

HOW TO USE THE PORTFOLIO-LEVEL APPROACH TO FINANCE SOLAR ACROSS AFFORDABLE MULTIFAMILY HOUSING PROPERTIES



May 3, 2018

SAHHLN Webinar Series

Speakers



Bettina Bergoo, Sustainability in Affordable Housing Lender Learning Network / EEFA



Jared Lang, Assistant Vice-President for Sustainability at NHT-Enterprise



Esther Toporovsky, Senior Program Director of Green Communities at Enterprise Community Partners



Chris Jedd, Portfolio Energy Manager at Denver Housing Authority



A collaborative, coalition-driven, 13-state campaign to increase energy efficiency in affordable multifamily housing



** Strong presence in Atlanta, Chicago, Kansas City, Los Angeles, Minnesota, New Orleans, New York City*



Our Long Term Vision: EEFA's success catalyzes equitable access to clean energy resources for healthier homes, reduced poverty, a cleaner environment and more climate-resilient communities

Sustainability in Affordable Housing Lender Learning Network

- Vision: Stable, affordable multifamily housing for all supported by investments in environmental sustainability
- Mission: Leverage the collective expertise and relationships in our network to support a multifamily housing financing market where lenders value environmental sustainability as a means to support economic sustainability
- Knowledge sharing through a *NEW* online resource hub, program and transaction database (under development), webinar series, and connecting at in-person events
- Advisory Group:



Launched today: SAHLLN website!

The screenshot displays two overlapping pages from the Energy Efficiency for All website. The top page, titled 'ABOUT THE SUSTAINABILITY IN AFFORDABLE HOUSING LENDER LEARNING NETWORK', outlines the organization's vision, mission, and definition of sustainability. The bottom page, titled 'FINANCING PROGRAM AND PROJECT DATABASE', provides information about the database's purpose, its contents, and how users can submit new programs or projects. Both pages feature a dark blue header with the 'ENERGY EFFICIENCY FOR ALL' logo and a navigation menu.

ENERGY EFFICIENCY FOR ALL

ABOUT EEFA ALLIES ISSUES RESOURCES NEWHAB SAHLLN UPDATES

Home > About the Sustainability in Affordable Housing Lender Learning Network

ABOUT THE SUSTAINABILITY IN AFFORDABLE HOUSING LENDER LEARNING NETWORK

Our vision

Stable, affordable multifamily housing for all supported by investments in environmental sustainability.

Our mission

Leverage the collective expertise and relationships in our network to support a multifamily housing financing market where lenders value environmental sustainability as a means to support economic sustainability.

What is "sustainability"?

We define "sustainability" as encompassing both economics and the natural environment. In terms of economics, sustainability refers to the long-term financial viability of housing for low- to moderate-income residents. In terms of the natural environment, sustainability refers to the efficient and responsible use of resources like electricity, gas, oil and water, and the incorporation of renewable energy resources.

Who we are

The Sustainability in Affordable Housing Lender Learning Network (SAHLLN) is a coalition of housing finance agencies (HFAs), major financial institutions, and specialized green financing entities. If you are a lender, please help us by submitting your information to the database.

What we do

SAHLLN provides a central repository for information on financing energy and water efficiency and renewable energy in multifamily affordable housing properties. These resources are recommended to multifamily housing lenders, including Community Development Financial Institutions (CDFIs), housing finance agencies (HFAs), major financial institutions, and specialized green financing entities. Please help us by submitting your information to the database.

EVENTS

Connect with other SAHLLN members at these upcoming events!

ACEEE 2018 Energy Efficiency Finance Forum

May 21-22, 2018 | Tarrytown, NY

These SAHLLN Advisory Group members will be speaking during the panel discussion "2C: Multifamily Lending": Esther Toporovsky, Enterprise Community Partners; Katie Elmore, Community Investment Corporation; and Sadie McKeown, Community Preservation Corporation.

NEWHAB - EEFA Annual Convening

May 22-24, 2018 | Detroit, MI

Opportunities

October 9, 2018

Are you a lender?

The SAHLLN Financing Program and Project Database is a first-of-its-kind database listing energy and water efficiency financing programs targeting multifamily affordable housing. The database allows you to examine - in one resource - details of a variety of existing lending programs and case-study style project information showing how lenders work for them and for their borrowers.

This database is being developed for affordable housing lenders and their allies interested in bolstering the ability for affordable property owners to invest in energy efficiency. The database allows you to examine - in one resource - details of a variety of existing lending programs and case-study style project information showing how lenders work for them and for their borrowers.

This database is under development. Check back soon or [join our mailing list](#) to be notified as soon as it is launched.

If you know of a financing program or project that should be added to the database, please submit it!

[Submit a financing program using this form.](#)

[Submit a project using this form.](#)

[Home](#) > [Financing Program and Project Database](#)

The screenshot displays the 'SAHLLN Resource Hub' page on the Energy Efficiency for All website. The page features a dark blue header with the 'ENERGY EFFICIENCY FOR ALL' logo and a navigation menu. The main content area lists various resources, including the 'Better Buildings Financing Navigator' and 'Building Efficiency: Identifying ways to improve building efficiency (PART 2)'. Each resource is accompanied by a circular icon and a brief description. The page also includes a filter section at the top right to refine search results.

ENERGY EFFICIENCY FOR ALL

ABOUT EEFA ALLIES ISSUES

Home > SAHLLN Resource Hub

SAHLLN RESOURCE HUB

The SAHLLN Resource Hub is a central repository for information on financing energy and water efficiency and renewable energy in multifamily affordable housing properties. These resources are recommended to multifamily housing lenders, including Community Development Financial Institutions (CDFIs), housing finance agencies (HFAs), major financial institutions, and specialized green financing entities. Please help us by submitting your information to the database.

Filter Resources by Topic - Any - **Filter Resources by Resource Type** - Any - **Sort By** Title **Items per page** 10 **Reset**

Better Buildings Financing Navigator

US Dept of Energy

The Navigator is an online tool that helps public and private sector organizations find financing solutions for energy efficiency projects. Developed by the US Department of Energy, the Navigator helps users explore a wide array of financing choices and identify relevant financing options for their energy efficiency...

