Crowdsourced Microfinance for Energy Efficiency in Underserved Communities

2015 Building Technologies Office Peer Review

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

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Project Summary

Timeline:

Start date: 10/1/13

Planned end date: 9/30/14

Key Milestones

1)Online platform wireframe; 3/27/14

2)$2mm+ pipeline developed; 2/1/14

3)Draft Energy Services Contract; 1/21/14

4)5 initial audits complete; 4/1/14

Budget:

Total DOE $ to date: $422,518.85

Total future DOE $: $2,029,876.00

Target Market/Audience:

Networks of community organizations, religious organizations, non-profits, small businesses, schools and multi-family residential buildings in financially underserved communities

Key Partners:

Emerald Cities Collaborative	Metro IAF
Conservation Services Group	NYSERDA
Greenwich Energy Solutions	Crowdvalley
Orrick, Herrington, & Sutcliffe	Sierra Club
Green City Force	LiUNA
Open Society Foundations	Echoing Green
Conserva Partners	NY Green Bank

Project Goal:

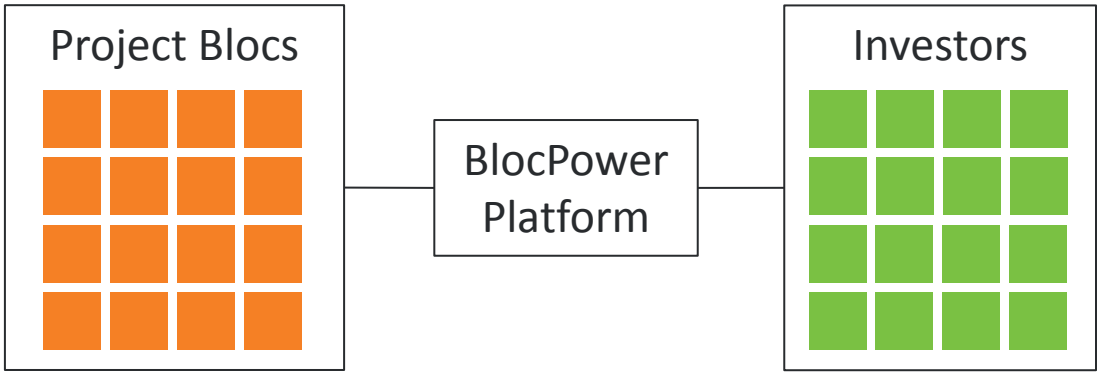
- Market, finance, and install energy efficiency retrofits in 1,000 sub-50k sq ft properties in financially underserved communities
- Facilitate the hiring of well-trained, hard to employ low-income workers on projects
- Develop an online platform to connect impact investors to energy efficiency project investment opportunities

Purpose and Objectives

Problem Statement: BlocPower's crowdsourcing platform addresses two main problems: (1) the inability of traditional energy efficiency and clean energy to access a $43bn+ underserved market, and (2) the inability of 60mm Americans who are alarmed about climate change to invest in energy efficiency.

Target Market and Audience:

Churches, schools, non-profits, SMBs, and multi-family in sub-50k sq ft buildings



Institutional and individual impact investors

$43Bn
Market =
70M annual metric tons of CO_2 reduction

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60,000,000
Americans "alarmed" about climate change

$5-$50 Bn
US Impact Capital

Purpose and Objectives

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Impact of Project:

	Year 1	Year 2	Year 3
# projects	50	250	700
$ invested	$2mm	$25mm	$70mm
$ saved	$.4mm	$7.5mm	$25mm
Tons CO2	6,400	39,000	130,000
Jobs created	5	40	100

Long Term Impact:

- Underserved market served
- $100mm+ capital deployed
- $100mm+ energy savings
- 200k+ tons CO2 avoided
- 50+ jobs created

