

Community (Shared) Solar



SOLAR RESEARCH
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Solar Research Institute
Listening Sessions

Community Solar: An Opportunity For Customers & The Utility

- Solar generation's double digit growth rates and overwhelming public support point to continued growth
 - Eight to nine out of ten Americans support increased use of solar
- For many electricity customers distributed solar is not accessible/economic
- Distributed solar at full retail credit is in conflict to traditional utility rate paradigms
- Community or Shared solar solves these problems:
 - allows the utility to meet their customers preferences/needs,
 - protects the traditional utility/customer relationship, and
 - protects the utility's revenue and return on investment

Listening Sessions Objectives

- Building off the draft community solar program parameters
 - Designed by the VA Community Solar Advisory Council
- Incorporate a broad range of interests and ideas
- Gather input on specific questions related to
 - Overall program design
 - Customers' rates and program economics
 - Economics for the utilities
 - Economics for the third party solar PPA providers
- Utilized in combination with direct online input

VA Community Solar Advisory Council

- Appalachian Power Company
- Dominion Resources
- MD-DC-VA Solar Energy Industries Association Powered by Facts
- Representatives from specific VA electric Co-Operatives
- Solar Research Institute
- Southern Environmental Law
- Virginia League of Conservation Voters
- Virginia, Maryland & Delaware Association of Electric Cooperatives

The Solar Research Institute

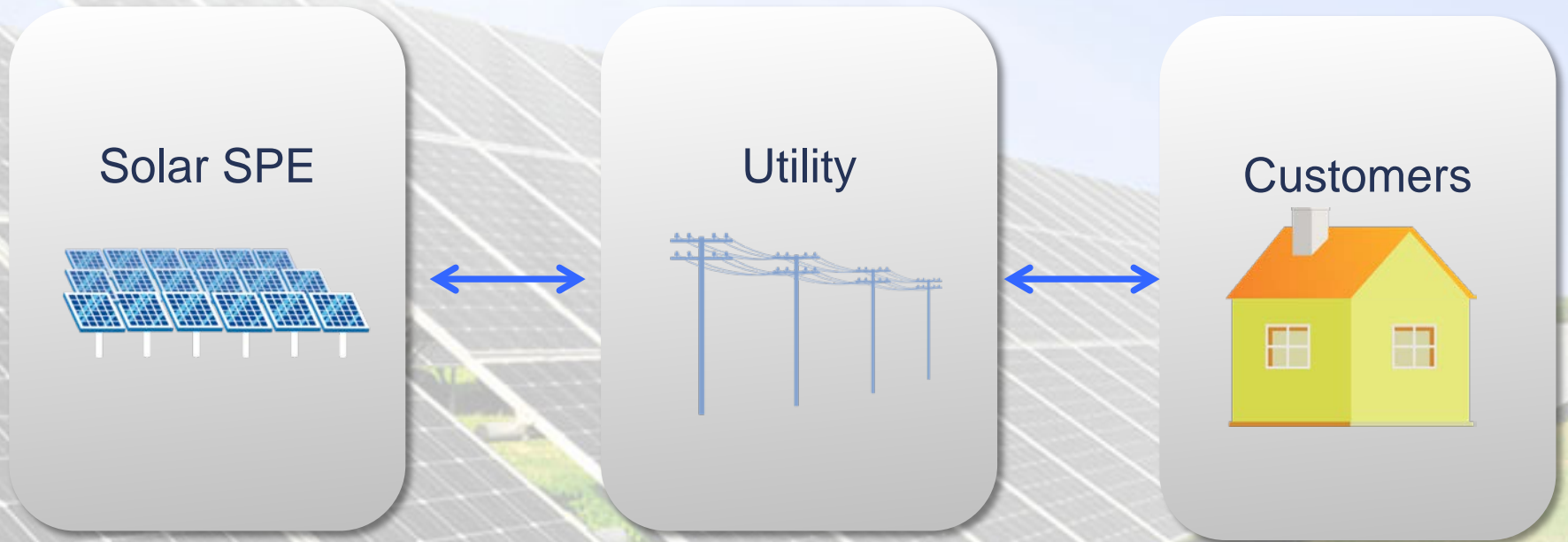
- A 501(c)3 non-profit organization based in Washington, DC.
- Engages in economic, policy and regulatory analysis, education campaigns, and coalition engagement.
- Focuses on the economic opportunities created by these technologies, specifically jobs, GDP growth, and technological innovation.
- Operate at the state level and focus on the mid-Atlantic and Southeast states, with a specific focus on Virginia.
- Built on the credentials of leaders in clean energy policy within this region.