[READ MORE](#)

Resource Type: Toolkit
Topics: Financing Options

Building Efficiency: Identifying ways to improve building efficiency (PART 2)

Sustainability in Affordable Housing Lender Learning Network | November 2017

Building on the first session on understanding the positive impacts of energy and water efficiency lending, this webinar provided a breakdown of what incorporating energy efficiency measures into the underwriting process looks like. The webinar reviewed low-cost efficiency measures...

[READ MORE](#)

Resource Type: Webinar
Topics: CDFIs, Financing Options, Loan Performance, Quantifying Savings, Underwriting

Case Study: Classic Energy Retrofit | Multifamily Walkup

Community Preservation Corporation | 2016

**www.energyefficiencyforall
.org/sahlln/sahlln-
resources/**



Financing Structures For Affordable Housing Solar

Jared Lang
National Housing Trust



Key Questions

1. What structures are out there?
2. What's the NHT Renewable Model?
3. How do you make the benefit worth the brain damage?

National Housing Trust / Enterprise Preservation Corporation

- ❖ Own & Operate approximately 4,000 affordable rental units along the East Coast and Illinois.
- ❖ NHT/Enterprise has achieved green certification (Enterprise, Earthcraft or other) on approximately 2/3 of units, 2,500 units, in its portfolio.
- ❖ First Green Certified property in DC (Galen Terrace)
- ❖ Typically reduce energy consumption >20%.

Enterprise & NHT-Renewable Solar Resume

Completed

NHT Renewable DC 5 (2014): 500 KW, \$1.3 Million Investment

Channel Renewable (2016): 500 KW, \$1.5 Million Investment

Nixon Peabody Community Solar I (2016): 350 KW, \$1 million

Denver Housing Authority Solar (2017): 2 MW, \$3 million

LINC Housing Solar (2018): 800 KW, \$2 Million

In Development

CPDC Solar: 1.2 MW, \$3.5 million

Bridge Housing Solar (2018): 800 KW, \$2.5 million

NHT Ingenuity Power DC I (2018): 1 MW, \$3 million

Riseboro CDC (2019): 1.2 MW, \$3.5 million

NHT Ingenuity Power DC II (2019): 1 MW, \$3 million

Jonathan Rose Companies Solar (2019): 1.2 MW, \$4 million

Structures

1. Purchase at the property partnership
2. Lease / Power Purchase Agreement
3. NHT Renewable Model (Portfolio-scale solar)

Why Purchase?

Benefits

1. 100% of Energy Savings
2. Environmental benefit
3. Local energy production
4. Price stability

Challenges

1. Roof Condition and Structural Reviews
2. Up-front Capital
3. Approvals
4. Construction Risk
5. O&M

Why Lease?

Benefits

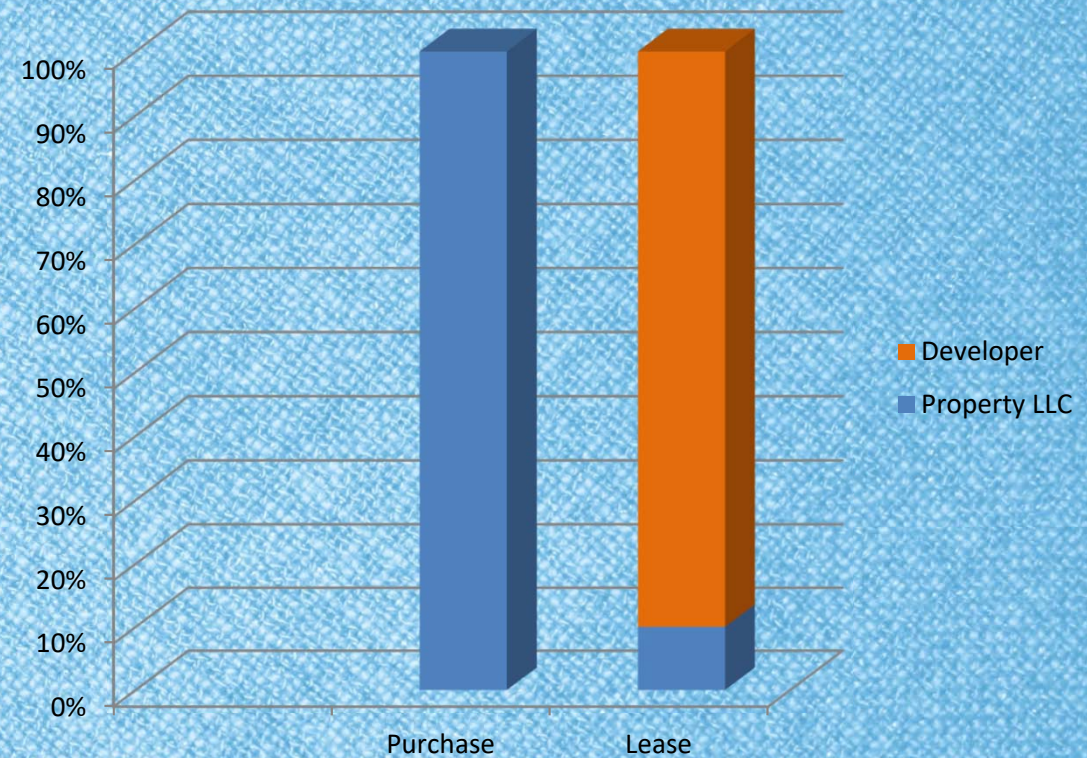
1. No installation costs
2. No O&M
3. Energy Savings, but only about 10-30%
4. Environmental benefit
5. Local energy production
6. Price stability

Challenges

1. Roof Condition and Structural Reviews
2. Legal fees associated with onerous approvals
3. 3rd-party owning an asset on your roof
4. Less energy savings, only 10-30%

