



**Better
Buildings[®]**
U.S. DEPARTMENT OF ENERGY

Energy Efficiency Financing for Low Income Communities

Better Buildings Summit

May 11, 2016



Financing Building Energy Upgrades with Tariffed On-Bill Investments

Tammy Agard

Co-Founder and CEO

EEtility

Session: Energy Efficiency Financing for Low-Income Communities

Better Buildings Summit, 2016



Best Practice Alert

- ✓ Financing cost effective efficiency upgrades through the Utility Bill is a NECESSARY EE program feature, particularly if you wish to provide for a meaningful number of Low Income families to participate in the EE program.

“93% of Persistent Poverty Counties in the U.S. overlap with Rural Electric Cooperative service territories.”

— National Rural Electric Cooperative Association, 2011

If we can figure out how to make EE financing work for Rural Electric Cooperatives and their members, we can figure out how to help make EE financing work for everyone, everywhere.



H.E.L.P.
Home Energy Lending Program

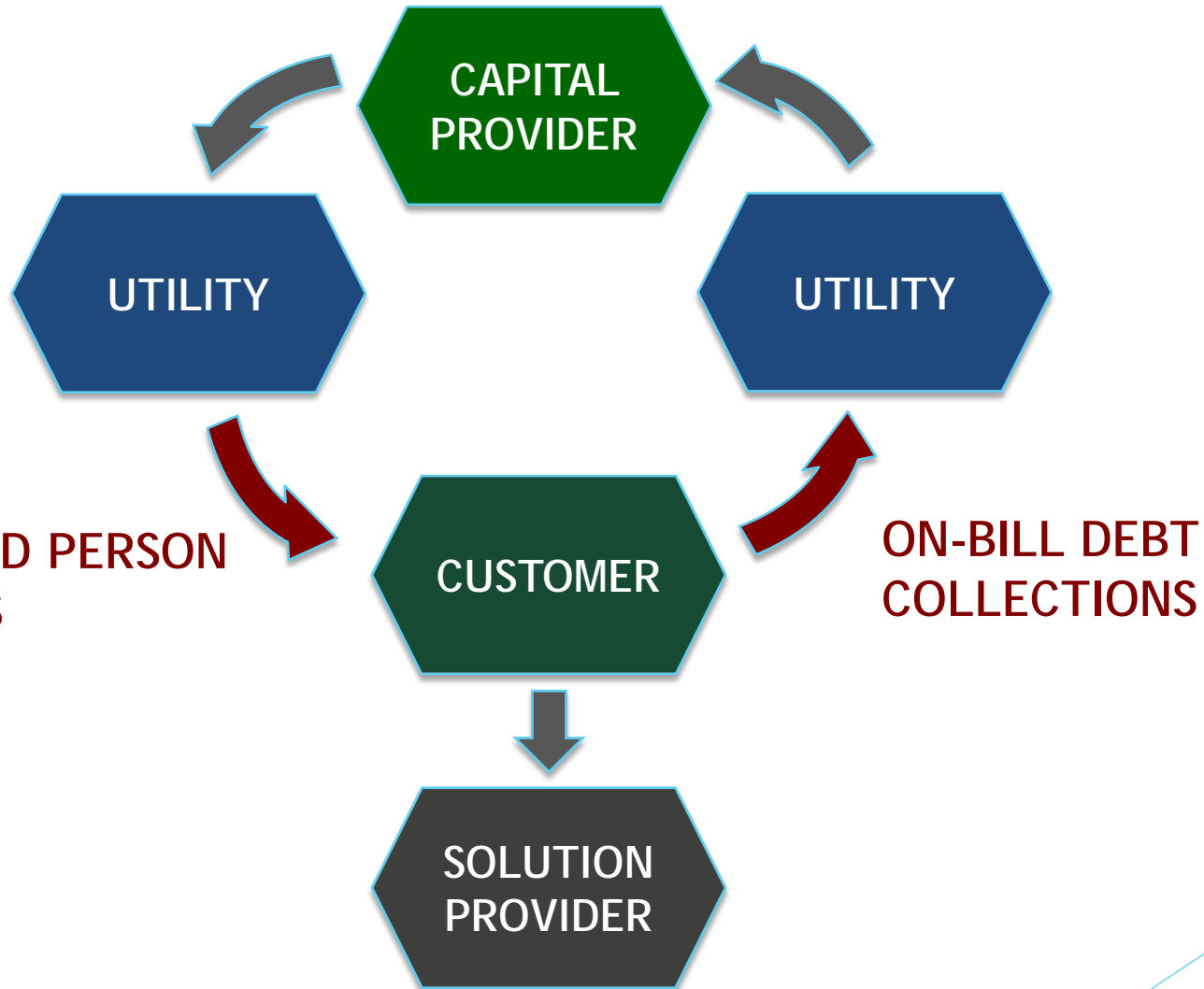
We worked with Arkansas Electric Cooperatives

to develop the

Home Energy Lending Program (H.E.L.P.),

an on-bill loan program.

RE-LENDING: LOAN + DEBT COLLECTIONS



LOAN:
TO QUALIFIED PERSON
OR BUSINESS

**ON-BILL DEBT
COLLECTIONS**

Arkansas Electric Cooperatives: Home Energy Lending Program (H.E.L.P.)