Draft Program Parameters

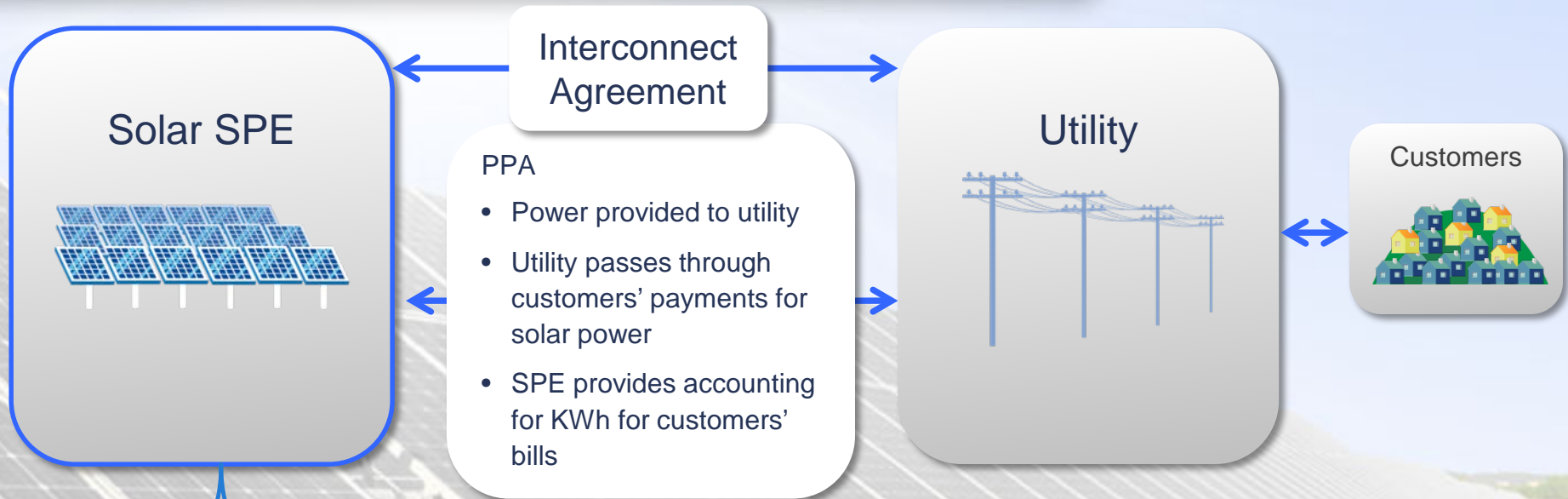
VACSAC developed the following draft guidelines

- Pilot program
- Utility-administered community solar program, specific to each utility
- Utilities conduct RFP(s) for Power Purchase Agreements with third parties with term TBD
- Aggregate MW minimum 25 MW, up to 40 MW in 5 MW increments as program is >90% subscribed (Dominion / APCO and Co-Operatives TBD)
- Projects 2 MW or less; with option up to 25% of aggregate MW as 2 MW or smaller carve-outs from larger projects
- Customers pay blended rate, set annually and fixed for year
- Utilities market and seek subscribers and provides utility billing
- Customer bill credit tied to fuel/LMP
- Utility earns margin/return (possibly authorized ROE + enhanced for subscribed, ROE – same percentage for unsubscribed)

