Innovations in Renewable Energy Finance

Moderated by Robert Sanders, Senior Finance Advisor, Clean Energy Group

August 20, 2013
Housekeeping

- All participants will be in listen-only mode throughout the broadcast.
- You can connect to the audio portion of the webinar using VOIP and your computer’s speakers or USB-type headset. You can also connect by telephone. If by phone, please expand the Audio section of the webinar console to select “Telephone” to see and enter the PIN number shown on there onto your telephone keypad.
- You can enter questions for today’s event by typing them into the “Question Box” on the webinar console. We will pose your questions, as time allows, following the presentation.
- This webinar is being recorded and will be made available after the event on the CESA website at www.cleanenergystates.org/events/
About CESA

Clean Energy States Alliance (CESA) is a national nonprofit organization dedicated to advancing state and local efforts to implement smart clean energy policies, programs, technology innovation, and financing tools to drive increased investment and market making for clean energy technologies.
About CESA ITAC

• A collaborative group of state wind incentive programs and utility incentive providers working to create a national unified list of small and medium-sized wind turbines that would be eligible for program funding.

• ITAC evaluates the technical specifications, design, performance characteristics, operational history, and customer support of these turbines.

• ITAC members share best practices information.

Learn more at http://www.cleanenergystates.org/projects/ITAC/
Or email Val Stori, ITAC Project Director, Val@cleanegroup.org
Today’s Guest Speakers

• Legal Associate Nihar Shah of United Wind
• Attorney Stephen Pearlman of Inglesino, Pearlman, Wyciskala & Taylor, LLC

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Growing Small Wind – Opportunities in Leasing & Financing

Nihar Shah
Legal Associate
United Wind, Inc.
August 20th, 2013
United Wind, Inc.
Founded 2013
Solutions for Small Wind

* Offering first-to-market, little- to no-money down leasing solution for small wind customers

* Our vision: Lease a turbine to every suitable property in the United States (approximately 3.5 million)

2,400,000 Homes*
700,000 Farms*
400,000 Commercial*

*Suitable US properties based on internally modeled wind speeds, energy prices, expected customer savings, return requirements, and required developer fees
State of the Market

Current Installed Wind Power Capacity (MW)

Data is from the American Wind Energy Association First Quarter 2012 Market Report: http://www.awea.org

U.S. Department of Energy
NREL

48,611 MW
(As of 03/31/2012)

Total: 48,611 MW

Wind Power Capacity
Megawatts (MW)

1,000 - 11,000
100 - 1,000
20 - 100
1 - 20

Alaska 10
Hawaii 92

Washington 2,699
Oregon 2,520
Idaho 618
Utah 325
Arizona 238
New Mexico 750
California 4,287
Montana 395
South Dakota 784
Nebraska 337
Iowa 4,419
Wisconsin 631
Michigan 377
Indiana 1,342
Ohio 115
Pennsylvania 910
New York 1,418
New Jersey 8
Maryland 120
State of the Market

Source: 2012 Market Report on Wind Technologies in Distributed Applications (DOE)
State of the Market

Source: 2011 U.S. Small Wind Turbine Market Report
State of the Market

Figure 14. 2012 U.S. Small Wind Capacity Additions

Source: 2012 Market Report on Wind Technologies in Distributed Applications (DOE)
Policy Incentives

- Federal
  - MACRS Depreciation
  - Investment Tax Credit (ITC)
- State
  - Renewable Portfolio Standards
  - Feed in Tariffs
  - Sales/Property Tax Exclusions
  - Cash Grants
  - Net Metering
  - Utility Interconnection

First ever leasing solution for small wind customers

- Products include fully prepaid, partial prepaid, and no-money down, 10 to 20 year leases

- Includes multiple turbine options, selected for the type of customer, and the historical usage data gathered during due diligence
WindLease™

*Typical farm electricity costs over 10 years, starting year 1 with 3% price escalation

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
<th>Price per kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>$43,000</td>
<td>$0.06</td>
</tr>
<tr>
<td>Today</td>
<td>$103,174*</td>
<td>$0.14</td>
</tr>
<tr>
<td>2032(P)</td>
<td>$206,349*</td>
<td>$0.28</td>
</tr>
</tbody>
</table>