H.E.L.P.

Home Energy Lending Program

- Piloted first for Ouachita Electric Coop in late 2013
- Turnkey program operations management makes it EASY (and cost effective) for Coops to offer
- Default risk mitigated by Loan Loss Reserve administered by Arkansas Energy Office
- Pre/post-upgrade smart meter data is part of QA and EM&V tool kit
- Trained Coop staff provide 100% on site Quality Control



RESULTS

- In 2015, it's first full year, over 300 retrofits were financed on-bill with two additional AR Coops also adopting the HELP program
- In 2015, approximately 250 participants (80%), were low income homeowners
- Average savings of 19% (basic weatherization, verified by pre and post smart meters)
- Cash flow neutral pay back terms yield 80% conversion rates



H.E.L.P.

Home Energy Lending Program

2015 was successful...

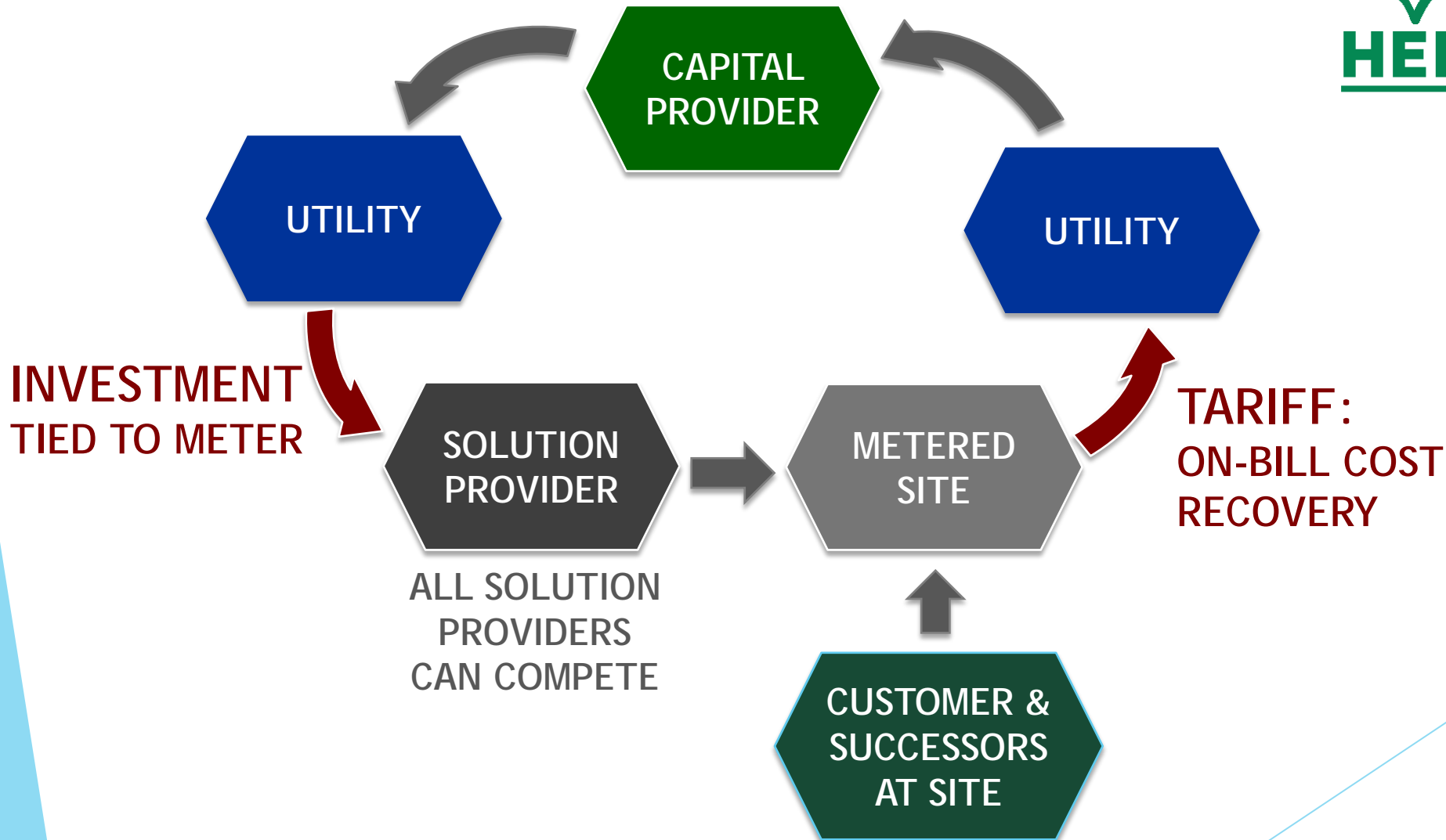
but we knew by mid-year that our loan based program wasn't enough:

- Renters and multi-family were left out
- HVAC replacements were considered too risky to make loans on (even with the LLR). As a result, too much (25 to 35% of additional energy savings) potential was left on the table.

In October of 15, Ouachita board decided to try to clear remaining barriers by offering an opt-in tariff using the Pay As You Save approach.