Economics

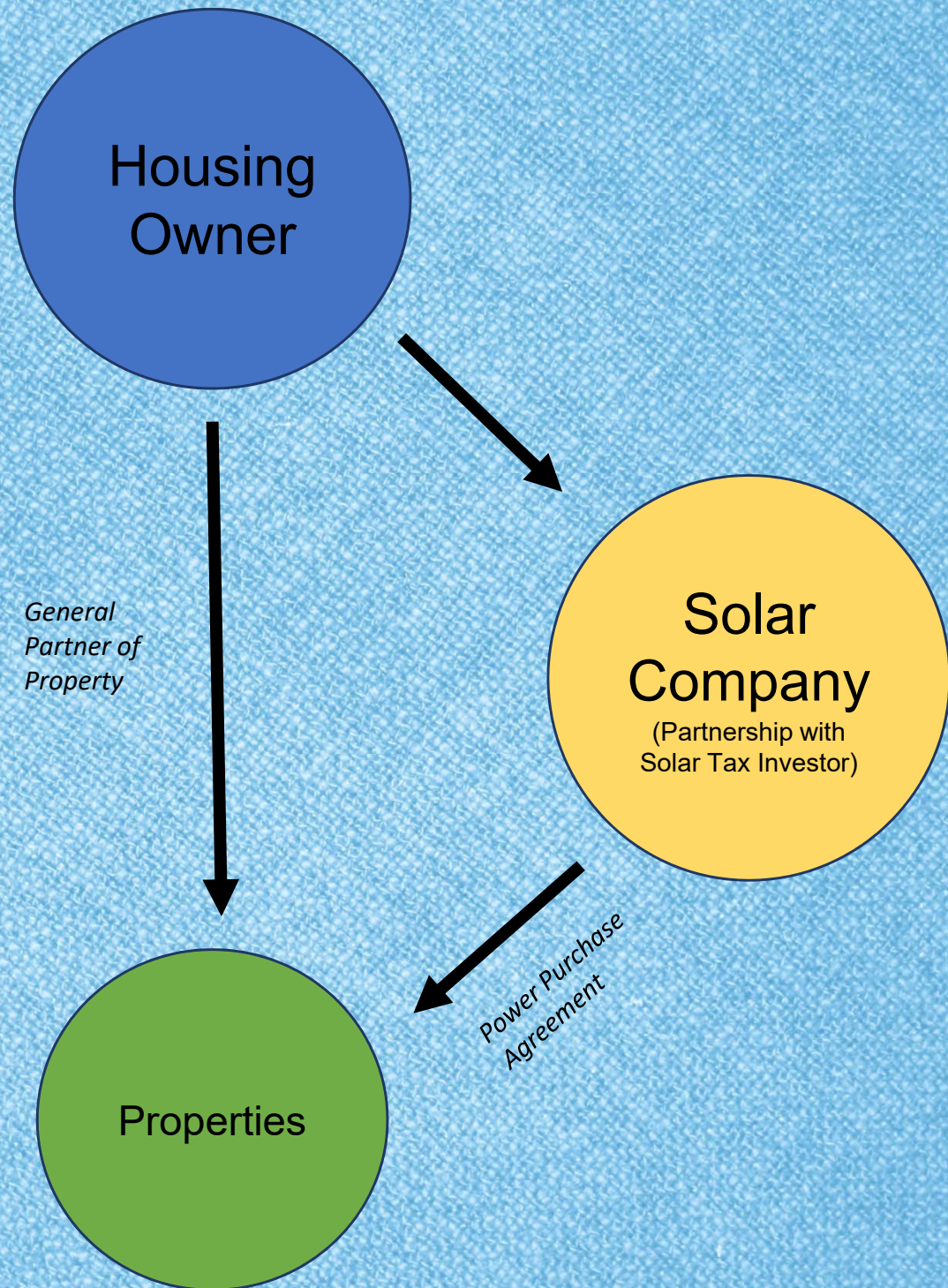
	Purchase	Lease
	Savings + Incentives	Savings (10% Discount)
Year 1	\$10,000	\$1,000
Year 2	\$10,000	\$1,000
Year 3	\$10,000	\$1,000
Year 4	\$10,000	\$1,000
Year 5	\$10,000	\$1,000
Year 6	\$10,000	\$1,000
Year 7	\$10,000	\$1,000
Year 8	\$10,000	\$1,000
Year 9	\$10,000	\$1,000
Year 10	\$10,000	\$1,000
Year 11	\$10,000	\$1,000
Year 12	\$10,000	\$1,000
Year 13	\$10,000	\$1,000
Year 14	\$10,000	\$1,000
Year 15	\$10,000	\$1,000
Year 16	\$10,000	\$1,000
Year 17	\$10,000	\$1,000
Year 18	\$10,000	\$1,000
Year 19	\$10,000	\$1,000
Year 20	\$10,000	\$1,000
Total Savings	\$200,000	\$20,000



NHT Renewable Model

1. Setting up a company to finance, install, and operate solar on top of multiple housing properties
2. Signing agreements between the solar company and property partnerships to sell power
3. Opening solar projects up to new income streams
4. Aggregating multiple properties
5. Making the benefit worth the brain damage

NHT Renewable Org Structure



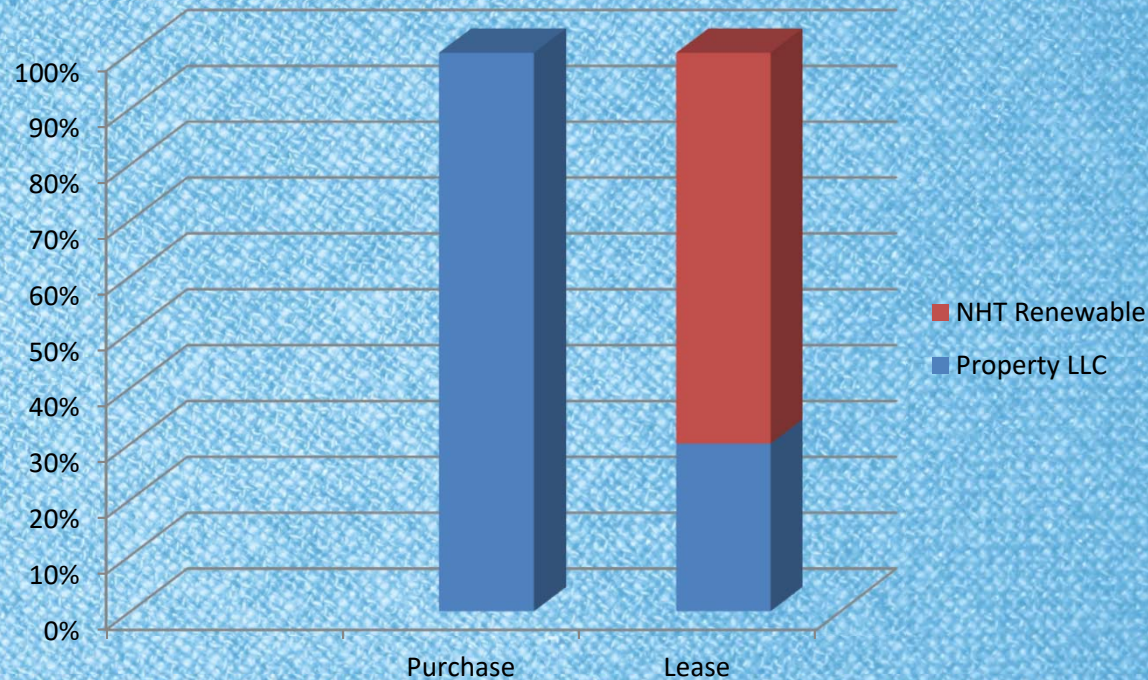
NHT Renewable (Hybrid)

