Advancing Affordable Energy Investment in Low-Income Households
Thursday, July 11
11:00 AM – 12:30 PM
Speakers

- Kerry O’Neill, Inclusive Prosperity Capital
- Tammy Agard, EEtility
- Ruth Ann Norton, Green and Healthy Homes Initiative
- Moderator: Pam Mendelson, DOE
FINANCING SOLUTIONS THAT FILL GAPS FOR LOW-INCOME COMMUNITIES

SCALING COMMUNITY DEVELOPMENT IN UNDERSERVED MARKETS THROUGH CLEAN ENERGY AND SOCIAL IMPACT INVESTMENTS

JULY 11, 2019
spins out...
# The “What” – $400M Investment Track Record & Success

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
<th>Status</th>
<th>Ratio</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Enhance</td>
<td>$55 MM</td>
<td>OPEN</td>
<td>20:1</td>
<td>Residential Energy</td>
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<tr>
<td>Warehousing</td>
<td>$50+ MM</td>
<td>OPEN</td>
<td>9:1</td>
<td>Residential Solar</td>
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<td></td>
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<td>CLOSED</td>
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<td>Commercial Solar</td>
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<tr>
<td></td>
<td>$60+ MM</td>
<td>OPEN</td>
<td>6:1³</td>
<td>Green Bank Solar PPA</td>
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<td>$65 MM</td>
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<td>10:1</td>
<td>Grid-Tied</td>
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<td></td>
<td>$5 MM</td>
<td>OPEN</td>
<td>100%²</td>
<td>Multifamily Energy</td>
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<tr>
<td></td>
<td>$9 MM</td>
<td>CLOSED</td>
<td>9:1</td>
<td>Green Bank Solar PPA</td>
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<tr>
<td>Project Finance</td>
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<td>$22 MM</td>
<td>CLOSED</td>
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<td>Colebrook Wind</td>
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<td></td>
<td>$3 MM</td>
<td>OPEN</td>
<td>100%⁴</td>
<td>Residential and Commercial Storage</td>
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<tr>
<td></td>
<td>$55 MM</td>
<td>OPEN</td>
<td>4:1</td>
<td>Solar for All</td>
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<td>$60+ MM</td>
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<td>Residential Multifamily</td>
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</tbody>
</table>

**REFERENCES**

1. LLR yields high leverage – and it is 2nd loss and thus with low defaults, we have used <$25K to date. IRB’s not considered in the leverage ratio.
2. Foundation PRI is to HDF, guaranteed by the CGB in the case of MacArthur Foundation.
3. Onyx Partnership has no upper limit and CGB currently has authorization to commit up to $15mm.
4. Foundation PRI’s are backed by CGB balance sheet.
The “Why”

We believe **everyone** should have access to the **benefits** of clean energy:

- A cleaner, more resilient environment in the face of climate change
- Healthier communities & buildings that create **positive social externalities**
- **Sustainable economic value creation:** reduced energy burdens, increased household/business savings, and enhanced community productivity

We can change the conversation in underinvested neighborhoods and underserved markets, helping to deliver **Inclusive Prosperity.**
East Meadow Condominium: Success Story
# Holistic Approach: Unlocking Cash Flows for Sustainable Building

**East Meadow Condo Association, Manchester, CT**

<table>
<thead>
<tr>
<th>Description</th>
<th>Lighting, boilers, roof replacement, insulation</th>
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</thead>
<tbody>
<tr>
<td>Total Project Costs:</td>
<td>$654,000</td>
</tr>
<tr>
<td>Utility Incentives:</td>
<td>$34,000</td>
</tr>
<tr>
<td>Financed:</td>
<td>$620,000</td>
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<tr>
<td>Estimated Annual Savings:</td>
<td>$79,000</td>
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<tr>
<td>Annual Debt Service:</td>
<td>$53,000, 1.48 DSCR</td>
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<tr>
<td>Financing Terms:</td>
<td>20 years, 6.00%</td>
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<tr>
<td>Payback Period:</td>
<td>7.8 years</td>
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</table>

Energy improvements yield significant savings, unlocking cashflows that cover debt service – often for additional improvements such as needed structural, health or safety work.

