CDFIs in the Solar Energy Landscape

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What does solar look like to you?

Credits: Sunraised Farms, Raleigh  
Dennis Schroeder / NREL
Solar Mission Impact

1. Jobs (construction, wider industry)
2. Entrepreneurial growth
3. Tax base to low-income areas
4. Revenue to array owners and hosts
5. Manage future energy costs

Solar and Low Income Communities

- Integrated with better buildings criteria
- Luxury, discriminatory or beneficial?
- Energy Affordability—no volatility
- Resiliency—storms, black outs
- Forward looking
  - Allow for electrification of heat and transportation
  - Mitigate future climate regulations
- Landlines or cell phones? Uber or taxis?
  - Included in or excluded from future policies?
Solar Advantages

- 53% of new installed electricity capacity in US in first half 2014
- Least volatile, most predictable source of electricity
- Costs are falling quickly
- Easiest for local generation, siting
- Battery and storage will change everything
- Democratizing energy

Photos:
Benji Burrell, Appalachian Voices
Peter Essex, National Geographic
U.S. Environmental Protection Agency
Clean Energy for Resilience

- Coal and environmental justice
- Energy uses scarce fresh water
- Community adaptation to climate change

The Fundamentals Matter

- What are we talking about?
  - What a PV system is made up of
  - Where they go
- Where does the money come from
  - Capital
  - Revenue
- Location Matters
  - Sunshine
  - Pricing
  - Incentives
What are we talking about?

- How does it work?
- What are the components?
- Where do they go?
- How do they Connect?

What is a Solar PV System?

- Solar Panels - to make electricity
- Inverter - to make the electricity useful
- Racking - to hold the panels in place
- Meters - to measure what you make
- "The Grid" - to connect to
The equipment has to match the application. Getting it right is critical.

Where can you put them?

Under A Bridge
Where does the money come from?

- Whose Money?
  - Owner/Operator
  - 3rd Party
- Capital
  - Tax Credits
  - Grants
  - Utility Incentives
  - Loans
- Revenue
  - Electricity Produced
  - SRECs

If you haven’t already, go to: http://www.dsireusa.org/solar/
Revenue

- Electricity Produced
  - Who pays for it?
  - Sunshine
  - Net Metering
- Feed In Tariffs
  - SRECS
  - Utility Feed In Tariffs

Location Matters

- Sunshine
- Price of Electricity
- Utility and State Grants
- Rules for interconnection and Net metering
- Feed In Tariffs (aka SRECs)
- Permitting
Not all places get the same amount of sun. Where is your project? How much Electricity will the panels make? How much is that Electricity worth?
Direct Cash Incentives for Solar Projects

www.dsireusa.org / February 2013

How much cash can you get?

Net Metering

www.dsireusa.org / September 2014

How much cash can you get?

State policy
Voluntary utility program(s) only
Location Matters

- Sunshine
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Here’s Where it is Happening

“It always seems impossible, until it’s done”

Nelson Mandela

Map courtesy of Solar Energy Industry Association
Solar Challenges

- Proven technology
  - willing to learn new technologies
- Reliable EPC parties
- Tier 1 equipment
- 3rd party engineer and QC

- PPA rate and terms
- Importance of REC’s to cash flow?
- Importance of parent
- Business model and source of future working and development capital

- Experience/installed capacity
- O&M party
- Equipment warranties
- Investor management rights

- Equipment and control/ownership pledges
- Reserves
- Guaranties (personal and institutional)

- Technology risk
- Repayment risk
- Management risk
- Collateral risk
Management risk

- Experience/installed capacity
- O&M party
- Equipment warranties
- Investor management rights

Repayment risk

- PPA rate and terms
- Importance of REC’s to cash flow?
- Reserves
- Capital strength of parent
- Business model and source of future working and development capital
Who's' the cast of characters?

- Borrower/Facility owner (sometimes lessor)
- Lessee / operator
- Developer Sponsor
- EPC
- O&M
- Equity investor
- Lenders
- Premises owner/landlord
- Accountants, legal, appraiser, engineering
Renewable Energy Tax Credit Structures Bonus Slides

- Partnership flip
- Sale leaseback
- Inverted lease

Roll up your Sleeves

- 3 scenarios
  - Current price of electricity
  - Local incentives RPS, grants, etc.
  - Regulatory net metering environment
  - Capital cost of system (?) look at what makes sense for scenario
  - Offtaker – why solar for them, what their motives are

  - When incentives are all brought to bear, how does the CDFI fill the gap
  - Participants identify risks & thoughtful underwriting questions
    - Timing of utility grants, funding caps
    - NMTC
    - Subordinated debt
    - Other?
    - USDA
BREAK

Working group scenarios

- Rooftop multifamily (Wyllys)
- On-Farm PV (Melissa)
- Community Net Metering (Dick)

Deal “ingredients”

- Incentives
- Net metering available?
- Utility world
- Price of buying power
- Capital cost of PV
- Transaction costs
- Grants
- Tax credits
- Rebates
- PPA terms
- REC terms
Shared Solar Attributes

- 80% not suitable sites for solar
  - Shading or orientation
  - Structural or roof age
  - Tenants
- Move beyond “lucky winners”
- Simpler and more economic
- No messing with roof or site
- Size for electricity need
- Opportunities to integrate with grid
- Highly regulatory dependent

Community or Shared Solar

- Developer builds large solar facility, pays for all capital costs, monetizes tax benefits
- Generate electricity at one site
- Deliver electricity to utility
- Receive net meter credit for electricity
- Assign or sell net meter credit to other electricity customer
- Customer uses net meter credit to offset electricity bill
Risks and Realities

- Regulatory risk— incentives change
- Market risks
- Technology risks
- Operating expenses
  - Taxes, insurance, servicing
  - Monitoring
  - Capital needs, decommissioning
- Disruptive to incumbent utilities

Future for Solar

- Value solar for itself not its tax or incentives
- Applications— storage, resiliency
- Integrate with grid
- Location but also state specific
- Complement or replace LIHEAP, AMP, discount rates
- Broaden beneficiaries (and constituencies)
- More volatility in energy markets
Roles for CDFIs

- Intermediaries of more than debt
- Capital
  - To property or developer
  - Tax equity
- Risk Mitigation
  - Credit support on owner, technology, incentives
- Expertise
  - Development
- Policy

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Bonus Slides

Common project structures used with tax credit equity investors

Sale Leaseback Structure

Sponsor
Lessee
Sale
Lease
Tax Equity
Investor
Lessor
Lease/PPA
Host Customers
Partnership Flip

- Developer
  - Sponsor
- Project LLC
- PPA
- Utility

Investor
- Tax Equity
- 1% - pre-flip
- 99% - post-flip

Inverted Lease

- Sponsor Developer
- Tax Equity
- Project Owner LLC
- Lease
- Lessee Operator
- PPA
- Utility