Benefits

1. Environmental benefit
2. Energy Savings
3. New income streams
4. Local energy production
5. Price stability
6. Properties:
No upfront cost or O&M

Challenges

1. Roof Condition and Structural Reviews
1. Up-front Capital
2. Approvals
3. Construction Risk
4. O&M



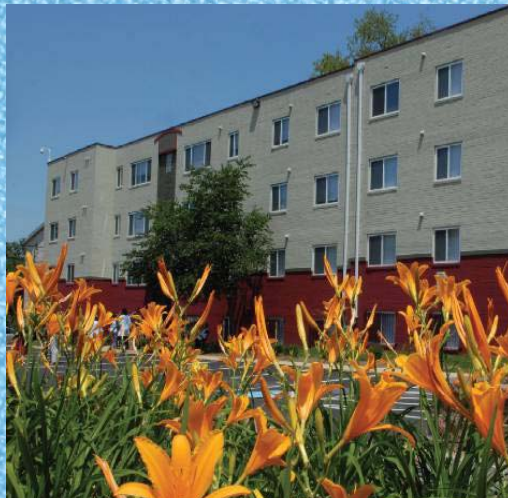
Renewable I Project Scope

NHT/E Properties Impacted: 5
Solar Thermal Systems: 2
Solar Photovoltaic Systems: 4
Total Project Cost: \$1.25 million
Photovoltaic: 300,000 kw/year
Thermal: 10,000 therms/year
Project Installation: Q2 2014

R Street Apartments



Meridian Manor



Galen Terrace



Copeland Manor



St. Dennis Apartments

St. Dennis Apartments



DEVELOPER: NHT/Enterprise

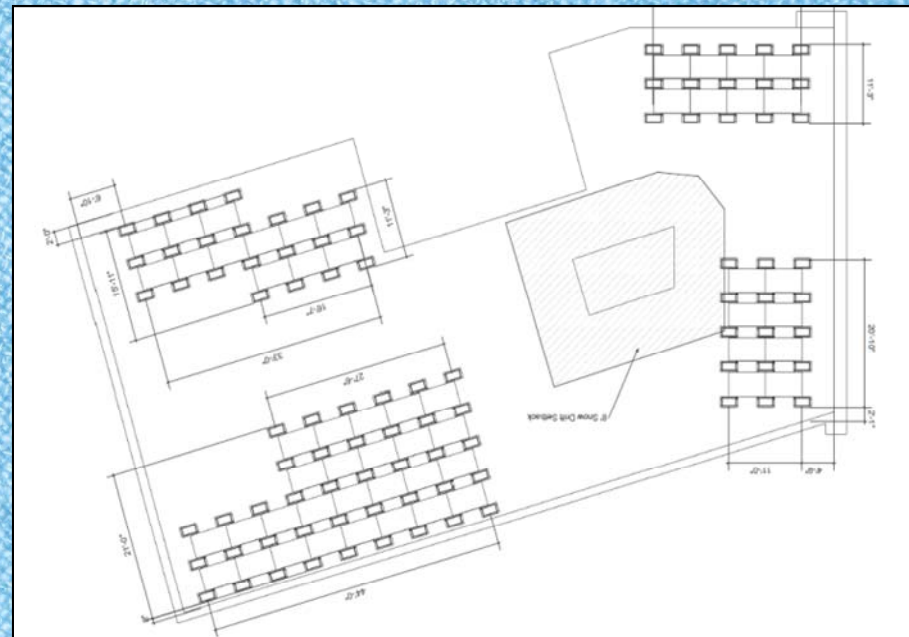
LOCATION: Mount Pleasant, Washington, DC

CERTIFICATIONS: Enterprise Green Communities

NUMBER OF APARTMENTS: 32

SYSTEM SIZE: 15 KW

SYSTEM COST: \$50,000



St. Dennis Financials

Solar PV Example

System Size (kW) 15
 Estimated Output (kwh/year) 20,000
 Power Price / kwh 0.14

	2014	2015	2016	2017	2018	2019
<u>Purchase Option</u>						
Equity Investment	\$ (50,000)					
Federal Tax Credit (30%)	\$ 15,000					
Income (Savings and Credits)		\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000
Net Cash Flow	\$ (35,000)	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000

Payback 4 Years

<u>Leasing Option</u>						
Equity Investment	\$ (5,000)					
Income (Savings)		\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
Net Cash Flow	\$ (5,000)	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000

Payback 5 Years

NHT Renewable Financials

NHT Renewable							
System Size							
Photovoltaic (kW)	250						
Thermal (Therms)	10,000						
Estimated Output (kwh)	500,000						
		2014	2015	2016	2017	2018	2019
Financials							
Equity Investment	\$ (1,300,000)						
Federal Tax Credit (30%)	\$ 390,000						
Income (Savings and Credits)		\$ 210,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 210,000
Net Cash Flow	\$ (910,000)	\$ 210,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 210,000
Payback	5 Years						

Strong Solar Markets

Rooftop Solar on Affordable Housing gets 5-10 Year Payback

- D.C.
- California
- New Jersey
- New York
- Massachusetts
- Colorado

Decent Solar Markets

Rooftop Solar on Affordable Housing gets 10-20 Year Payback

- Illinois
- Connecticut
- Maryland
- North Carolina

How can NHT Renewable & Enterprise help?