Implementation Costs that Can Be Financed

- Any measure incented by utility EE programs
- Renewable energy systems (solar PV, ST, etc.)
- Efficient fuel conversions (oil or electric to gas)
- Combined heat & power systems
- Energy storage & EV fueling stations
- Qualified health and safety measures
- Performance monitoring
Pre-Development Costs that Can Be Financed

- Energy Benchmarking
- Opportunity assessments and audits – holistic look at all fuel and technology options
- Design, engineering and bidding work
- Assessments of energy-related health and safety barriers
- Green physical needs assessments
- Green Design & Charrettes (for new construction)
- Financial packaging

Pre-Dev financing can be used for assessment & design of measures incented by the utility companies as well as those that are not.
## Case Study 2

### Pre-Development & Health & Safety Loans: Unlocking Cash Flows to Stabilize a Property

**Success Village Coop: Bridgeport, CT**

- 964 units, WW2 workers housing, central heating plant circa 1960’s
- Annual heating costs: $1.8M
- **Technical Assistance:** Governance support from UHAB, preliminary engineering and development TA from Green Bank team
- **Pre-Development Loan:** $150K for engineering analysis, design, development and funding of new heating systems
- **Health & Safety Loan:** $165K for removal of asbestos for phase 1 pilot
- Implementation cost estimate: $15 Million
CASE STUDY 3

Bridge Financing for Contractors Working in Utility Energy Efficiency Incentive Programs

**Problem:** Lack of *working capital for smaller contractors* creates *barrier to entry* for firms that are *already serving low-income communities* and ideal candidates for becoming qualified vendors in utility incentive programs.

**Solution:** Create a *bridge financing* program for qualified vendors to *cover the construction period until rebates are paid out*.

Need to understand the ecosystem of players in your market and the financing gaps they are experiencing.
Parting Thoughts

- Look for gaps in the market and structure solutions to fill those gaps
- Work across the project lifecycle – from pre-development to construction, working capital, and term financing
- Best to be structure agnostic (don’t lead with solutions in search of problems), and consider project finance vehicles (ESAs, PPAs, etc.)
- Don’t work in silos! Marry renewables and efficiency, health & safety and structural work, water and energy, etc.

Together, we can change the conversation in underinvested neighborhoods and underserved markets, helping to deliver Inclusive Prosperity.
Tammy Agard

EEtility
Basics of PAYS®: “Pay As You Save”

- PAYS is NOT financed as a loan – it’s a tariff charge (and is considered an essential Utility service)

- PAYS is great for everyone but unlike most EE programs- PAYS is particularly helpful for lower income populations (Rural and Urban)

- The tariff charge on the bill is less than the estimated savings at a 80/20 split so people save money from day one

- The tariff charge is associated with the meter and survives homeownership/tenant changes

- PAYS requires no personal debt obligation; no credit check; no homeownership requirement!
**What are the benefits of PAYS® To Participants?**

- Immediate net savings (20% of estimated savings immediately accrue to participants)
- 100% of savings accrue to participant when Utility cost recovery is complete
- More comfortable and healthier homes/buildings
- No upfront cost for cost effective upgrades
- No credit check, debt to income ratios, homeowner requirements
- Non participants don’t subsidize participants upgrades (unlike incentive or rebate programs)
- High, middle and low income **ALL** have equal access. No member left behind!
Thank You, Questions?
Ruth Ann Norton
Green and Healthy Homes Initiative
Better Buildings, Better Plants Summit: Advancing Affordable Energy Investment in Low-income Households

July 11, 2019
Arlington, VA

Ruth Ann Norton, President & CEO
Green & Healthy Homes Initiative
The Burden of Sub-Standard Housing