Attributes	Home Energy Lending Program (HELP)	HELP PAYS®
• Residential participants are eligible	✓	✓
• Renters are eligible		✓
• No credit score check – no debt to income ratios	✓	✓
• No upfront participant cost	✓	✓
• Estimated savings <u>must exceed</u> cost recovery charges by 20%		✓
• Participant signs a loan or promissory note for a debt obligation	✓	
• Participant accepts an opt-in utility tariff (NOT a debt) tied to meter		✓
• Cost recovery is through a fixed charge on the utility bill	✓	✓
• 100% on-site QC for payment authorization	✓	✓
• Participant accepts tariff with disconnection for non-payment		✓
• Payments end if upgrade fails and is not repaired		✓
• Tariff runs with the meter and remains in effect for subsequent customer at that location until cost recovery is complete		✓
• Loss reserve provided by State Energy Office	✓	✓

OPT-IN TARIFF FOR EFFICIENCY UPGRADES



HELP PAYS[®] OFFER – HERE'S HOW IT WORKS:

- Energy saving upgrades are installed in your home or building, and you pay nothing upfront. The utility pays for the installed energy solution.
- To recover its costs, the utility puts a fixed charge on your electric bill that is significantly less than the estimated energy savings from these upgrades.
- You have no loan, no lien, and no debt associated with this transaction; just lower utility bills and a more comfortable home.
- When the utility recovers its costs, your obligation to pay ends.
- If you leave this home sooner, or if an upgrade fails and is not repaired, your obligation to pay ends if you have followed your responsibilities.



RESULTS

In early February of 2016, the Arkansas Public Service Commission unanimously approved the Pay As You Save[®] (PAYS[®]) opt-in tariff sought by Ouachita Electric.

In March of 2016, Ouachita Electric launches HELP PAYS[®].

Here's what's happened in (just) the first 45 days:

- ✓ More than \$1 million in EE INVESTMENTS with little marketing indicates explosive growth potential –
- ✓ Approximately 90 HVAC units have been authorized to be installed
- ✓ 68 HVAC installs are for multi family and single family RENTERS
- ✓ Drops to Peak demand of 3 KW when weatherization and HVAC upgrades are combined (smart meter verified)
- ✓ Other States and Utilities have indicated interest in the HELP PAYS[®] model



Key design elements for cost effective low income ALL INCLUSIVE EE Financing INVESTMENT programs

- ✓ **Ensure terms with a low cost of capital and NO credit check:** Instead of asking Utility's to make loans, (“utilities aren’t banks”), help them use the assurance of the opt-in tariff to mitigate the misperception of the default risk. (Utilities INVEST, they don’t generally loan. Using the opt-in tariff as an investment cost recovery tool is business as usual for them.)
- ✓ **Offer net savings from the start:** ensure monthly cost recovery installments yield positive cash flows. (Participants don’t typically say “no” to more money.)
- ✓ **Accurate cost effectiveness analysis:** require auditors to do zonal testing/subtraction method and show participants conservative savings predictions - under estimate and over deliver. Where possible, analyze historical smart meter data to identify behavior pattern outliers and adjust savings projections and upgrade recommendations as needed. (Yes, EEtility does this cost effectively.)
- ✓ **Partner with your State’s Energy Office:** ask them to provide a Loss reserve (not a loan loss reserve) to remove the misperception of default risk. (They may not need to offer it for long.)

Key design elements for cost effective low income ALL INCLUSIVE EE Financing INVESTMENT programs

- ✓ Choose contractors carefully and provide them plenty of support: Contractor Quality Control cannot be overstated. Re-test everything 100% of the time prior to authorizing payment (Yes, EEtility does this cost effectively.)
- ✓ Where possible, incorporate post retrofit smart meter data into your Quality Assurance processes and EM&V reporting. (Yes, EEtility does this cost effectively.)
- ✓ Make customized EE Education a program deliverable: *even more energy savings will be the result.*
- ✓ Never sacrifice real and lasting results for scale: DELIVER BOTH!! Nothing will scale the program better or faster than real quantifiable results.

“Trust for all is a must for all!”

Embed quality control assurances into your program - make sure everyone will win!

- ▶ If upgrades stop working for no fault of the customer, the cost recovery charge ends until the efficiency improvement is repaired.
- ▶ If repairs are necessary or a property were to remain vacant for a period of time, the term of the tariff is extended to ensure full cost recovery to the utility.
- ▶ Provide contractors with the proper support and pay them to produce real and quantifiable results. Don't count on hypothetical (deemed) savings to pay for Upgrades.
- ▶ Provide HANDS ON Program Operations management or use a HANDS ON Program Operator. Building trusting relationships between all program partners is the foundation that any successful program must be built upon.

Make your ALL INCLUSIVE EE INVESTMENT program WORK!



Proud Program Operators of...



THANK YOU!