Annual Electric Payments

- Utility
- United Wind

WindLease™
WindLease™
Leasing Structures

* Third party ownership – must use a “true lease”

<table>
<thead>
<tr>
<th></th>
<th>Operating (“True”) Lease</th>
<th>Capital Lease</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of lease term</td>
<td>At least 20% of value and 20% of useful life remains in system</td>
<td>Ownership transferred to lessee</td>
</tr>
<tr>
<td>Purchase option</td>
<td>Never less than FMV at the time of purchase</td>
<td>Can be bargain ($1)</td>
</tr>
<tr>
<td>Ownership</td>
<td>Lessor <em>always</em> remains the owner</td>
<td>Lessee is the owner</td>
</tr>
<tr>
<td>Risks and Benefits</td>
<td>Remains with Lessor (insurance, maintenance etc.)</td>
<td>All transferred to Lessee</td>
</tr>
</tbody>
</table>
What is Tax Equity?

- IRS has determined only the subset of taxpayers with “passive” income may take advantage of federal Investment tax Credit
- 503(c) and governmental entities unable to claim ITC
- Most developers do not have their own passive income, so they “sell” the tax credits to third parties who can claim the ITC for a reduced price (ex. $1 in real dollars for $1.20 in tax credits)
Financing Structures

Utility Scale Sale-Leaseback Model

Financing Structures

WindLease™ Sale-Leaseback Model

- Property Owner
- Project Developer
- Project
- Tax Lessor

- Lease
- Electricity
- Development
- Sale Leaseback
- Collateral
- Equipment Sale
- ITC, MACRS
## Who is providing tax equity?

**Figure 1 - Residential Solar Tax Equity Investors (2010-early 2013)**

<table>
<thead>
<tr>
<th>Tax Equity Investor</th>
<th>Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of America Merrill Lynch</td>
<td>SolarCity</td>
</tr>
<tr>
<td>Citibank</td>
<td>Sungevity, SunPower</td>
</tr>
<tr>
<td>Credit Suisse</td>
<td>SunRun, SolarCity, SunPower</td>
</tr>
<tr>
<td>Goldman Sachs</td>
<td>SolarCity</td>
</tr>
<tr>
<td>Google</td>
<td>SolarCity, CPF</td>
</tr>
<tr>
<td>Mainstreet Power</td>
<td>CPF, OneRoof</td>
</tr>
<tr>
<td>Morgan Stanley</td>
<td>CPF, OneRoof</td>
</tr>
<tr>
<td>PG&amp;E</td>
<td>SolarCity, SunRun</td>
</tr>
<tr>
<td>Rabobank</td>
<td>Sungevity, SolarCity</td>
</tr>
<tr>
<td>U.S. Bancorp</td>
<td>SolarCity, OneRoof, Vivint, SunRun</td>
</tr>
<tr>
<td>U.S. Renewable Energy Group</td>
<td>SolarCity</td>
</tr>
<tr>
<td>WGL Holdings</td>
<td>American Solar Direct</td>
</tr>
</tbody>
</table>

Financing Small Wind – Bond Strategies

* Applying the Morris Model
Financing Small Wind – Bond Strategies

* Private Activity Bonds (PABs)

Source: Orrick, Tax-Subsidized Financing Options for Energy Projects and Programs
Applying PABs to the WindLease™ model
Clean Renewable Energy Bonds (CREBs)

Financing Small Wind – A Case Study in CREBs

Issuer (Project Developer)

Project

Bond Holder

Federal Gov’t

Principle ($)

Development Capital ($)

Tax Credits (in lieu of interest)
Financing Small Wind – A Case Study in CREBs

* Why didn’t it work?
  * Interest rates on tax credits not competitive with bond market
  * Size of program too limited for utility-scale, too onerous for distributed scale
  * Transaction costs could reach $3 million for a $10 million project
  * Award process mired with uncertainty
Some successful bond policies have included:
- State-level backup of municipalities with sub-AA credit rating
- Streamlined application and interest payment process
- Multi-year funding guarantee, to make the money “bankable” to project investors

Successful state policies have included:
- DG carve-out in state RPS
- Required interconnection and permitting rules
- Change to production based incentive standards (as opposed to capacity based)
Key questions for policymakers:

- What types of activities, and changes, do developers need to achieve to access existing types of government-supported financing?