Approach

Acquire Client → Energy Audit → Credit Analysis → Finance → Install → Repay

Customer Acquisition

BlocPower acquires customers through partnerships and institutional networks

Metro IAF

Sierra Club Founded 1892

Emerald Cities Collaborative

Project Finance Structure

- Projects are placed into an SPV
- BlocPower provides equity capital as a credit enhancement (5-20%)
- Investors and financial institutions provide debt capital (80%-95%)
- Cash flow from savings are distributed to customers, lenders, and BlocPower

Repayment

- Customers continue to pay energy bills
- Utility pays SPV thru on-bill financing

conEdison BlocPower

- BlocPower manages SPV and distributes returns to investors

Distinctive Characteristics and Key Issues

Approach: Customer Acquisition

Acquire Client | Energy Audit | Credit Analysis | Finance | Install | Repay

Customer Acquisition is one of BlocPower's Primary Strategic Advantages

BlocPower partners have massive scale and will provide $1mm+ in "in-kind" customer acquisition services for two sided market

Emerald Cities Collaborative	5mm+ members: Enterprise Foundation, large national affordable housing developers, National Association of Public Housing Developments, 18 Labor Unions
Metro IAF	1.2mm+ members: Metro consultants work with churches, synagogues, and mosques across 7 states
Sierra Club, Founded 1892	5mm+ members: National environmental stewardship and advocacy membership
Green City Force	200 person energy efficiency sales force which also offers training for low income lighting auditors

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Approach: Energy Audits

Acquire Client | **Energy Audit** | Credit Analysis | Finance | Install | Repay

Energy Audits & Engineering Assessments Provide Key Info About Potential Customers

BlocPower Engineering & Audit Partners

- Conservation Services Group
  - Assists BlocPower with engineering auditor selection criteria
  - Footprint in over 20 states
  - 3 decades of experience and data on retrofit product/market fit
  - Providing $50k in engineering auditor selection services
- Greenwich Energy Solutions
  - NYC-based engineering auditor firm with 700+ building audits
  - Completed 5 of 6 ASHRAE Level II audits for 6 Catholic schools
- Conserva Partners
  - NYC-based efficient lighting contractor certified with Con Edison
  - Conducts ASHRAE level I & II audits
  - Provides consulting services around facility retrofits and upgrades