Third Party and Utility Partner to Provide Solar to Its Customers

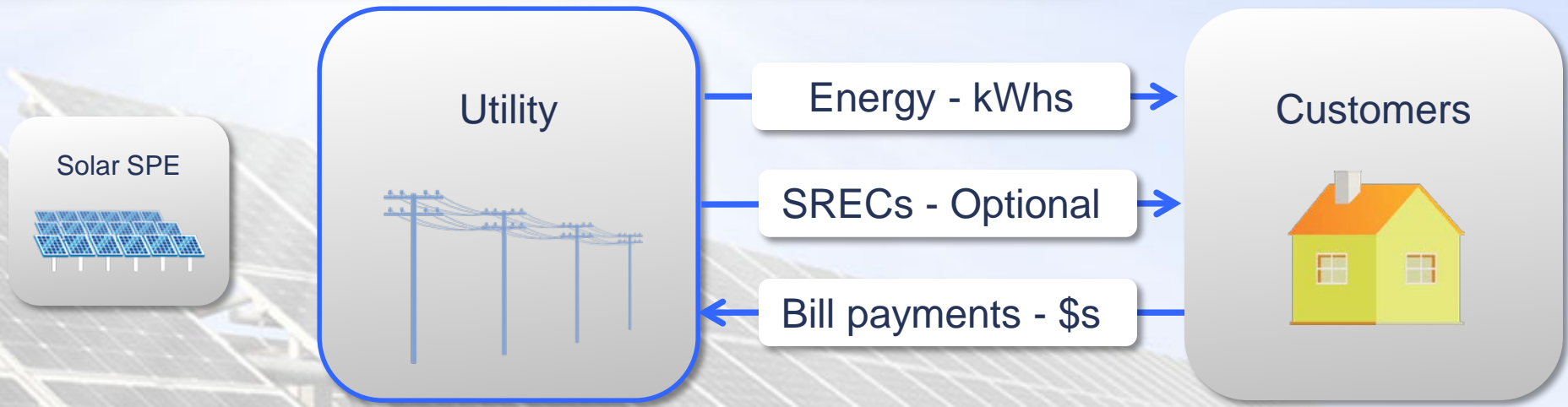


Solar Special Purpose Entity Provides Solar Energy



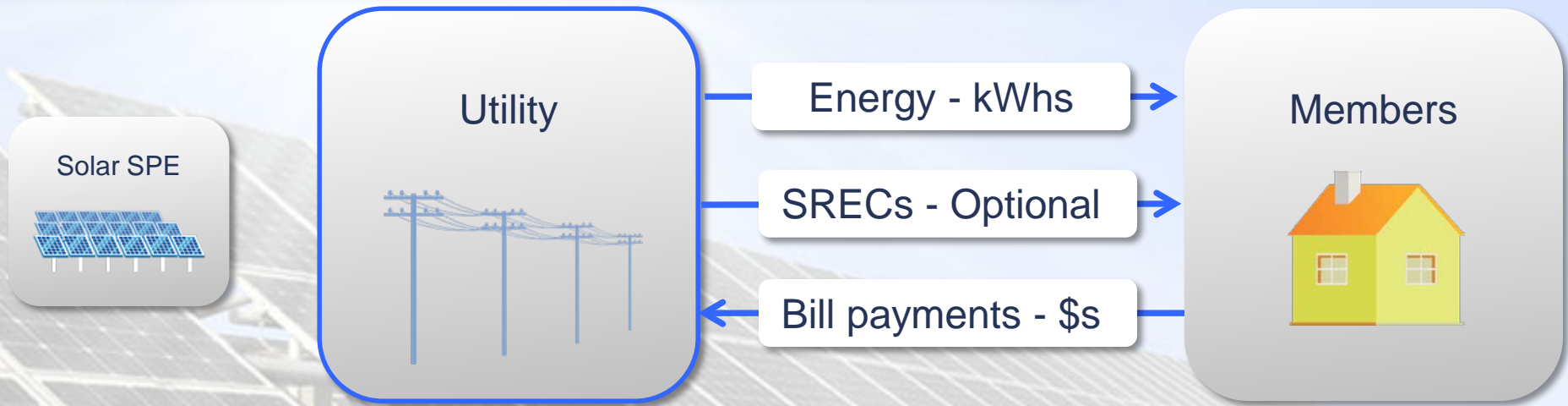
- Develops designs, permits, constructs & finances solar generation
- Provides customer solar billing information
- Sells solar energy and all associated environmental attributes to the utility
- Supports marketing & sales
- Provides O&M and guarantees output