Unaffordable, inefficient, and unhealthy

30M families live in unhealthy homes
Homes with environmental hazards are making their residents sick

14.4M missed days of school each year
Asthma is the top reason students miss school

14.2M missed days of work each year
Collateral burden of sick children is missed days of work for parents and caretakers

$81B+ spent on asthma
$31B+ spent on slip & fall injuries
$43B+ spent on lead poisoning

Low income families spend 20% of monthly income on energy costs
VS.
3.5% in other households

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VS.
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Family Impact of Energy Inefficiency

- One in five households reduce or forgo necessities such as food and medicine to pay an energy bill.
- 14% of households experience energy service disconnection annually.
- 11% of households keep home at an unhealthy or unsafe temperature.
The GHII Solution: Address the whole home

**Align**
services & funding

**Braid**
relevant resources

**Coordinate**
service delivery

- Single Intake System
- Comprehensive Assessment
- Coordinated Services
- Integrated Interventions
- Cross-Trained Workers
- Shared Data

- Lead Hazard Reduction
- Asthma Trigger Control
- Fall/Injury Prevention
- Energy Efficiency
- Weatherization
The Differentiator: Cross-trained Teams

Environmental Health Educator
- Conduct in home resident education
- Coordinate pre and post client health surveys
- Coordinate follow up client services

Energy Auditor Environmental Assessor
- Conduct pre intervention environmental assessments
- Conduct energy audits
- Develop comprehensive scopes of work
- Conduct post intervention quality control

Multi-Functional Contractors
- Address the hazards identified on scopes of work
- Results in increased team capacity
- Exposes opportunity for job training and economic development for residents of low income communities

Exposes opportunity for job training and economic development for residents of low income communities
The Whole-Home Strategy:
Assessors, Educators, and Crews Address Housing Issues Holistically

- Energy efficiency and weatherization
- Elimination of Lead Hazards
- Asthma Trigger Reduction
- Integrated Pest Management
- Mold and moisture remediation
- Injury prevention measures, including:
  - Carbon monoxide and smoke detectors
  - Cabinet locks and electrical outlet covers
  - Trip and fall reduction measures
- Radon, asbestos, and home-based env. hazard remediation
The HUD Healthy Homes Technical Study
Investigating the impact of healthy housing across sectors

3 Focus Areas

Cost-Benefit Analysis
Looking at medical claims, utility bills, as well as school and work attendance.

Medical Claims
Health outcomes from Medicaid administrative claims

Evaluation
Matched-comparison group

Broad Research Partnerships

Tier 1 Interventions
Home Visiting, Resident Education, and Prevention Supplies

Tier 2 Interventions
In-Home Green & Healthy Homes Interventions
The Outcomes
Medical costs were reduced post-intervention

251 cases were matched to a potential control group based on:

- Contemporary asthma status per their Medicaid record
- Sex (i.e., reported “male” or “female”)
- Age within 0.25 years
- Geography based on 5-digit zip code
- Pre-intervention costs

Each potential case was ultimately matched to its nearest-neighbor control in relation to baseline (the 12 months before the intervention) total Medicaid expenditures

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<tr>
<th>Group</th>
<th>Change (Total Cost)</th>
<th>Change (Mean)</th>
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<tbody>
<tr>
<td>Control</td>
<td>-$214,622</td>
<td>-$898</td>
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<tr>
<td>Treatment (Overall)</td>
<td>-$396,262</td>
<td>-$1,658</td>
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<tr>
<td>Tier 1</td>
<td>-$67,840</td>
<td>-$530</td>
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<tr>
<td>Tier 2</td>
<td>-$328,449</td>
<td>-$2,959</td>
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The Strategy in Action for Cities: National Results

GHHI Baltimore
- 66% reduction in asthma-related hospitalizations
- 62% increase in asthma-related perfect school attendance
- 88% increase in never missing work due to their child’s asthma
- 99% decline in childhood lead poisoning in Baltimore City