Conservation Services Group

GES GREENWICH ENERGY SOLUTIONS

CONSERVA FACILITATED EFFICIENCY

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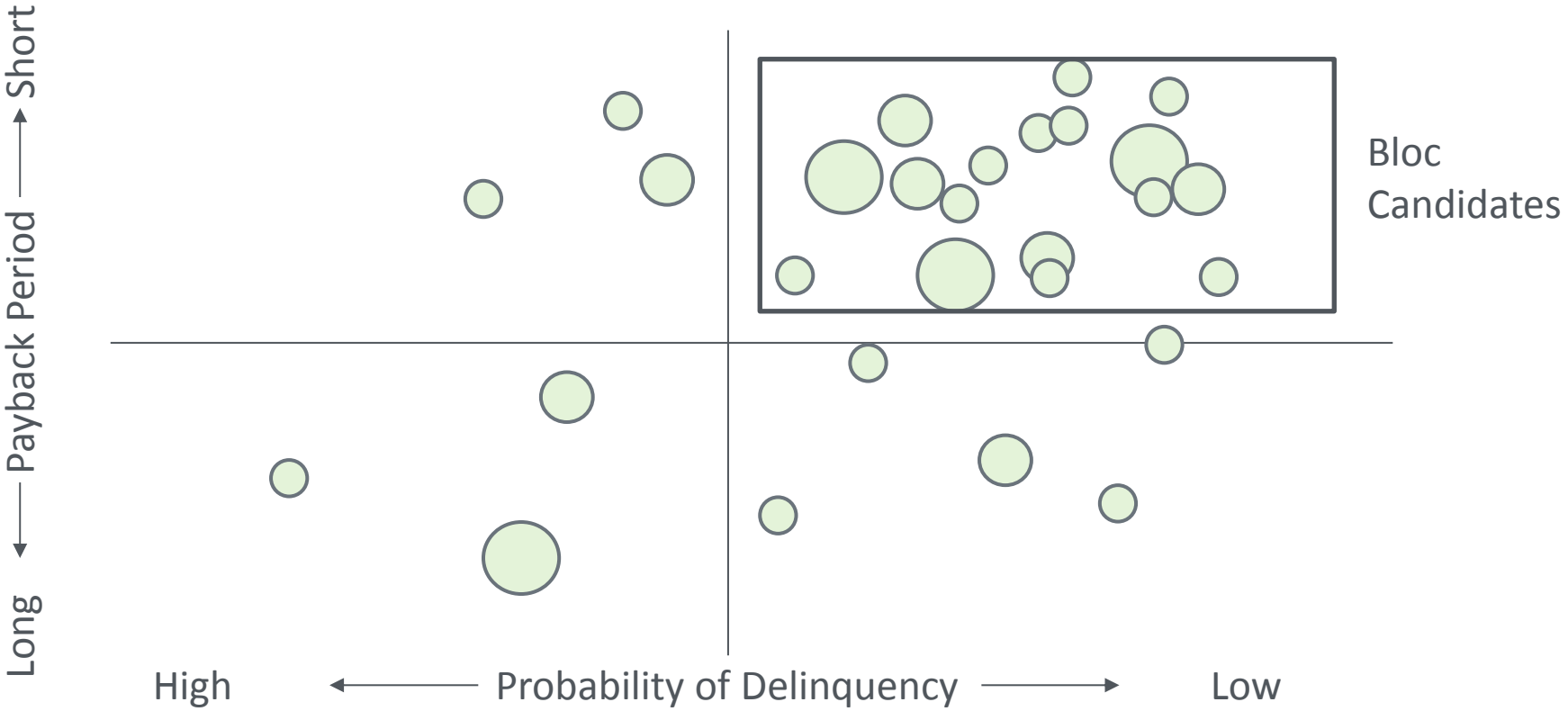
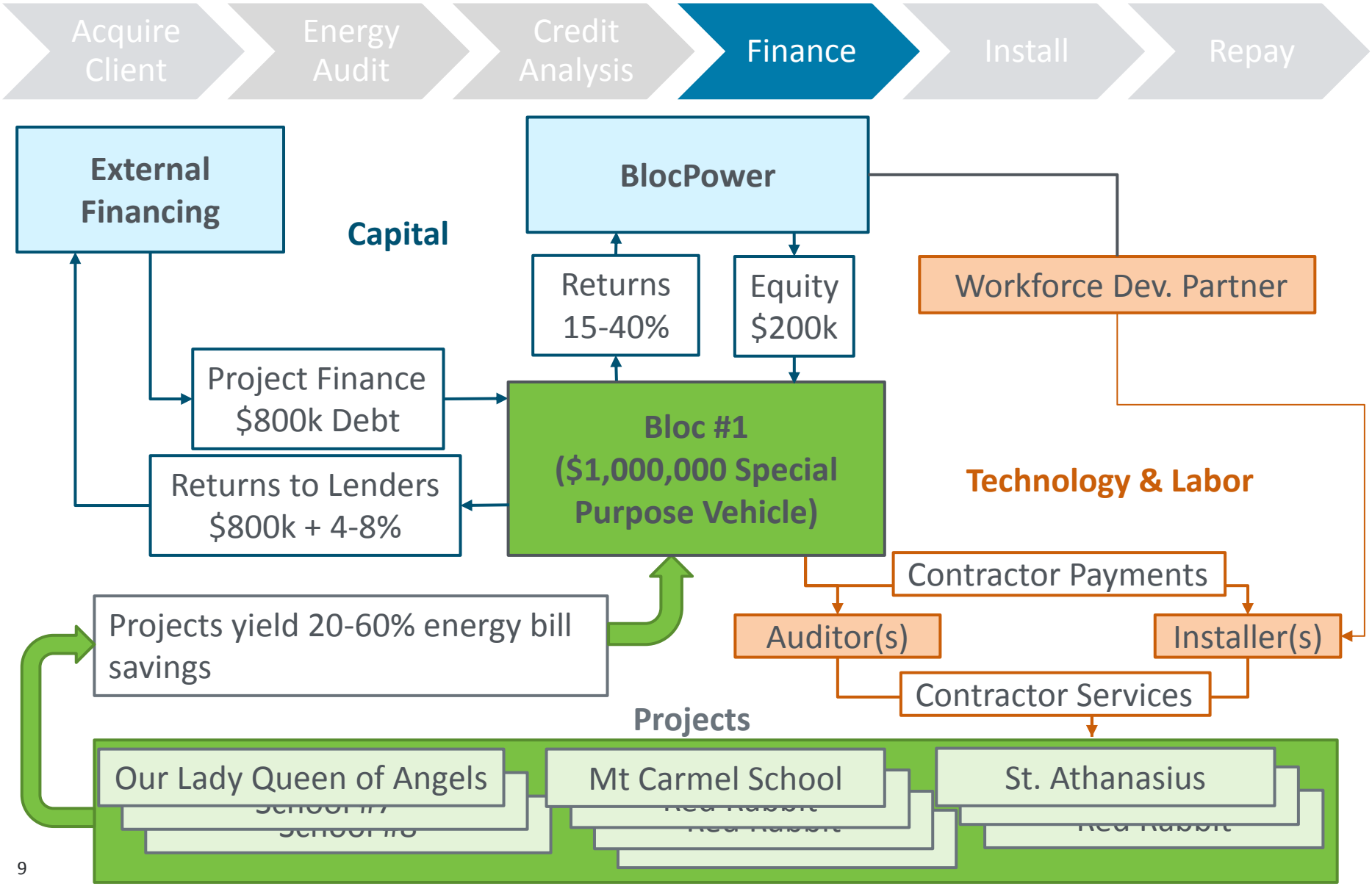
Approach: Credit Analysis

