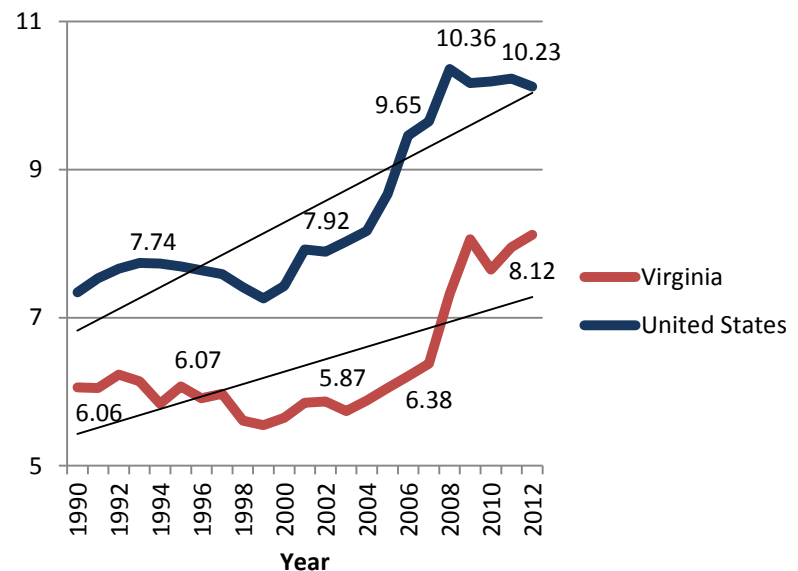
Sample Grid Electric Components



1. Electricity kWh

- Grid electricity rising prices
- Virginia kWh costs increasing 5.5% on average since 2007
- Solar PV results in avoided utility kWh
- Reduces vulnerability to high escalation costs

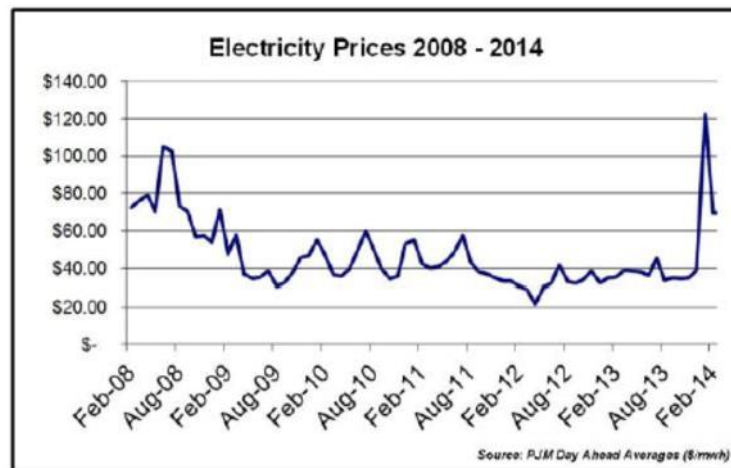
Average Price of Commercial Electricity 1990-2012



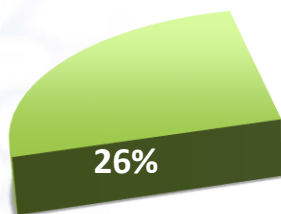
■ Electricity

2. Fuel & Other Riders

- Cost of grid fuel remains volatile (natural gas market)
- Subject to extreme weather events, such as 2014 polar vortex
- Riders subject to change
- Solar PV not subject to sudden fuel price spikes



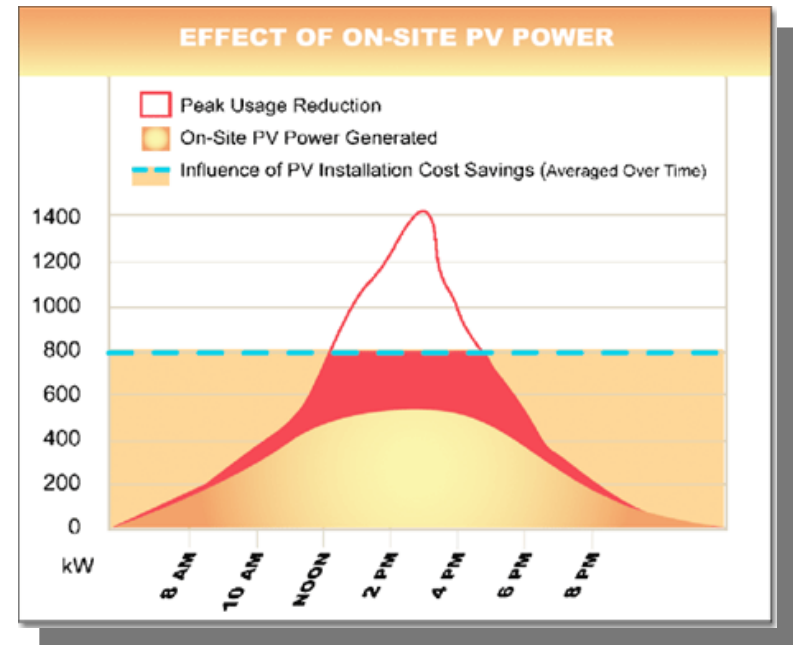
The month-to-month increase in day-ahead average electricity prices in January 2014 had a dramatic impact on market-based prices.



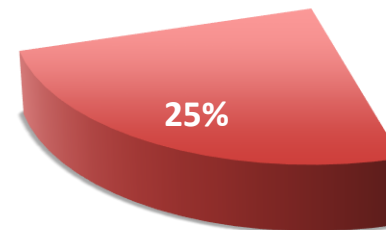
■ Fuel

3. Demand kW

- Solar PV can reduce summer peak demand by 50% or more of solar kW DC nameplate capacity
- Enhance demand response
- *From 25% to 40% of total savings from peak demand savings across the entire electric bill with ratchet commercial tariffs*



■ Demand



4. Renewable Energy Credits

- Solar PV generates tradable Renewable Energy Credits (RECs)
- 1 REC = 1,000 kWh = 1,535 pounds of CO₂
- Market value of RECs determined by state RECs markets and Renewable Portfolio Standards
- Enables Customer to claim that solar array generates the electricity
- An area of negotiation between the Customer and the TPO

Real World Application: EMU

- 3% of total kWh and 7% of total kW load
- Reduced peak load from 1300 kW to 1100 kW
- Saving \$30,000/year in peak demand reductions kW
- Saving \$3,900/year in electricity usage kWh
- Avoided 320 tons of CO2 emissions as of August 2014
- Brand value:
 - Jump in student enrollment
 - Positive, continuous PR
 - Part of campus tour



Early Purchase Option - FMV



- Offer early purchase option after year 6
- Path to customer ownership
- Purchase at fair market value (FMV)
 - Determined at time of purchase
 - Protects capture of federal tax credits
- Customer chooses appraiser
 - After depreciation, FMV purchase is attractive option

In Summary...

- Municipalities can achieve their solar dreams
 - Use renewable energy
 - Reduce energy costs
 - Solar on every campus
 - Retain the solar RECs
- TPO offers the benefits without the costs of achieving those dreams, including a path to ownership
- TPO through PPA's works in 20 states, and through CSGA's may work in all 50 states
- Time is of the essence for ITC tax savings due to long procurement cycles

Thank you!



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