- What areas of emphasis need to be strengthened to help policymakers decide on opening new avenues of financing?
Questions and Comments

Thank you!
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SPECIAL THANKS
Jack Murray
Kyle Andrucyk
SAVING WITH SOLAR: UNDERSTANDING RETAIL SOLAR POWER PURCHASE AGREEMENTS

August 20, 2013

WEBINAR
RENEWABLE ENERGY FINANCE
SOLAR POWER PURCHASE AGREEMENT (PPA)

• Advantages:
  • Turnkey, private solar developer
  • Includes Financing and O&M
  • Developer tax incentives embedded in PPA Price.

• Disadvantages:
  • PPA pricing sub-optimal (most financing benefits to developer)
  • Potential Risks in PPA (due to gov’t action / inaction)
  • FMV purchase at end of term, if term < useful life (not nominal, due to tax law)
PPA RISKS

- Downtime (lost PPA price + SRECs + Profit, regardless of fault)
- Security obligation on Government
- Performance Guaranty from Solar Developer?
- Higher Rated Government Payment Guaranty?
- Limitation on Real Property Options (mortgaging, lease, disposition)
- Early Termination Penalties (benefit of bargain)
HOW DOES THE PROGRAM WORK?

OPTION 1 – PPA MODEL

- County IA

- Competitive Contracting RFP

- Solar Company

- Solar Energy

- County, Municipalities and School Districts

- Potential Benefits to Solar Company
  - Accelerated Depreciation
  - SRECs - Revenues
  - Federal Tax Credits
  - PPA Revenue

- Reduced Energy Costs and Environmental Benefits

- Benefits to Taxpayers

- Site License & Power Purchase Agreement
HOW DOES THE PROGRAM WORK?

OPTIONS 2 HYBRID STRUCTURE

Security Package To County (eg. cash, parent company guarantee, L/C) or eliminate deficiency

Debt Service less SRECS $ less PPA $ = Unsecured debt (aka: County Security Amount)

Potential Benefits to Solar Company

Accelerated Depreciation
SRECs - Revenues
Federal Tax Credits
PPA Revenue

County, Municipalities and School Districts

Guarantee Bonds
County IA

Solar Energy

Bond Financing
Lease
Power Purchase
License

Reduced Energy Costs and Environmental Benefits

Benefits to Taxpayers
SAMPLE SOLAR DEVELOPER
PROCUREMENT CRITERIA

- PPA Price – Economic Benefit
- Developer Approach to Comply with RFP Requirements, including Technical Specs
- Developer Ability to Deliver Turnkey Project, including O&M
- Experience – Contracts of Similar Size and Scope
- Management – Key Personnel and Knowledge of Applicable Laws/Regs
- Logistics of Implementing Plan (1 year construction – multiple sites)
- Financial Strength (single purpose entity – guarantor)
- Construction Security (amount and strength)
- Funding of Deficiency (Developer default, left w/ PPA and SREC – amount and strength)
- Material Changes to Posted Documents Proposed?
- Other Economic Benefits Proposed?
- Restoration Security Included? (option to guaranty roofs restored at end)
BENEFITS OF HYBRID – REGIONAL APPROACH

- Benefits of these Solar Renewable Energy Programs
  - No cost of solar feasibility study to local units
  - Lower cost of project installation through aggregated county-wide RFP
  - Better pricing of the PPA
  - Ability for smaller facilities to take part in a PPA
  - Budget certainty
  - Compliance with local procurement regulations
CASE STUDY – PILOT
MORRIS COUNTY IMPROVEMENT AUTHORITY
SOLAR RENEWABLE ENERGY PROGRAM – CLOSED ON FEBRUARY 18, 2010

• 3.2 MW from 19 facilities for 7 local unit governments
• Bond Pricing with AAA County Guaranty, 4.46%
• PPA Pricing: $0.106 / kWh the first year
• 3% escalation, PPA Price in year 15 = $0.16 / kWh (approximately today’s market price!)
• 15 year PPA
• Sharing of 35% of SRECs if value over $200 / SREC in years 11-15
• Market Price of SRECs today over $600 / SREC in spot market
• 35% Average Savings / Local Unit
CASE STUDY
SOMERSET COUNTY IMPROVEMENT AUTHORITY
SOLAR RENEWABLE ENERGY PROGRAM – CLOSED NOVEMBER 2010