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Clean Energy Technology for American Inner Cities

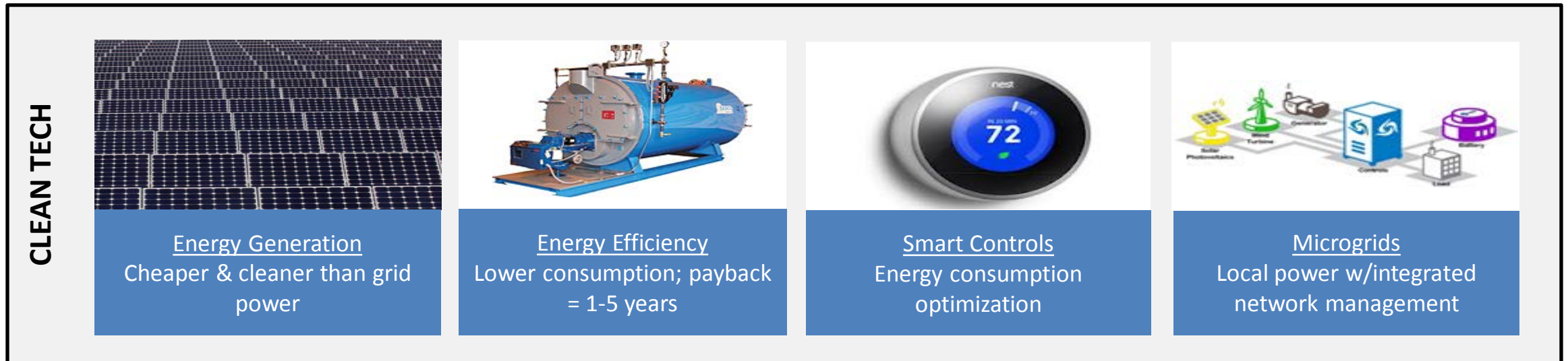
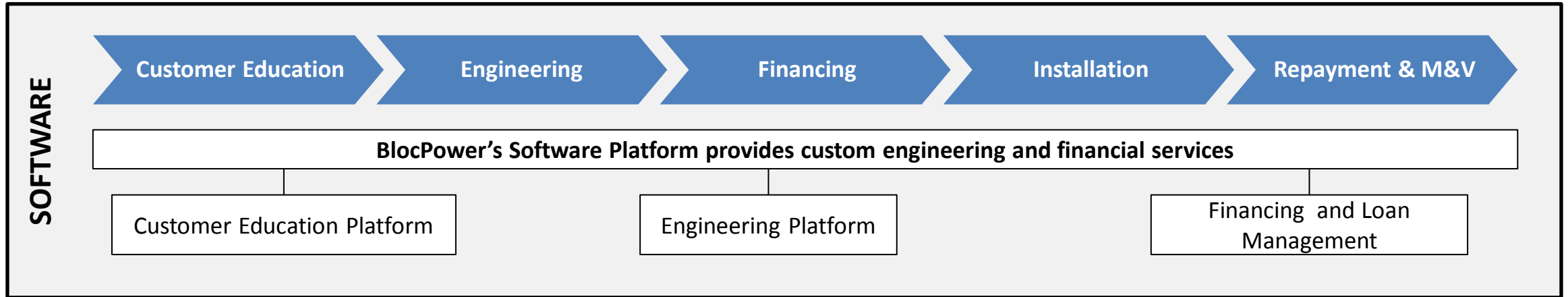
A photograph of a window with shattered glass, showing a view of a city street with buildings and a streetcar. The glass is broken into many small, sharp pieces, and the view through the window is slightly blurred. The overall color palette is dominated by blues and greys.

Sub-50,000 square foot buildings in underserved urban communities spend too much on energy!

Why?

No one invests in building upgrades in these communities, because they are viewed as too risky, too expensive, and too costly to acquire.