Utility Maintains Traditional Role While Offering Solar



- Provides 100% of energy
- Bills customers at defined rate
- Bills pay-as-you-go customers for allocated solar generation
- Provides credit to pre-pay and pay-as-you-go customers. Credit rate TBD
- Offers SRECs to Customers

Utility Maintains Traditional Role While Offering Solar



- Enters into TBD year commitment for solar on either pay-as-you-go or pre-pay basis
- Purchases energy or energy and the environmental attributes
- Pre-pay customers pay for 25 year's of energy directly to Solar SPE

Customers Receive Discounted Energy or Can Make a Long-Term Positive NPV Investment



Pay As You Go

- Accessible to everyone
- No upfront investment
- Discount on energy, year 1
- Fixed price electricity
- Tax credits directly reduce price



25 Year Pre Pay

- Accessible to everyone
- Long-term investment
- Tax credits directly reduce price
- 40% discount compared to onsite installation

Fix electricity pricing for 25+ years

- Eliminates risk of significant electricity price spikes

Customers Receive Discounted Energy or Make Investment

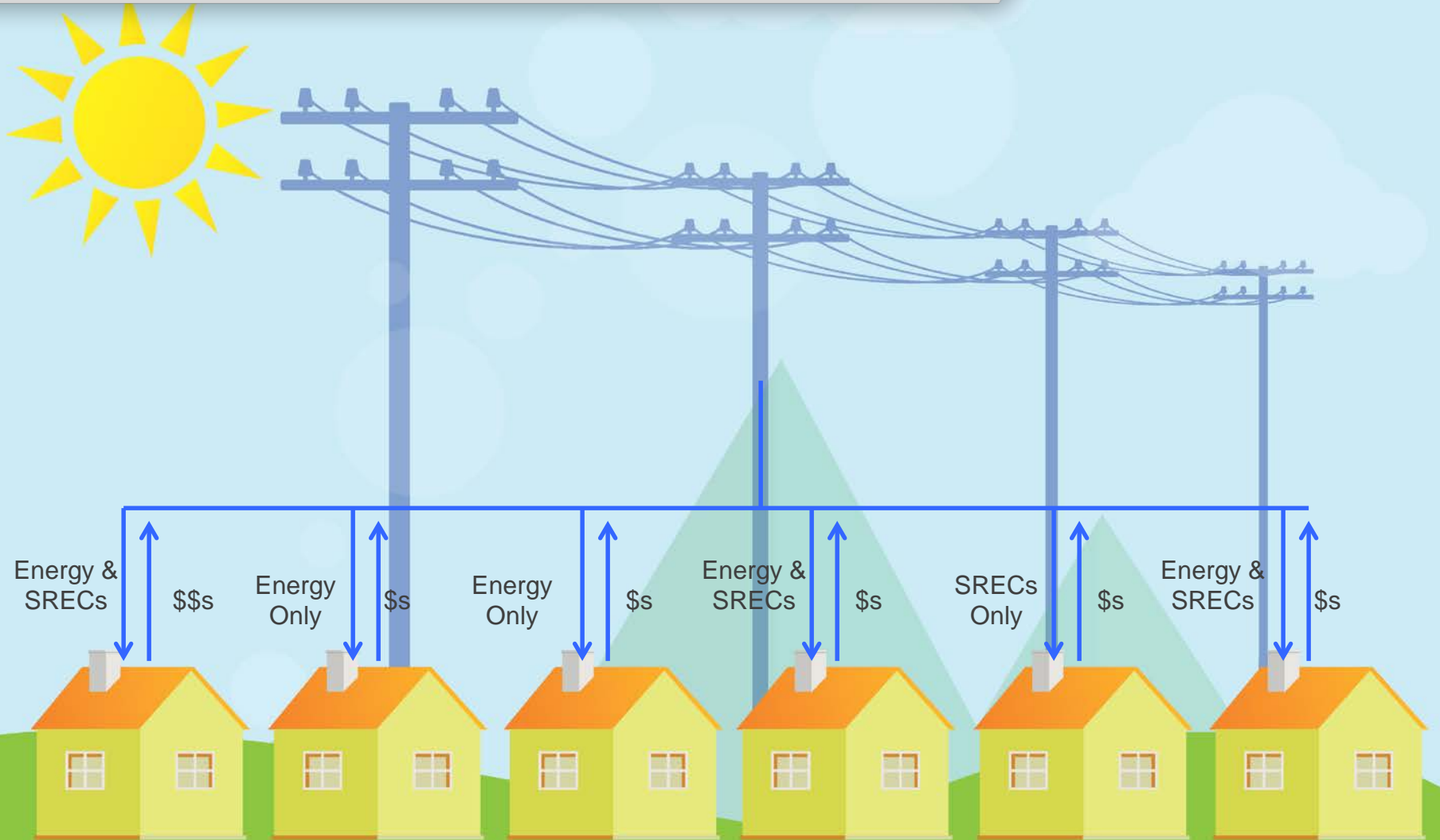
Pay as you go

- Benefit = Credit – Solar Price
- Solar pricing provides a discount to credit pricing for the offset energy
- Credit pricing = wholesale energy price (generation and transmission) plus solar adder (peak pricing, capacity, transmission, etc.)
- Fixed pricing for 25 years – a hedge to energy volatility

Pre-pay

- Benefit = NPV of Credits – Investment
- Credit pricing = wholesale energy price (generation and transmission) plus solar adder (peak pricing, capacity, transmission, etc.)
- Up front investment provides a hedge to volatility in energy pricing.

Customers Can Buy Energy or SRECs or Both



Overview of RFIs

- Topic Area I:
 - What are measures of success?
 - Length of Pilot
 - Low-Income Inclusion
- Topic Area II:
 - Program Size
 - Project Size Caps and inclusion of large scale projects
- Topic Area III:
 - RFP Key Terms & Structure: term, price escalator, qualification requirements
 - REC/Carbon Treatment

Overview of RFIs - *Continued*

- Topic Area IV:
 - Subscription: Length/Incentives/Escalators/Pre-pay
 - Customer Bill Credit
 - Utility Margin/Return and Administrative Fees
- Topic Area V:
 - Marketing to Subscribers