• 7.6 MW from 31 facilities for 15 local unit governments
• Low Cost Financing Bond Pricing with AAA County Guaranty,
• 3.9%, 15 year maturity
• PPA Price: $0.048 cents/kWh
• 2.75% escalation, PPA Price in year 15 = ~ $0.07(half of present rate)
• 15 year PPA
• 60% savings off of 15/16 cent/kWh utility rate
CASE STUDY
SOMERSET COUNTY IMPROVEMENT AUTHORITY
TRANCHE II SOLAR RENEWABLE ENERGY PROGRAM – CLOSED AUGUST 25, 2011

- 7.056 MW from 35 facilities for 18 local unit governments
- Bond Pricing with AAA County Guaranty, 4.02%
- PPA Pricing: $0.041/kWh the first year
- 3% escalation, PPA Price in year 15 = $0.10/kWh (lower than today’s market price!)
- 15 year PPA
- Estimated Savings Over 15 Years = $12.5M
- 23% Average Electric Savings for those facilities that participated
- Par Amount of Bonds: $23,980,000
- Equity contribution of roughly 1/3 of total project cost eliminates CDA
CASE STUDY
MORRIS COUNTY IMPROVEMENT AUTHORITY
TRANCHE II SOLAR RENEWABLE ENERGY PROGRAM – CLOSED DECEMBER 8, 2011

- 8.598 MW from 24 facilities for 10 local unit governments
- PPA Pricing: $0.075 cents/kWh the first year
- 3% escalation, PPA Price in year 15 = $0.113/kWh (lower than today’s market PPA!)
- 15 year PPA
- Estimated Savings Over 15 Years = $7.9M
- 35% Average Electric Savings for those facilities that participated
- Equity contribution of roughly 1/3 of total project cost eliminates CDA
CASE STUDY

MORRIS COUNTY IMPROVEMENT AUTHORITY – SUSSEX COUNTY
SOLAR RENEWABLE ENERGY PROGRAM – CLOSED DECEMBER 2011

- 6.9 MW from 20 facilities for 12 local unit governments
- PPA Pricing: $0.0935 cents/kWh the first year
- 3% escalation, PPA Price in year 15 = $0.15/kWh (lower than today’s market PPA!)
- 15 year PPA
- Estimated Savings Over 15 Years = $5.5M
- 32% Average Electric Savings for those facilities that participated
- Equity contribution of roughly 1/3 of total project cost eliminates CDA
LESSONS LEARNED

- Local Unit Commitment at all Steps
- Potential Closing of Local Unit Facilities in the Future
- Roof Warranties
- System Size & Regionality
- Solar Developer Experience and Balance Sheet
- Balance Maximum Savings with Minimal County Risk
- Building Inspectors and DOE Long Range Plan Updates
- Monitor SREC benefits
HYBRID MODEL – OTHER STATES?

- 4 Essential Laws Required
  - Energy Law (sufficient RPS – in NJ, SRECs can be 40% of subsidy)
  - Bond Law (streamlined approval v. voter requirement)
  - Local Public Contracts Law (multi-year contracting for 15 or more years of PPA)
  - Procurement Law (competitive process v. low bid v. negotiation)

- Regional Approach
  - State or County
  - Group purchasing power and amortize soft costs

- Deep Pocket Required
  - Conduit Issuer and General Obligation Guarantor
  - Dedicated Revenue Stream (e.g. sales tax)
FOLLOW-UP TO MORRIS MODEL

- Advantages and Disadvantages
- Target Market for Morris Model
- Replication of Morris Model
- Adoptability of Morris Model and other Clean Energy Technologies and Market Sectors (e.g., UMTC for 501(c)(3))
- Government Issues with Guarantying Government
- Compatibility with other Financing Models (e.g. Capital Stack and in kind equity)
CONTACT INFORMATION

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Summary and Questions

Thank You!