BlocPower Delivers Clean Tech for Underserved Communities

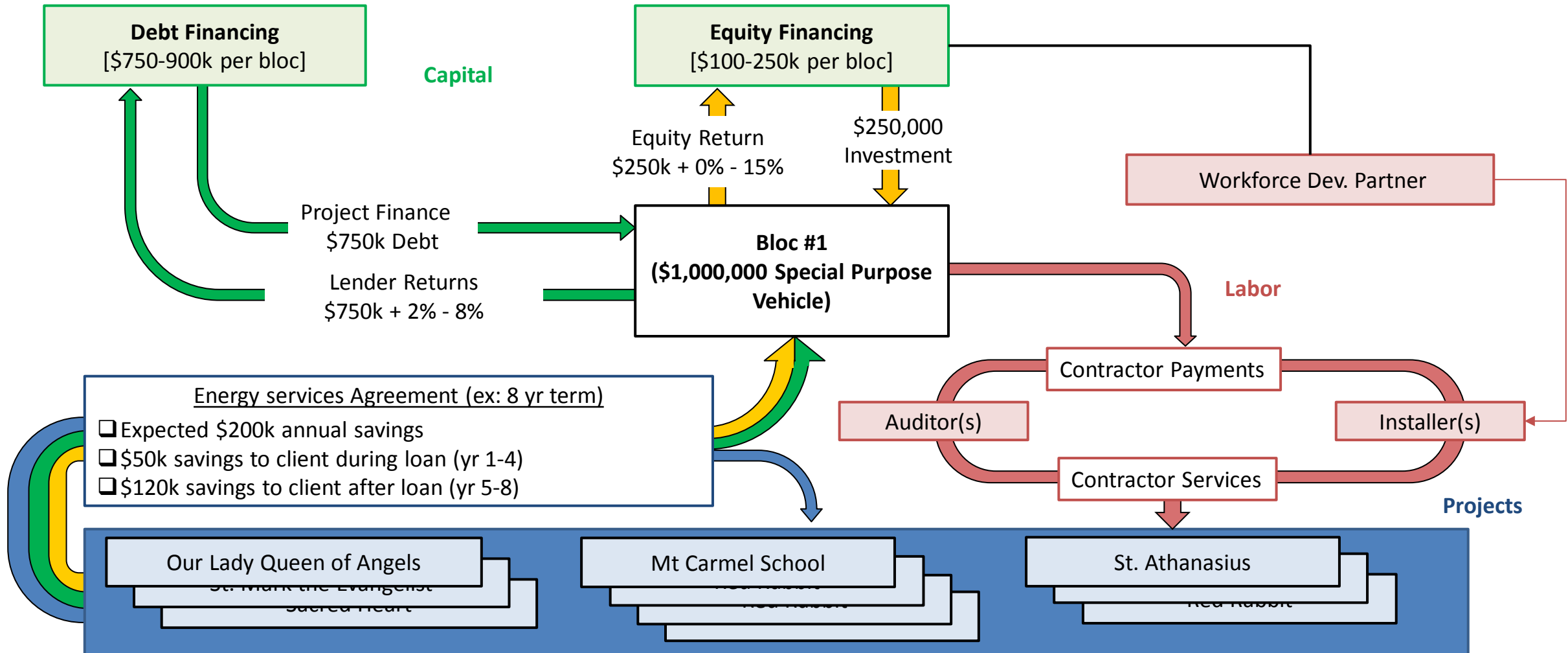




BlocPower is serving 300+ projects in NYC's 5 Boroughs



How Does BlocPower's Portfolio Financing Work?



What Does a Successful Portfolio Look Like?

Portfolio Example: Northwest Bronx Community & Clergy Coalition

Project Overview

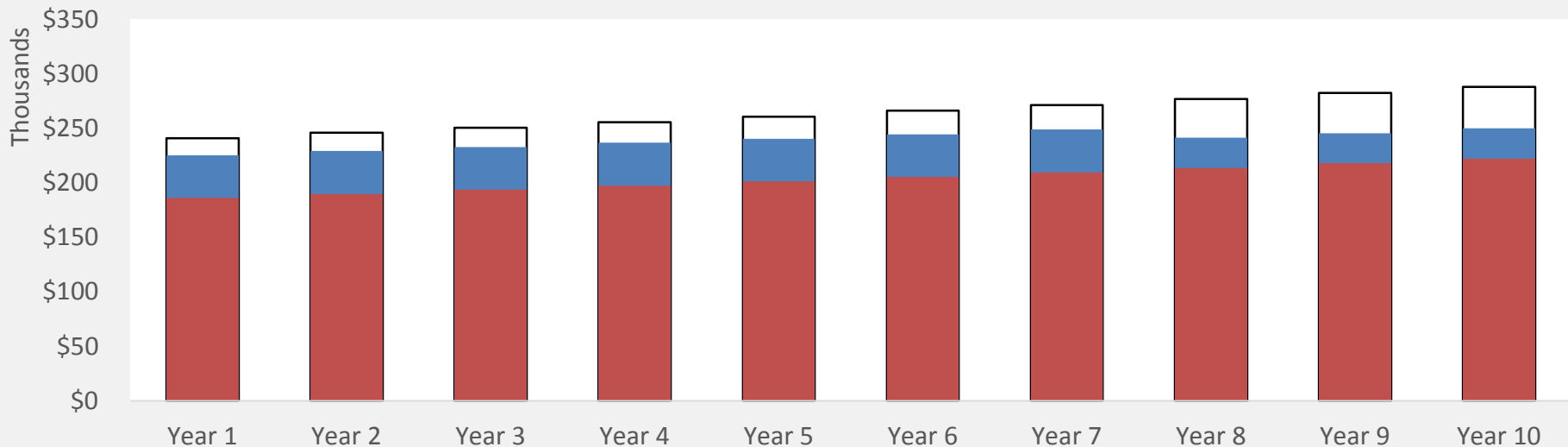
- \$354k initial project cost
- Debt from NYSERDA; Crowdfunded equity
- 304 tons CO2 emissions avoided annually
- \$54k (23%) reduction in energy bill
- Technologies deployed:
 - Oil to gas boiler conversion
 - RTU HVAC replacement
 - LED lighting replacement
 - Steam pipe heating redesign
 - Triple-pane window replacement



- 50+ churches in NWBCCC
- Initial bloc of 6 churches: Tremont UMC, Fordham UMC, AME Zion Church on the Hill, First Glorious Church, New Mount Zion Baptist

Bill Projection

- Prior Bill
- Finance Cost
- New Bill



\$84,062 a year for electricity & heat at this Bronx church & community center

\$24,394 a year in potential energy savings

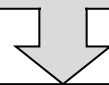


Project Engineering & Finance



Scenarios		Upfront Cost	Annual Energy Cost Reduction	Payback (Years)
1	Heating only by a new dual fuel steam boiler	\$109,400	\$18,727	6
2	Heating by a new dual fuel steam boiler and cooling by two new rooftop AC units and eight window units	\$260,132	\$22,298	12
3	New rooftop heating and cooling packaged units and six reverse cycle heat pumps	\$226,704	\$29,373	8