Acquire Client | Energy Audit | **Credit Analysis** | Finance | Install | Repay

Clients are selected for appeal of their payback period and low delinquency rates



Approach: Finance – Structure



Approach: Finance – Online Marketplace

Acquire Client → Energy Audit → Credit Analysis → Finance → **Install** → Repay

- ❑ BlocPower's online marketplace will allow investors to invest in project opportunities
- ❑ Refinanced blocs will provide liquidity to both BlocPower and primary lenders
- ❑ Crowd Valley (past track record, flexibility, and speed) to provide white label solution
- ❑ Online platform is expected to launch by Q3, 2014
- ❑ Orrick, leading securities law firm, is organizing SEC compliance

CROWD VALLEY ORRICK

BlocPower's platform allows investment for social, environmental, or financial returns

1. **Social impact focus** on schools, churches, or target markets
2. **Economic focus** on uncorrelated assets with low payback periods & low default
3. **Environmental focus** on carbon emissions reductions through diversified pool of assets with the highest energy consumption savings (kWh)

Social

Client	Sector	Default	Location
School #4	Education	4.1%	NYC
School #6	Education	9.8%	Chicago
School #7	Education	10.2%	Atlanta

Economic

Client	Sector	Default	Payback
School #4	Education	4.1%	21 mths
Church #12	Religious	3.4%	7 mths
Housing #3	Residential	6.8%	16 mths

Environment

Client	Sector	Default	kWh
School #6	Education	9.8%	18,601
Church #5	Religious	7.7%	14,554
Housing #3	Residential	6.8%	27,332