1. Analyze potential solar system sizing
2. Basic financial modeling of options
3. Review risks and reward
4. Provide debt & solar tax investor equity
5. Co-Develop projects
6. Own projects

National Housing Trust

If you want to learn more...

Jared Lang

Sustainable Development Manager

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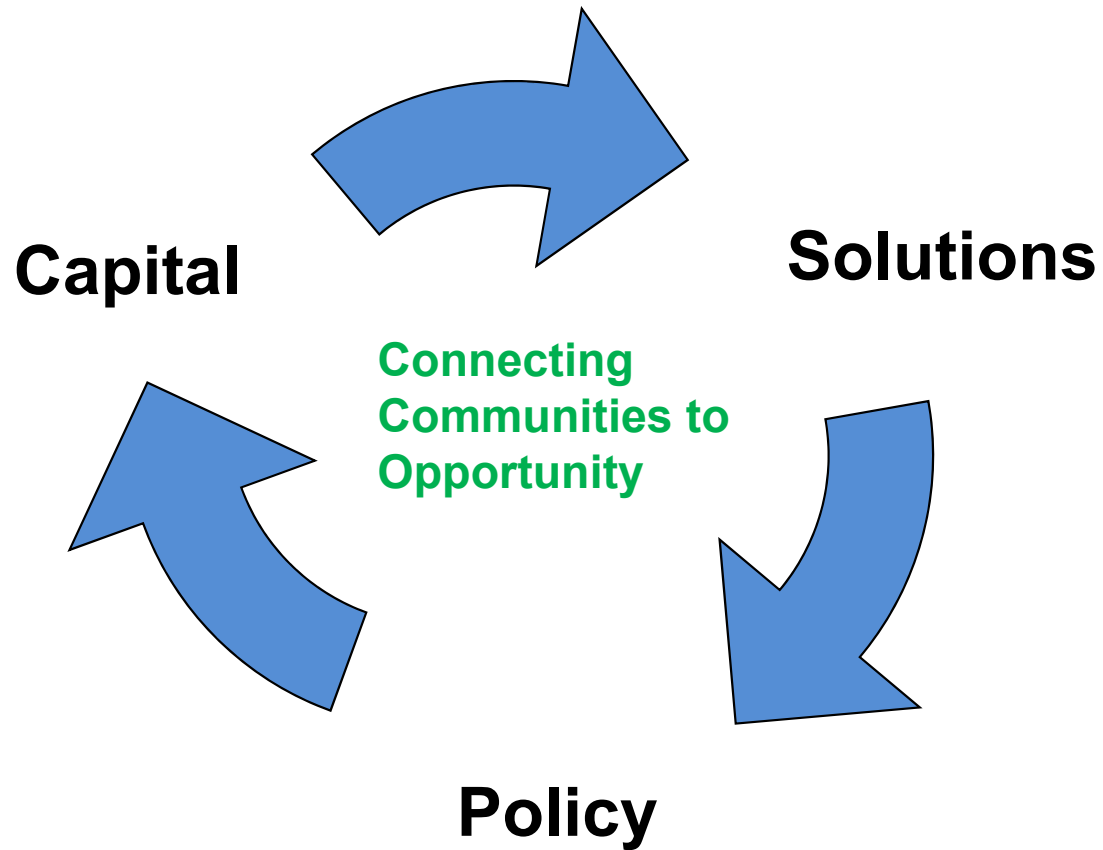
CASE STUDY:

NHT Renewable DC 5 Project



What we do

- Connecting **Capital to Communities**
- Innovating **Solutions** for the Field
- Transforming **Policy** for long-term change



Green Financing: we have tested green financing for decades

Highlights & Learnings	
Capital	<ul style="list-style-type: none">✓ Invested \$36 million public and private lending capital into clean energy projects✓ Through debt, equity, and tax credit equity from banks and philanthropic loans to create lines of credit, technical assistance, green mortgages, solar transactions, and energy efficiency retrofits involving over 3000 homes across the country.
Program / Policy	<ul style="list-style-type: none">✓ Secured \$23 million in grants over the past 10 years✓ From public and private sources such as HUD, NYC Weatherization Program, Department of Energy, Energy Foundation and others to test energy and solar development in CA, Chicago, and NY; to retrofit over 4000 homes in NYC; to create Green Capital Needs Assessments; and to develop better benchmarking tools; and to participate in Energy Efficiency for All engagement; and to create Enterprise Green Communities Retrofit and Resilience Toolkits for the market.
Learned	<ul style="list-style-type: none">✓ Creating portfolio level models will lead to more investment in this sector, as smaller scale debt financing is complex and costly✓ Refinancing is a sweet spot, but not every partner needs a full recapitalization or refinance for lighter touch energy repairs✓ Partners are interested in a modest cost pathway and new technology upgrades for mid-cycle projects that layer housing + energy funds, but existing energy money is not streamlined or easy to access✓ Overall market lacks technical assistance or expertise for this sector and there is a need for targeted predevelopment pots of funding✓ Working in collaboration with thought partners on policy, capital, and financing solutions (NHT and NRDC, etc.) is key to bring systemic solutions for solar + energy + resilience to this sector

CASE STUDY: NHT Renewable



Project Name: NHT Renewable, LLC

Sponsor: National Housing Trust (NHT)

Location: Washington, DC

Properties: 5 properties (Copeland Manor, Galen Terrace, Meridian Manor, R St, St Dennis)

Units: 340 units Affordable Homes

Renovation Plan: installation of Solar Photovoltaic (PV) and Solar Thermal (ST) systems on the five properties



Portfolio Solar Model: A Tool to Create Income for Partners

Structure

- ✓ **Traditional Flip LIHTC GP/LP structure.** There is partnership ownership of PV equipment. (Sponsor/GP 1%; ITC Investor/LP 99%/for 5 years)
- ✓ **Financing occurs across a portfolio** and maintain ownership at the corporate level, not a property level, align solar incentives for owners, investors and lenders

Benefits

- ✓ **Revenue** – property owner receives the operating income rather than a third party, allowing it to diversify its revenue streams and finance future affordable housing.
- ✓ **Decreased Operating expenses** - The PPA terms are more favorable to the Sponsor (pricing locked in for 10 years w/out the usual 3rd party PPA 3% escalation)
- ✓ **Less Costly** - develop multiple sites, and get reduced pricing on systems,