Customers need custom engineering and custom finance at no upfront cost



BlocPower provides engineering and finance analysis to identify best possible project for customers and investors

Questions & Feedback



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Energy Technologies Area

Lawrence Berkeley National Laboratory

Scaling Energy Efficiency for Low and Middle Income Households through Financing: Opportunities, Issues and the Current State of the Market

Greg Leventis for the
State and Local Energy Efficiency Action Network

Better Buildings Summit, May 11, 2016

ABOUT SEE ACTION

Goal: All cost-effective energy efficiency by 2020

- Network of 200+ leaders and professionals, led by state and local policymakers, bringing EE to scale at state & local levels
- Facilitated by DOE and EPA; successor to the National Action Plan for Energy Efficiency



The SEE Action Network is active in the largest areas of challenge and opportunity to advance energy efficiency

AGENDA

- ◆ Importance of energy efficiency (EE) in low income households
- ◆ Challenges to increased EE adoption and challenges to financing in low income households
- ◆ Financing products available and how they can help
- ◆ Examples of successful programs

IMPORTANCE OF EE IN LOW INCOME HOUSEHOLDS

- ◆ Multiple policy goals
- ◆ Efficiency as a resource
- ◆ Equity

LOW INCOME ENERGY BURDEN

INCOME CATEGORY	AVERAGE ANNUAL HOUSEHOLD ENERGY COSTS
NON-LOW INCOME	\$2,378
LOW INCOME	\$1,595

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NON-LOW INCOME	\$2,378	\$0.99/sq ft	2.3%
LOW INCOME	\$1,595	\$1.10/sq ft	7.8%

CHALLENGES IN LOW INCOME HOUSEHOLDS

CHALLENGE	TO INCREASING EE	TO USING FINANCING
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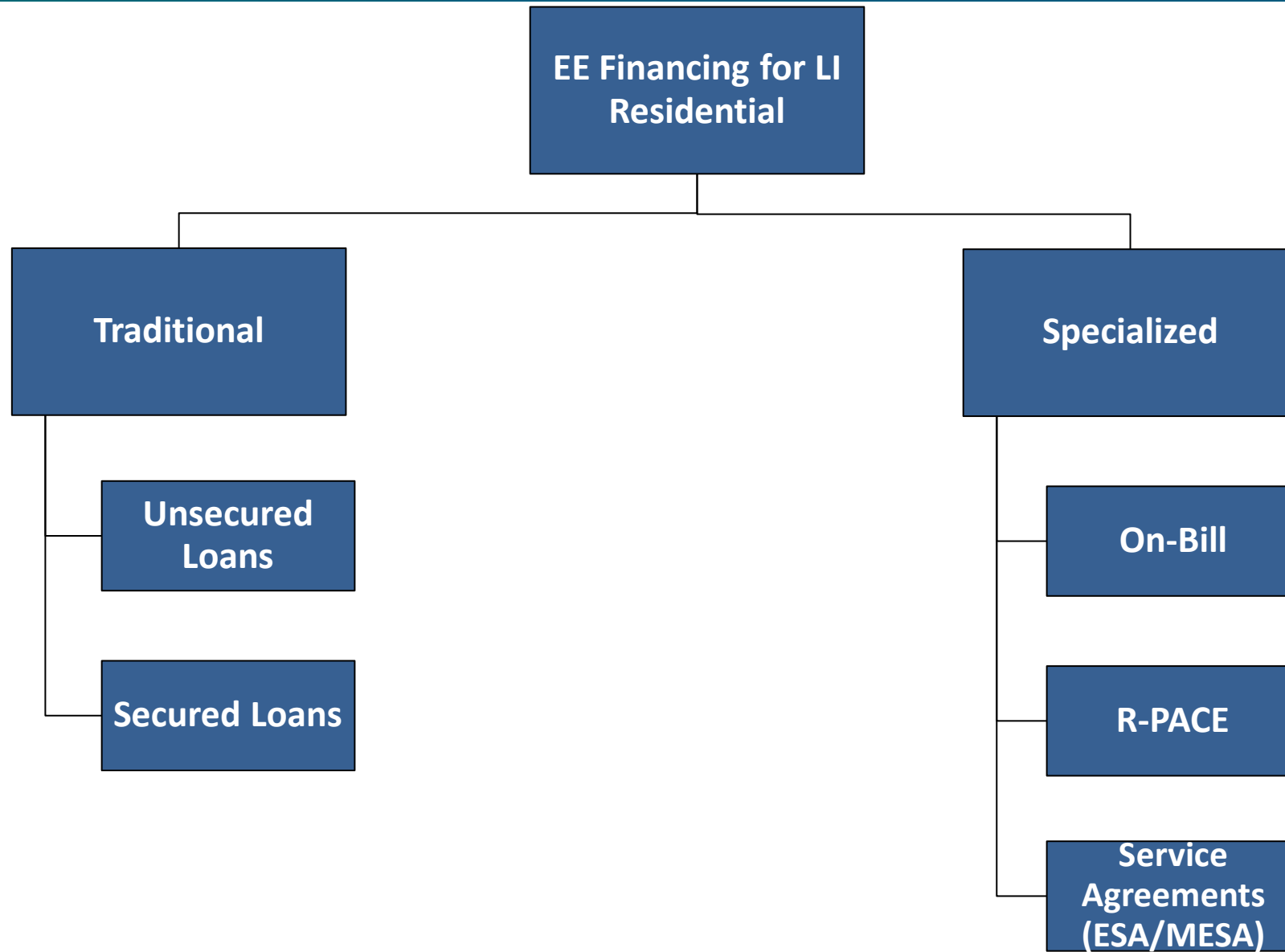
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RISKS	Performance risk	Default and damaged credit; Aversion to debt