Approach: Finance – Online Marketplace

Acquire Client | Energy Audit | Credit Analysis | Finance | **Install** | Repay

Installation

BlocPower Installation Service Providers

Conservation Services Group
CONSERVA FACILITATED EFFICIENCY
TRC Results you can rely on
nForce SOLAR
Retroficiency
GREEN POWER SOLUTIONS
PEPCO Pepco Energy Products Company
SUNGEVITY GENERATE POSITIVE

BlocPower Job Creation

LiUNA!
GREEN CITY FORCE

- ❑LIUNA – Laborers International Union Of North America, expert in providing energy efficiency installation training to hard to employ populations
- ❑Green City Force – Americorps org that has trained 200 18-24 year old NYC public housing residents in energy efficiency sales and lighting audits
- ❑ National network of effective workforce development partners, due to time spent on stimulus

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Approach: Finance – Online Marketplace

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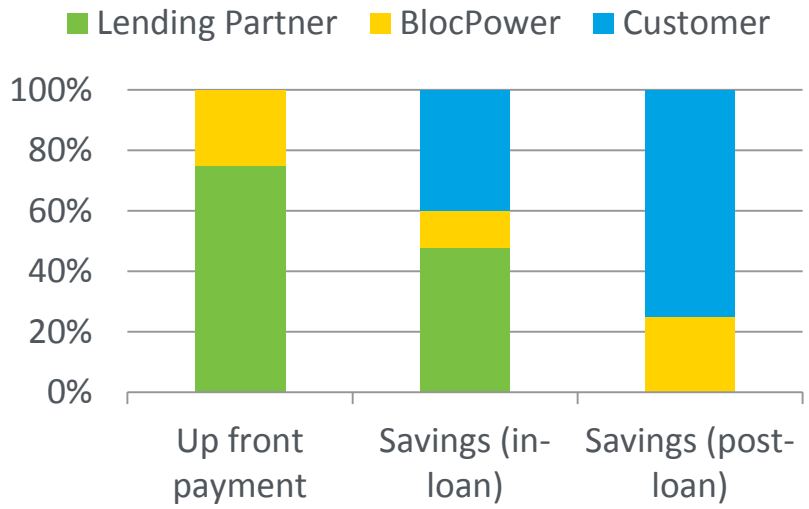

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Utility or alternative third party billing agent collects payments from customers on monthly energy bill and remits payment to BlocPower. Lower payment default rates will result, due to the risk of electric shut off.

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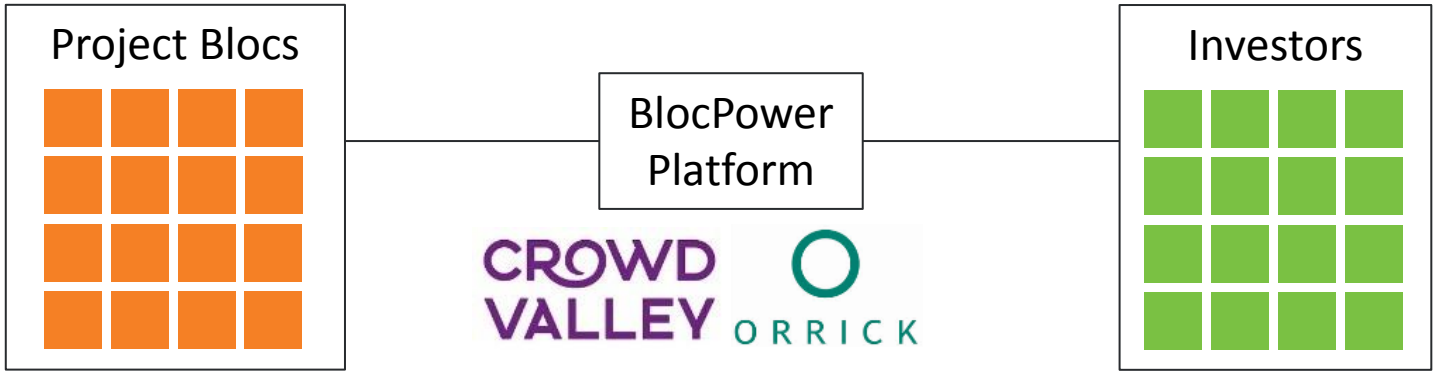
Progress and Accomplishments

