GEO – Purchase Power Agreements
Understanding the PPA Value

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Hull Background

- Hull is an engineering and project development company that focuses on urban revitalization, waste management solutions, environmental issues and renewable energy.

- Hull has provided consulting services in several states for clients evaluating Purchase Power Agreement options.

- Hull's affiliate, Hull Energy, is currently operating two solar projects under Purchase Power Agreements and is in negotiation on two biogas PPA's.

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Purchase Power Agreements – Renewable Energy

• Purchase Power Agreements ("PPAs") are contracts to sell energy generated by one party to another party.

• Today's topics:

• PPA Types

• PPA Pricing

  • Understanding Utility Rate Structures & Billing Parameters

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Purchase Power Agreements – Renewable Energy

- There are different types of PPAs renewable energy developers may utilize.

  - Sale to utility – "wholesale"

  - Sale to a off-site retail customers

  - Sale to an on-site retail customer

- Each type may have different legal and regulatory impacts.

  - e.g. FERC versus PUCO jurisdiction

- PPA terms may also very for solar , wind and biomass projects.

- PPAs may include or exclude environmental attributes which will significantly impact valuation.

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Purchase Power Agreements –
Solar On-site Generation

• On-site generation or behind-the-meter projects are becoming more common for renewable energy projects. The focus of this presentation is PPA's for the commercial and industrial sectors. ("C&I")

• Pricing misconceptions are prevalent in the industry, especially for solar projects.

- PPA providers often indicate the PPA price will represent a savings to the customer when it actually will results in an increase in energy costs.

- The principal reason for misconceptions is lack of understanding of electric rate structures and utility billing parameters i.e. demand, measured in kilowatts ("Kw") and consumption measure in kilowatt hours ("kWh").

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Purchase Power Agreements – Solar On-site Generation

- Peak demand is measured in 15 minute intervals 24/7 and the meter records the highest level during a billing period . (set back to zero at each meter reading)

  - It is unlikely that a solar project will be able to significantly reduce the peak demand due to a combination of customer load profile and weather impacting solar production.

- Consumption is the total amount of energy used during the billing cycle, measured in kWh, and will be offset by solar energy production.

- PPA pricing analysis should only be compared to the KWh components of the utility bill. Demand savings should be construed as upside.

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Purchase Power Agreements –
Pricing Example

- Often PPA providers will perform a simple billing analysis by dividing the customers billing amount by the energy consumption.

AEP Billing Data			
Peak Demand		75	Kw
Consumption		27,800	kWh
Bill Amount		$2,676.22	
Average Billing Rate			
$2,676.22	divided by	27,800	$0.0963

- . The PPA provider then indicates that a PPA price of $.085 will offer a 12% savings.

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Purchase Power Agreements – Solar On-site Generation

- Billing Analysis

Billing Analysis				
Customer Charge		$ 119.04	$ 0.0043	
Fixed Charge Riders		$ 2.36	$ 0.0001	
Demand Charges		$ 1,112.96	$ 0.0400	($14.83 per KW)
Consumption Based Charges		$ 1,441.86	$ 0.0519	
Total Bill		$ 2,676.22	$ 0.0963	

Purchase Power Agreements – Solar On-site Generation

- Actual Result

Proposed Savings		Solar Price	Offset	Energy
Capacity	Monthly Production	$ 0.085	$0.0963	Savings
50	5,110	$ 434.35	$491.92	$ (57.57)
Actual Result		Solar Price	Offset	Cost
Capacity	Monthly Production	$ 0.085	$0.0519	Increase
50	5,110	$ 434.35	$265.03	$ 169.32

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Purchase Power Agreements – Solar On-site Generation

• Every Utility has different rates structures and many utilities have more than one rate structure that may apply to commercial and industrial customers.

• Rate structures are very complex and include multiple riders which must be factored in. (e.g. Toledo Edison has 32 different riders in addition to the customer charge, demand charges, reactive charges and consumption charges.)

• Understanding the value of PPA is complex and incorrectly promising savings can create issues.

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