GHHI Philadelphia*
- 70% fewer asthma-related client hospitalizations
- 76% fewer asthma-related client ED visits

GHHI Cleveland**
- 58% reduction in asthma-related client hospitalizations
- 63% reduction in asthma-related client ED visits
The Strategy in Action Nationally: Scaling Best Practices and Innovation
Build Cross Sector Partners with Energy, Health and Housing - Mutual Benefits

**INPUT**

**Energy Efficiency**

**Weatherization**

**Healthy Homes**

**Comprehensive Intervention**

**ENERGY OUTPUTS**

- reduced kWh consumed
- reduced energy demand

**NON-ENERGY OUTPUTS**

- improved air quality
- increased thermal comfort
- reduced toxins

**ENERGY BENEFITS**

- improved service reliability
- reduced system maintenance needs

**NON-ENERGY BENEFITS**

- environmental quality
- occupant health
- family economic security

**LONG TERM IMPACTS**

- neighborhood quality improvement
- reduced health disparities
- school attendance
- economic productivity
Illinois ComED Utility Project

**Project Goal:** To develop a coordinated service delivery model that achieves a whole-home retrofit for utility customers with significant health, safety and energy needs and that leverages both time and financial resources of ComEd and AMITA Health.

Intervention design: Targets high-utilizing asthma patients of local hospital who are uninsured or under-insured and most likely to also need energy efficiency improvements. Exploring if targeting multi-family buildings with multiple asthma patients for efficiency opportunities.

Funding: Pilot combines community benefit dollars from local hospital system, utility R&D dollars to investigate new service delivery models, and local grants.

Results:
- Phase 1 of pilot increased asthma control of 19 of 20 patients
- Phase 1 lacked energy efficiency dollars, which will be addressed via phase 2
Before GHHI Greater Syracuse & Partners
- Owned by a single-mother with 2 children
- Furnace not working & little insulation
- Asbestos around the furnace
- Electrical hazards
- Peeling lead paint, inoperable windows
- Collapsing back porch and front steps

After GHHI Greater Syracuse & Partners
- Asbestos removed
- A new furnace & hot water heater installed
- Insulation and other air sealing
- Electrical Improvements
- Remediation of lead paint hazards & new windows
- New front steps & rear porch for fall prevention
- CO detectors and fire alarms installed

Partners: Home HeadQuarters PEACE, Inc., Onondaga County Health Department, & Onondaga County Community Development Division’s Lead Hazard Reduction Program, the Home Depot, and applicant.
HUBS Baltimore Model Summary: Housing Upgrades for Seniors

1. **Founding Organization**
   - Organizes referral process, develops trainings for partners, and hosts leadership meetings

2. **Leadership Team**
   - Performs home remediation and installs fall prevention measures

3. **HUBS**
   - Provides referrals into HUBS, conducts individualized needs assessment and assists with service referral process

4. **Evaluator**
   - Currently evaluating cost savings and impact of program

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**Home Safety Improvements**
- Grab bars
- Handrails

**Home Rehab Services**
- Roof repair
- Plumbing repair

**Weatherization and Energy Efficiency Services**
- Insulation
- Weather stripping
- LED Installation
Lesson Learned: Define the Business Case

Example: the case to fund early lead and asthma interventions

**Lead Poisoning Prevention**

Impacts during childhood
- 700% increase in school drop out rate
- 600% increase risk of juvenile delinquency

Impacts in adulthood
- Diminished earnings from lower IQ
- Higher likelihood of incarceration

$1 invested in preventive remediation

$17 - $221 return on investment

Increased lifetime earnings of $1,024,000 per child if lead poisoning prevented

**Environmental Control of Asthma**

Asthma results in $50.1B in annual medical costs (40% of costs are tied to triggers in the home)