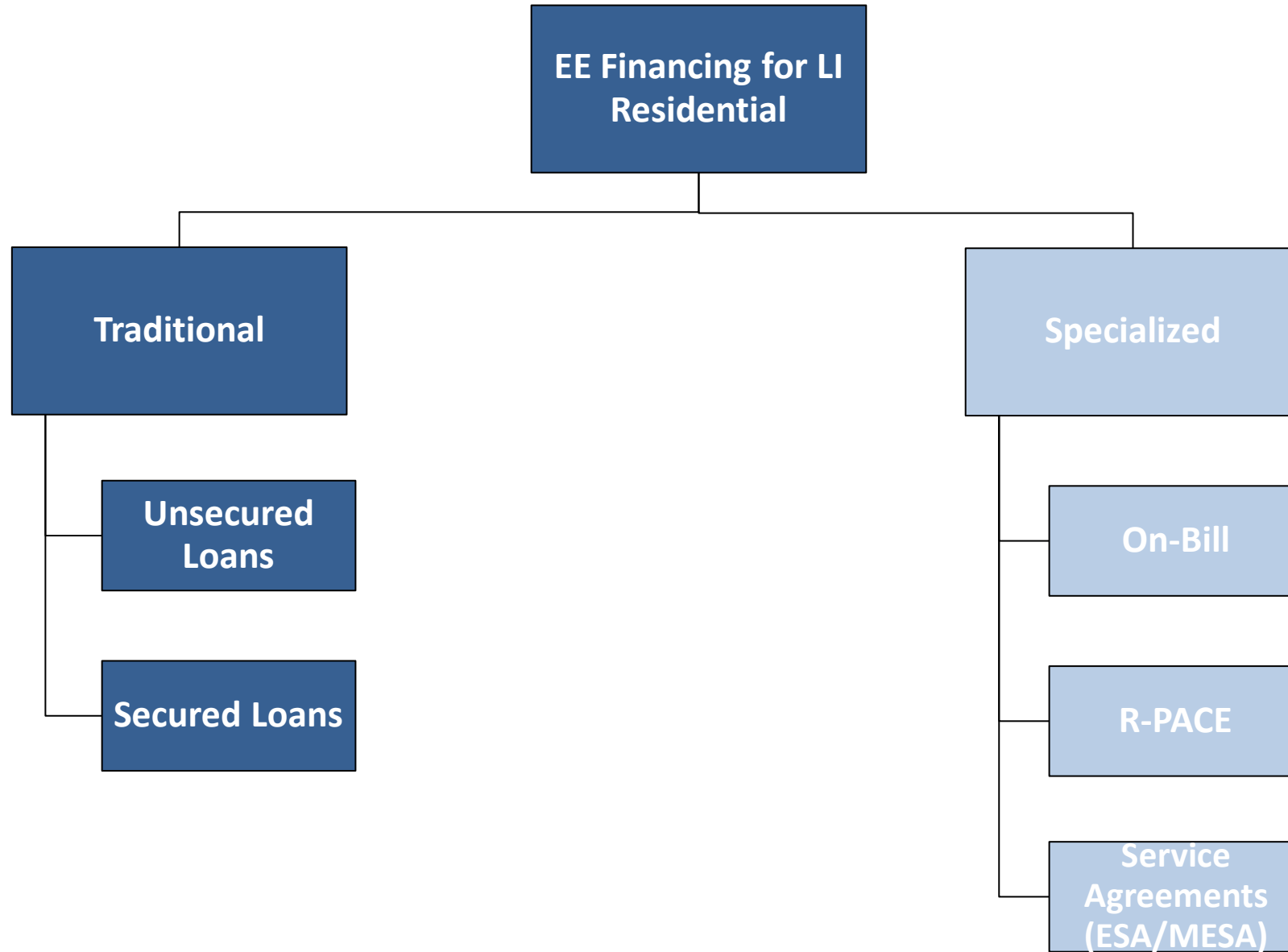
FINANCING TOOLS AVAILABLE

EE Financing for LI
Residential

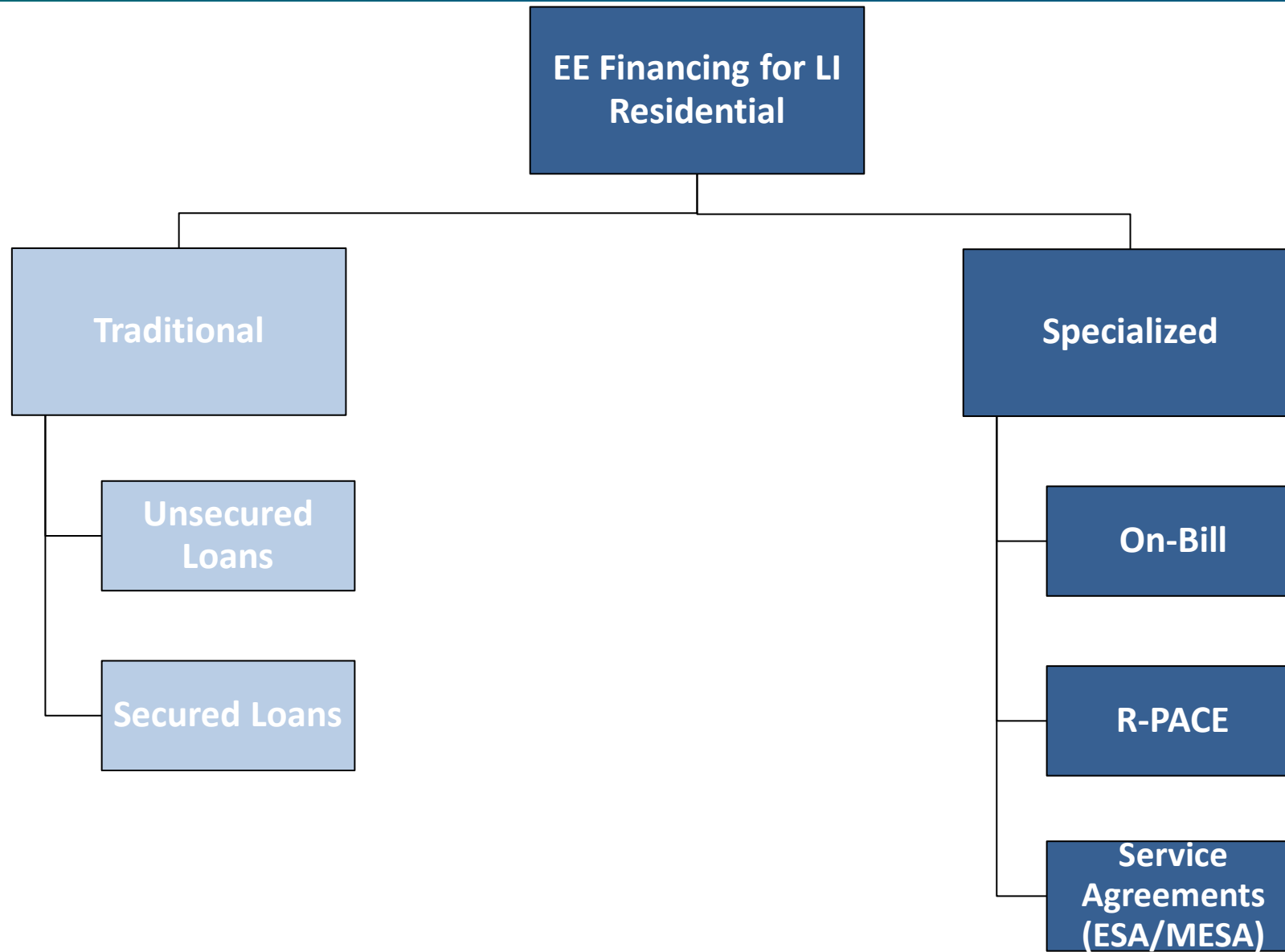
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GUARANTEES	On-Bill, ESA	Risk of default; Aversion to debt

ROANOKE ELECTRIC, UPGRADE TO SAVE

- ◆ Approximately 75% of participants low income
- ◆ On-bill tariff: can transfer and is not considered debt of the customer
- ◆ Project must pencil out as cash-flow positive; Actual household bill savings have exceeded targets.
- ◆ About 120 projects since starting in 2015; no defaults to date—loan loss reserve set up



Roanoke Electric Cooperative

Your Touchstone Energy® Partner 

TRUST

RESOURCES

AWARENESS

TENANCY

RISK

Addressed



POSIGEN

- ◆ 75% of participants are <100% Area Median Income (AMI)
- ◆ Solar leases/EE ESA with a cash-flow positive guarantee
- ◆ Works through trusted partners
- ◆ Uses alternative underwriting method
- ◆ Since 2011, 7,500 loans with defaults under 1%



	TRUST	RESOURCES	AWARENESS	TENANCY	RISK
Addressed	●	●	●		●

KEY TAKEAWAYS

- ◆ Financing is being successfully used by some programs to overcome some challenges to efficiency adoption in low income households.
- ◆ *Program* design—particularly how to overcome challenges of trust and awareness—is crucial to reaching low income households.
- ◆ Strong consumer protections are needed when steering financing to low income households.

CONTACT INFORMATION



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Report will be posted at:

Lawrence Berkeley National Laboratory: www.emp.lbl.gov

SEE Action Network: www4.eere.energy.gov

SMART-E LOAN, ENERGIZE NORWICH, CT

- ◆ Average area income ~30% below state average
- ◆ Subsidized, unsecured loan
- ◆ Targeted outreach working with a local gas utility and a local credit union in Norwich, CT
- ◆ Many participants had sufficient credit but had assumed they did not
- ◆ No defaults or delinquencies in Norwich



	TRUST	RESOURCES	AWARENESS	TENANCY	RISK
Addressed	●	●	●		