 - Utility Billing System
 - Consumer Protection

Topic Area I

- What are measures of success?
 - Based on experiences in other markets what measurable attributes have defined success for these programs. And, given the specific regulatory and market attributes in Virginia what defines measurable success in Virginia
- Length of Pilot
 - What is an appropriate pilot length?
 - Should the number of years for the Pilot be limited if there is an aggregate MW cap?
- Low-Income Inclusion
 - What would define a low income component to a Virginia Community Solar Program and what are the mechanisms for including this low income segment. This programmatic attribute may need to be revisited to ensure the attributes of a Low-Income component are compatible with the final program design.
 - Do we want to require or incentivize low-income subscribers?

Topic Area II

- Program Size
 - Program may vary in size by utility territory.
 - Dominion example: 25MW to begin with, increasing by 5MW increments as program reaches 90% subscribed.
- Project Size Caps and inclusion of large scale projects
 - It has been proposed that the individual project size be limited to 2MWs or less option to have up to 25% of aggregate MW as 2 MW or smaller carve-outs from larger projects.
 - Ex. There is a 20MW project that wants The benefit is that this could lower the blended rate for customers.

Topic Area III

- RFP Key Terms & Structure: term, price escalator, qualification requirements
 - What is the recommended PPA term?
 - What is the recommended price escalator, if any?
 - What are the recommended qualification requirements?
- REC/Carbon Treatment
 - Should the program allow for RECs and Carbon avoidance to be separate commodities?
 - What rights would the customer have to either purchase RECs/Carbon or sell to the utility?

Topic Area IV

- Subscription: Length/Incentives/Escalators/Pre-pay
 - What are the contractual rights and obligations to a subscription and should the program allow for customers to buy capacity or enter into a pre-pay?
- Customer Bill Credit
 - What are the attributes included in the customer's' bill credits (e.g., fuel, capacity, time of generation, avoided infrastructure costs) and what methodology should be used to set the pricing?
- Utility Margin/Return and Administrative Fees