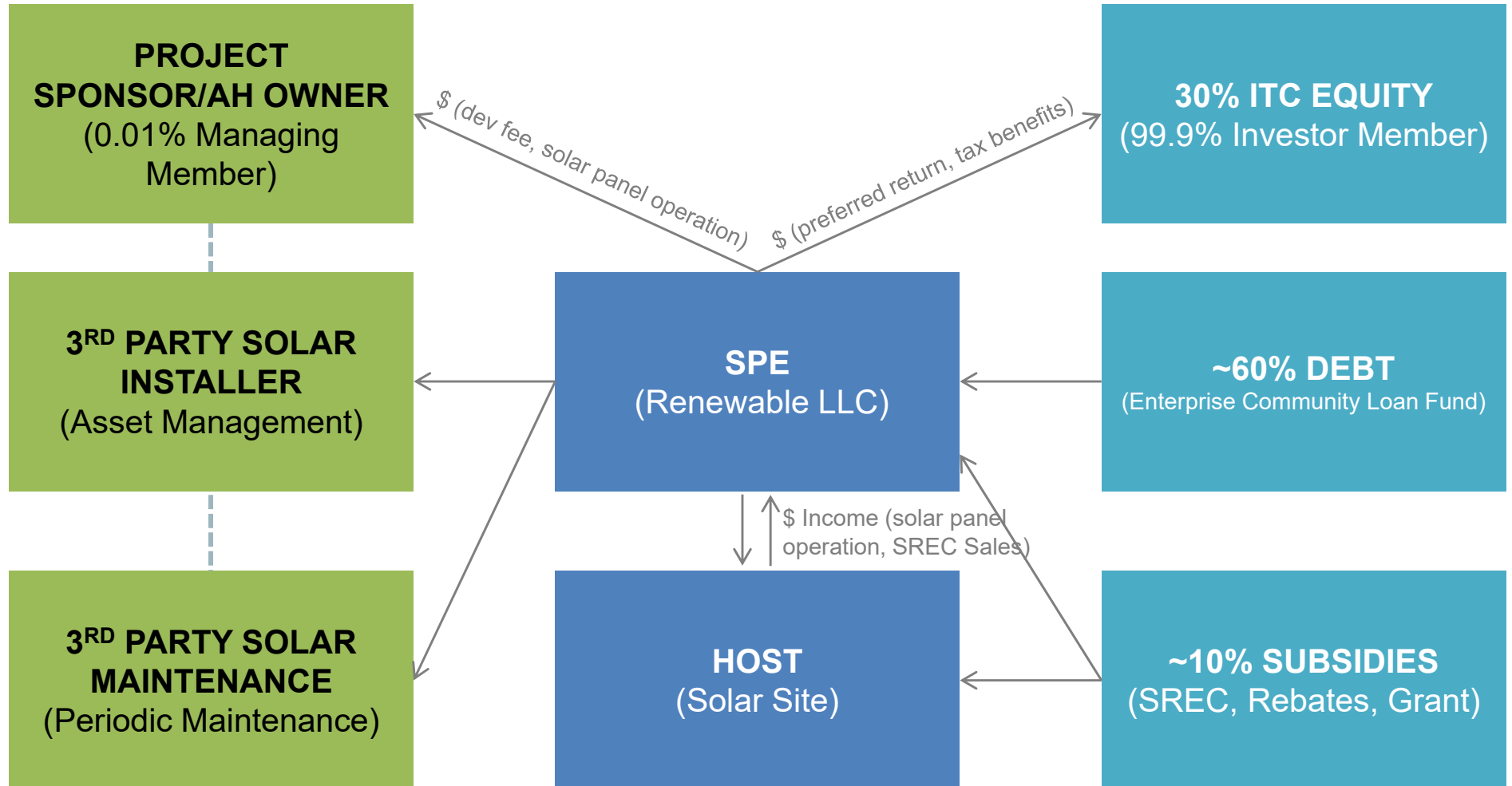
Roles

- ✓ **Project Development TA & Origination** –assess opportunity, structure financing/incentives/legal, bring solar provider through developer fee, S4 funds (NHT/E & Enterprise)
- ✓ **Sponsor**– create SPE and provide host sites for solar and receive developer fee, income from solar panel operation
- ✓ **Debt** – underwrite and provide long-term lending capital to sponsor (ECLF w/ Initiatives)
- ✓ **Equity** –provide 30% equity and receive tax benefits, preferred return (NHT w/ identified investor)

Portfolio Solar Model: how does it work?

PLAYERS

SOURCES



Development Budget

Uses	
Hard Costs	\$1,121,373
Soft Costs	\$193,206
Total Uses	\$1,314,579
Sources	
Debt (ECLF 55%)	\$728,205
Investor Equity (ITC 30%)	\$394,374
Sponsor Equity (NHT 15%)	\$192,000
Total Sources	\$1,314,579

Loan Terms

Terms	
Borrower	National Housing Trust
Loan Amount	\$730,000
Term	10 year
Rate	5.5%
Security	UCC Lien on Solar Equipment
	Sponsor Guarantee
DSCR	1.2x min



Operating Pro Forma – Cash Flow

	2014	2015	2016	2017	2018	5-yr Total
Income						
Sale of SRECs	\$193,777	\$193,777	\$193,777	\$193,777	\$193,777	\$968,885
Sale of Electricity to Property	\$18,800	\$18,800	\$18,800	\$18,800	\$18,800	\$94,000
Total Income	\$212,577	\$212,577	\$212,577	\$212,577	\$212,577	\$1,062,885
Expenses						
Tax and Audit	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
Maintenance & Insurance	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
Total Expenses	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$50,000
Net Operating Income	\$202,577	\$202,577	\$202,577	\$202,577	\$202,577	\$1,012,885
Debt Service	\$157,406	\$157,406	\$157,406	\$157,406	\$157,406	\$787,029
DCR	1.29	1.29	1.29	1.29	1.29	1.29
Net Cash Flow	\$45,171	\$45,171	\$45,171	\$45,171	\$45,171	
Preferred Return	\$28,800	\$28,800	\$28,800	\$28,800	\$28,800	
Cash Flow to NHT Solar Mgt	\$16,371	\$16,371	\$16,371	\$16,371	\$16,371	



Underwriting Considerations

Security - how to secure and value solar equipment?

