Community-Based Solar Lending: Bringing Clean Energy to Low-Income Communities

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Carsey’s Academic Programs

Public Service Master’s Degree Programs:

- Master in Community Development (MCD)
- Master of Public Administration (MPA)
- Master in Public Policy (MPP)
The solar industry is taking off...
…but not all solar projects are alike

• Is the energy resilient?
• Is it affordable?
• Who gets to build wealth from it?
• Who owns it? Can you trust them?
• Does it create quality job opportunities for low-income workers?
How I got into solar
San Salvador Community:

- Rural, mountainous terrain
- Population 3,000
- Poverty Rate 34%
- Median household income $23,000
- Unemployment in Caguas: 13%
Maria’s path through Puerto Rico

Forecast

5 p.m. position

DOMINICAN REPUBLIC

ARECIBO

PUERTO RICO

SAN JUAN

CAGUAS

TURENTINE

PONCE

BRITISH VIRGIN ISLANDS

U.S. VIRGIN ISLANDS

ANGUILLA

ST. KITTS & NEVIS

Atlantic Ocean

50 MILES

Track and position as of 5 p.m. AST Wednesday

Sources: Mapzen, OpenStreetMap, NOAA

Angelica Quintero / @latimesgraphics
Power Outages lasted 3 – 10 months

Source: Resilient Power Puerto Rico, Rocky Mountain Institute
Puerto Rico Electricity
Sector Context

- Public utility – Puerto Rico Electric Power Authority (PREPA)
- Filed for bankruptcy in 2017, $9 billion in debt
- Long-standing corruption and management issues
- Power plants are old (44 years old, vs. industry average of 18) and poorly located
- 96% of generation is from fossil fuels
- Electricity rates roughly twice the US average ($0.24 versus $0.13/ kWh)
- Electricity generation, transmission and distribution are now being privatized
Emergency Solar Kit Components
Early Strategies in San Salvador

- Pilot rooftop installation and training for local electricians
- Community center solar + storage
Marketing a consumer solar loan

Cooperativa Jesús Obrero:
• Low-Income Credit Union
• Community Development Finance Institution
• Offers an unsecured consumer loan for solar panels + battery storage
• Term of 8 years, interest rate 5-6% at the time
• Has had very strong credit performance
Limitations of the consumer loan approach

- Uptake in San Salvador was low because of affordability challenges
- Loan term is shorter than the asset life
- Batteries are expensive
- Federal tax credits subsidize 26% of project cost, but aren’t available if:
  - You are low-income and therefore don’t have a federal tax burden
  - You live in Puerto Rico
- No state subsidies or Renewable Energy Credits available; net metering is at wholesale rates
- Rooftop solar isn’t feasible if your roof is shaded or you don’t own your roof
- 2 Years after Hurricane Maria, fewer than 20,000 Puerto Ricans have access to solar & storage
Community-Powered Distributed Solar and Storage

Barrio Eléctrico
A Shared Mission: Energy Equity and Resiliency for Rural Puerto Rico

Training/Capacity building on solar systems, policy, and technology developments

Contract to establish Community Reserve* and sponsor ongoing outreach and education

Ongoing member-customer outreach and education events, pre-hurricane season system check event

20-year solar+storage leases at affordable monthly payments

*Funds for Member-Customer assistance with lease obligations.
 Financing challenges for community-driven solar projects

FINANCING BARRIERS

• **Transaction costs:** Enormous costs associated with accessing investors for tax credit equity – legal, accounting, investor relations

• **Deal size:** Many investors are not interested in smaller projects

• **Real and perceived credit risk:** Investors do not trust projects that sell power to low-income households

• **Sponsor track record and balance sheet:** Neither tax equity investors nor lenders trust project developers that are new on the scene (but there are very few mission-driven project developers)

• **Need for long-term financing:** Community-driven projects require longer financing terms for debt, which many mission-driven lenders struggle to provide
Financing challenges for community-driven solar projects

AFFORDABILITY REQUIREMENTS
• Additional subsidies beyond tax credits may be needed to make energy affordable
• Especially true if resilience is a goal, which requires battery storage

COMMUNITY ENGAGEMENT NEEDS
• Unfunded needs for community outreach, organizing, education, technical assistance, trust building
Financing challenges for community-driven solar projects

POLITICAL OPPOSITION AND REGULATORY BARRIERS

- Many utilities oppose projects that they do not own themselves
- As a result, many states do not even allow certain types of community-driven projects to be developed

Source: NREL
Does our solar energy development and financing system “pass the Puerto Rico test”?

- Is the energy **resilient**?
- Is it **affordable**?
- Who gets to **build wealth** from it?
- Who owns it? Can you **trust** them?
- Does it create **quality job** opportunities for low-income workers?
Is Puerto Rico an exception?
## UNH Solar Finance Project

<table>
<thead>
<tr>
<th>TRAINING</th>
<th>CONVENING</th>
<th>PLATFORMS</th>
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<tr>
<td>TRAINING for community-based lenders in solar finance for LMI communities</td>
<td>CONVENING developers, lenders, investors and policy makers around equitable solar finance</td>
<td>DEVELOPING PLATFORMS to make it easier for mission-driven lenders to raise and deploy capital to low-income solar projects</td>
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Policy Convening – Financial Innovations Roundtable

Creating a policy and financing environment that supports mission-driven solar projects

• Exploring how Community Development Financial Institutions and Green Banks can work together
• Refundability or grant-in-lieu for solar Investment Tax Credit
• Design and funding of the proposed national Clean Energy and Sustainability Accelerator
• Expanding and redesigning credit enhancements
• Engaging federal agencies, foundations and major financial institutions in supporting systems change
• Lower state-level utility regulatory policy barriers
Thank you!

Questions?
https://carsey.unh.edu/center-for-impact-finance

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