Lessons Learned: Building a two sided marketplace requires a supply of attractive projects to bring investors to the market. Much of the work in building the marketplace comes from acquiring customers and generating interest among investor groups. The technical aspects of building the crowdfunding platform are only relevant if there are attractive projects and interested investors.

Accomplishments:



Pipeline of projects developed

1) Orthodox Jewish campus (~$600k)
2) 6 Catholic schools (~$750k)
3) 6 Catholic churches (~$300k)
4) Staten Island church & community center ($300k)

Investor Groups & Requirements

1) NYC Energy Efficiency Corp (live deal)
2) The Reinvestment Fund (TBD)
3) Goldman Sachs UIG ($5mm min; 20%)
4) Citi Community Capital ($5mm; 10%)
5) Brooklyn Co-op FCU (TBD)

Project Integration and Collaboration

Project Integration:

1) Customer acquisition: Many contractors cannot access the sub 50k sq ft space in underserved communities due to high customer acquisition costs. BlocPower's affinity-group based aggregation approach creates larger scale which is economically attractive to contractors

2) Energy Audits: NY state entities like NYSERDA have had limited success converting subsidized and free audits to completed projects. By remotely auditing customers, BlocPower's conversion rate is significantly higher, leading to a more efficient deployment of NY state funds

3) Installation: As project aggregators, BlocPower can push for the inclusion of under-employed skilled labor in, creating job opportunities for our partners

4) Repayment: ConEdison and NYSERDA's on-bill financing program is being extended from the residential sector to the commercial sector. BlocPower has a vested interest in helping to develop the terms and conditions of commercial sector repayment

Collaborators:

Metro IAF

Sierra Club Founded 1892

Emerald Cities Collaborative

GES Greenwich Energy Solutions

Conservation Services Group

CONSERVA Facilitated Efficiency

Green City Force

LiUNA!

conEdison

nyserda Energy. Innovation. Solutions.

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Next Steps: Scaling the Marketplace

Customer Acquisition Process

- ❑ CRM platforms
  - Salesforce
  - Hancock Energy Software
- ❑ Social Networks
  - Community-based organizations
  - MetroIAF – 2mm+ multi-faith community
  - Emerald Cities – 5mm+ Labor Union & community dev org

Engineering Tech Platform:

- ❑ Energy Project Management
- ❑ Mobile auditing software
- ❑ Remote analytics engine

Credit Model

- ❑ Customers pay energy bills before financial bills
- ❑ Sub-prime financing analysis :
  - Energy bill payment history
  - Financial payment history
  - Community & social reputation
  - Business risk

Financing Tech Platform

- ❑ Online Marketplace
- ❑ In-house project finance model
- ❑ Loan Processing System

Installation Platform:

- ❑ Project management
- ❑ Equipment & technology sourcing
- ❑ Contract & Scope of Work management
- ❑ Installation standardization
- ❑ Contractor ratings