Collateral

- ✓ UCC lien on equipment
- ✓ Sponsor guarantee (100%)
- ✓ Sponsor recourse (50% min)
- ✓ Sponsor equity (5%-10% min)

Valuation

- ✓ LTV tied to solar equipment useful life
- ✓ Net present value of cash stream from solar
- ✓ Pledges and rights to solar equipment

Stress test

- ✓ Solar is a cash flow loan
- ✓ How is cash flow is produced
- ✓ Will cash flow from solar materialize
- ✓ Debt payment before other fees or preferred returns (Income-fixed expenses ->lender paid)

Repayment: how is cashflow produced, how to guarantee payment stream?

Income	<ul style="list-style-type: none">✓ Solar Renewable Energy Credit income (sale of SREC's to utility for set rate, term)✓ Power Purchase Agreement Contracts (properties guarantee purchase of power for set term and rate)
Performance	<ul style="list-style-type: none">✓ 3rd party commissioning to ensure built as designed✓ Performance guarantee to ensure system performs✓ Equipment warranties & Replacement Reserves to ensure output for life of project✓ Ensure counterparty/solar installer experienced and reputable
Debt Service Coverage	<ul style="list-style-type: none">✓ Minimum 1.2 DSCR to ensure substantial cushion✓ Conservatively estimate energy output into projections
Evaluation	<ul style="list-style-type: none">✓ PPA & SREC contracts approvals include term of loan✓ Investor and Lender approvals✓ ITC investor requirements



Organizational Risk: how to assess sponsor as guarantor?

Financial Stability

- ✓ Financial stability and reliability of sponsor organization
- ✓ Demonstrate stable balance sheet, good cash flow/liquidity to guarantee the loan.

Organizational Goals/History

- ✓ Is the Sponsor mission aligned/Preservation focused
- ✓ Organization dedicated to using energy, renewable for stabilizing portfolios
- ✓ History working with the Sponsor that demonstrates successful operations and asset management of existing portfolio

Expected vs. Actual Returns on Operation

Cash Flow Distributions	Year 1 - 5	Year 6	Year 7	Year 8	Year 9	Year 10
Initial Projection	\$0	\$71,077	\$51,100	\$39,446	\$39,446	\$16,138
Actual and Revised Projection*	\$0	\$192,702	\$182,221	\$181,370	\$180,523	\$137,760

*Actual projections reflect increased revenue from SREC income



Please contact us for more details!

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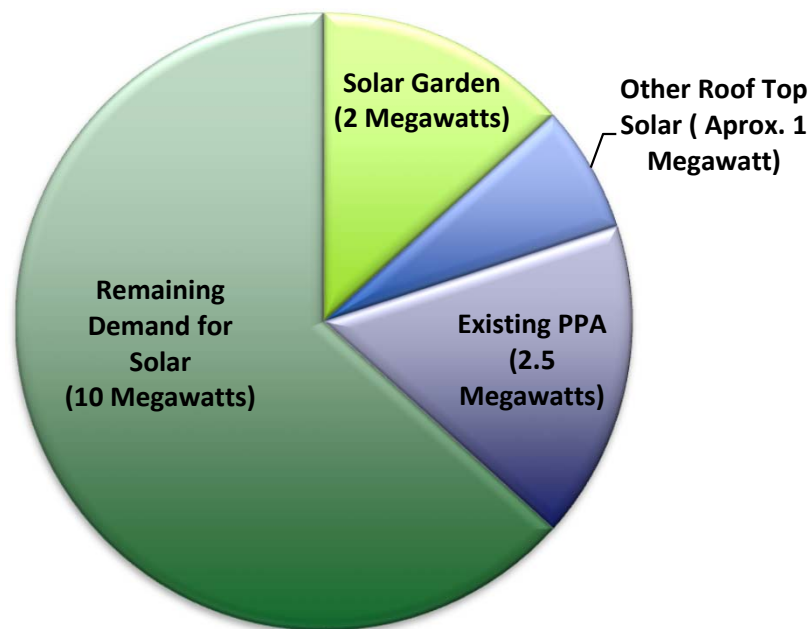


DHA Community Solar Garden

Prepared by:
The Housing Authority of the City and
County of Denver



DHA's Solar Appetite



1 Megawatt = 1,000 kilowatts

DHA Solar Challenges

- Available suitable space
- Various property types and ownership structures
- Various subsidies
- Various lease and utility allowances scenarios
- Financing
- Utility policies

Community Solar Overview



"A community solar project—sometimes referred to as a solar garden or shared renewable energy plant—is a solar power plant whose electricity is shared by more than one household. "

Source: Energy Sage

Community Solar 101



- Policies vary state by state
- Various models & approaches
- Various metering & virtual metering scenarios
- Various ways to participate
 - Buy in
 - Power purchase agreement
 - Develop your own
- Benefits
 - Renewable energy
 - Predictable energy costs
 - Energy savings
- Challenges
 - Long term contracts
 - Contract terms

DHA Community Solar Program

- **First Housing Authority Developed, Owned & Operated Community Solar Garden**
- **100% Low Income**
- **Supported by the cities of Denver & Aurora**
- **Allows other Denver Metro Housing Authorities and affordable housing developers to participate**
- **Expect to provide 20% average energy savings to subscribers**
- **Offset over 54,000 tons of CO2 emissions**
- **Provide hands-on training, certification & employment for 10+ affordable housing residents for a year**
- **Interconnected through the Xcel Energy's Solar* Rewards Community® program**