Cost of ER visit
$500-$1,000

Cost of hospitalization
$7,500-20,000

$1 invested in asthma interventions

$5.30 - $14 return on investment

Sources: HUD, Gould, RWJ Commission on Building a Healthier America, HHS economic review of published studies
Secure Health Care Sector Investments in Energy and Housing Projects

- Medicaid, CHIP Waivers & State Plan Amendments
- Hospital Community Benefits
- Pay for Success
- MCOs and Value-based Payments
- Medicare Advantage Plans
- Administrative Resources
Partner with Healthcare and Housing
Medicaid/CHIP Innovations Funding Preventive Interventions

- **Michigan**
  - $119 million in CHIP funds for lead hazard remediation and related services; workforce development

- **Maryland**
  - $14.4 million in CHIP funds for lead inspection and hazard remediation and preventive asthma services

- **Ohio & Indiana**
  - $5 million (OH) & $3 million (IN) CHIP funds for lead testing and remediation

- **Missouri**
  - Medicaid funding allowable for Asthma resident education; Environmental assessment services

- **Oregon**
  - Rule 1115 Waiver allowing for flexible services including asthma home visiting resident education

- **Rhode Island**
  - Rule 1115 Waiver allowing for lead remediation

- **Virginia**
  - Rule 1115 Waiver for asthma interventions
GHHI Innovative Healthcare Financing Projects

- Allegheny County - UPMC and Allegheny Co. Health Department
- Baltimore - Priority Partners MCO
- Buffalo - Oishei Children’s Hospital and IHA MCO
- Chattanooga - green|spaces and Erlanger Children’s hospital
- Chicago - Presence Health, Elevate Energy, & NextLevel MCO
- Cincinnati - People Working Cooperatively
- Connecticut Medicaid and CT Greenbank
- Grand Rapids - Priority Health MCO, Healthy Homes Coalition of West Michigan
- Houston - UnitedHealthcare & Baylor
- Houston - Community Health Choice MCO
- Indiana - Indiana Joint Asthma Coalition
- Iowa - Healthy Homes Des Moines
- Marin - Contra Costa Health Services & MCE
- Memphis - Le Bonheur Children’s Hospital & UnitedHealthcare, Amerigroup, and BlueCare
- Minneapolis - MN Energy Efficiency For All
- New York City - Affinity Health Plan, AlRnyc, & AEA
- New York City - LISC
- New York Medicaid and NYSERDA
- Oregon - Community Services Consortium
- Philadelphia - National Nursing Care Consortium
- Richmond City Health District
- Rhode Island - State Medicaid and Integra Accountable Entity
- San Antonio - SA Asthma Collaborative
- Salt Lake - University of Utah Health Plans and Salt Lake County
- Springfield - Health New England MCO, Baystate Health, Public Health Institute of Western Mass
- Worcester - UMass Memorial Hospital
<table>
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<tr>
<th><strong>Explore State Partners - New York State Healthy Homes Project - Integrating Health, Energy and Housing</strong></th>
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<tr>
<td><strong>Goal</strong></td>
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<td><strong>Outcome</strong></td>
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<td><strong>Approach</strong></td>
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<td><strong>Commitment</strong></td>
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<td><strong>Partners</strong></td>
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Pursue Lead Grant and Other Housing Funding Resources to Support Your Cross Sector Collaboratives – GHHI Lead Funding Toolkit Development

- Identified Over 40 funding sources supporting lead hazard reduction
- Potential users, unmet needs, additional data sources
- Real world examples, strategic implementation guidance, and categorize by source and needs

Public Data Sources
Key Stakeholder Insights
Develop Roadmap
GHHI Lead Toolkit - Go to: https://www.greenandhealthyhomes.org/ghhi-toolkits/

State Attorney General Settlement Funds

Click on the sections below to expand them for more information.

Description ▼

Strategic Implementation ▼

Example ▼
Foster community-based participation in the national movement through strategic partnerships and innovative practices
Thank You

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