Repayment Platform

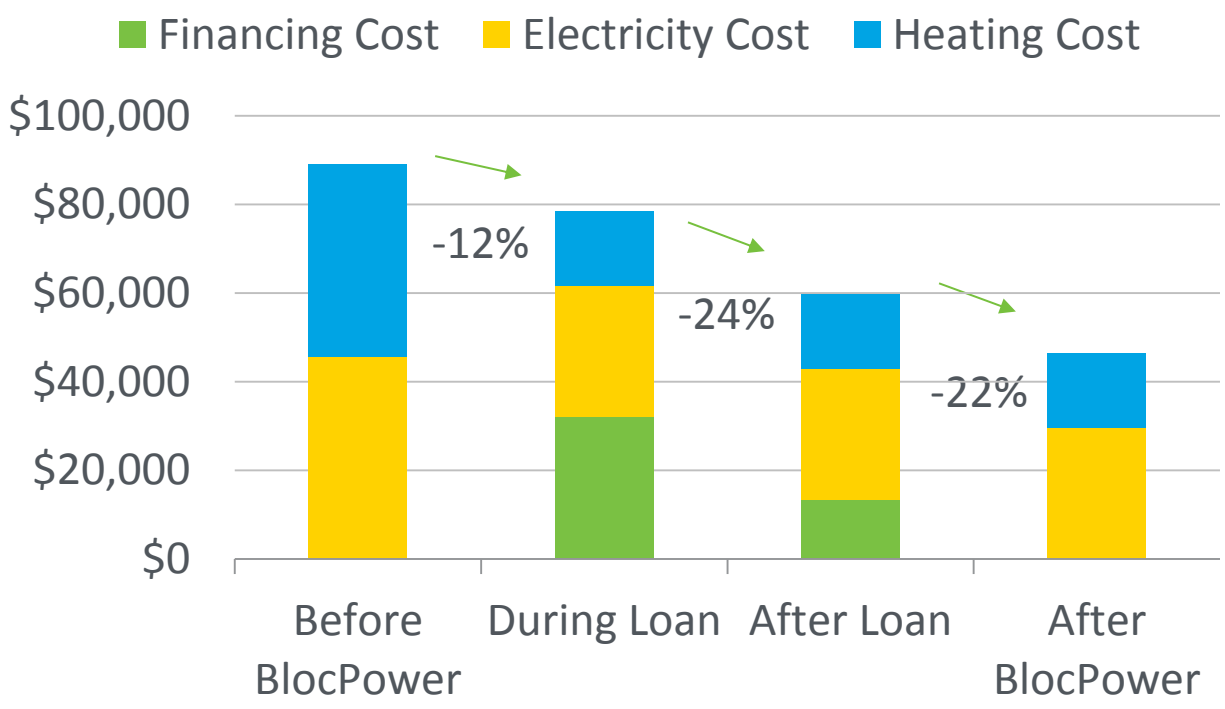
- ❑ On Bill Collection
- ❑ Utility bill data + loan processing data
- ❑ Reputational risk within social network

Reference: What Will a Successful Project Look Like?

Project Example: Our Lady Queen of Angels in East Harlem, NYC

- Catholic school in East Harlem being operated by the Partnership for New York
- $133k initial project cost; 15% IRR; 54.9 tons CO2 emissions avoided; 48% reduction in customer energy bill

Customer Cost Reduction



Job Creation Impact

Our Lady Queen of Angels audited by Mercedes Hodge, after she received training from Green City Force. A resident of public housing, Mercedes works part-time on BlocPower projects as she pursues her nursing degree at BMCC

Project Budget

Project Budget: $4.6M
Variances: NYSERDA contribution valued at minimum of $500k instead of mid-range of $750k
Cost to Date: $1,123,149.61
Additional Funding: Andreesen Horowitz, Kapor Capital, Urban.Us, Progress Real Estate, NY State Energy Research Development Authority

Budget History					
10/1/2013– FY2013		FY2014 (current)		9/31/2016 - FY2016	
DOE	Cost-share	DOE	Cost-share	DOE	Cost-share
$422,512.85	$700,636.76	$236,493.13	$261,300.04	$2.1	$2.5

Project Plan and Schedule

Project Plan:

- 10/1/2013-9/31/2016
- 1000-1500 sub-50,000 sq. ft. buildings in financially underserved communities financed via an online marketplace
- Go/no-go decision point: 6 months—Design of wireframe for online marketplace
- Current work: Development of online marketplace, credit analyses, special purpose vehicle and portfolio structure, development of projects