Project Team

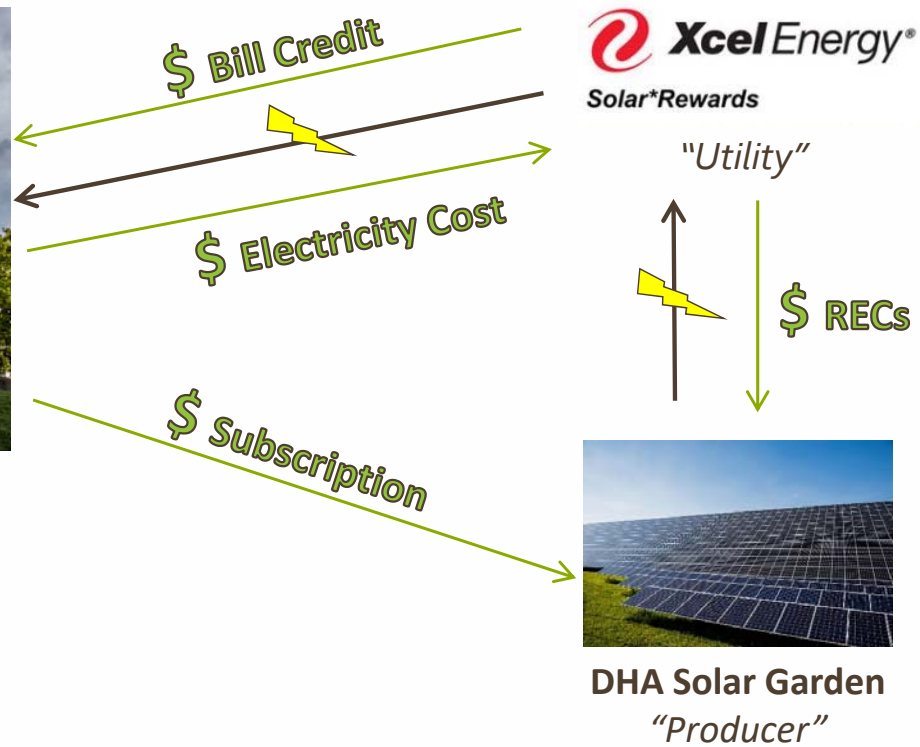


2018

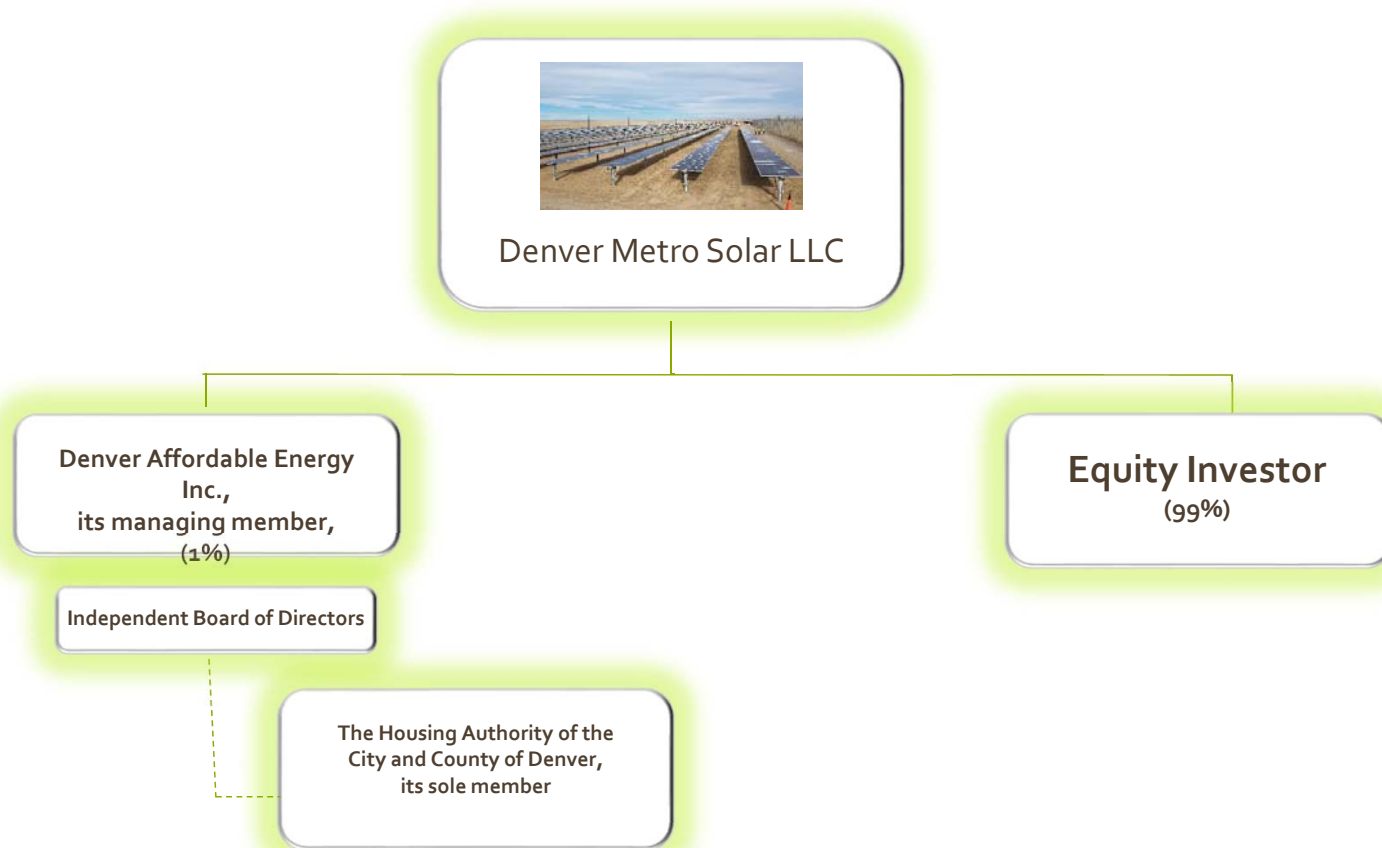
Metering



Syracuse Plaza
"Subscriber"



Ownership Org Chart



Economics

Financing

- Tax equity partner: \$1.2 Million
- Lender \$2.4 Million
- DHA Equity / Loan \$200,000
- Total \$3.8 Million

Annual revenue

- Renewable Energy Credits from Xcel Energy (53% of revenue)
- Sale of Electricity to properties (47% of revenue)

Annual Expenses

- Debt Service
- Land lease
- Operations and Maintenance
- Management fee
- Replacement Reserves



Results



- *Reduction in Operating Expenses*
- *Clean Renewable Energy*
- *Flexibility*
- *Bill Savings to Low Income Residents*
- *Work Force Development*

Questions?

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Questions (now and later!)

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