



**Low-Income
Forum on Energy**

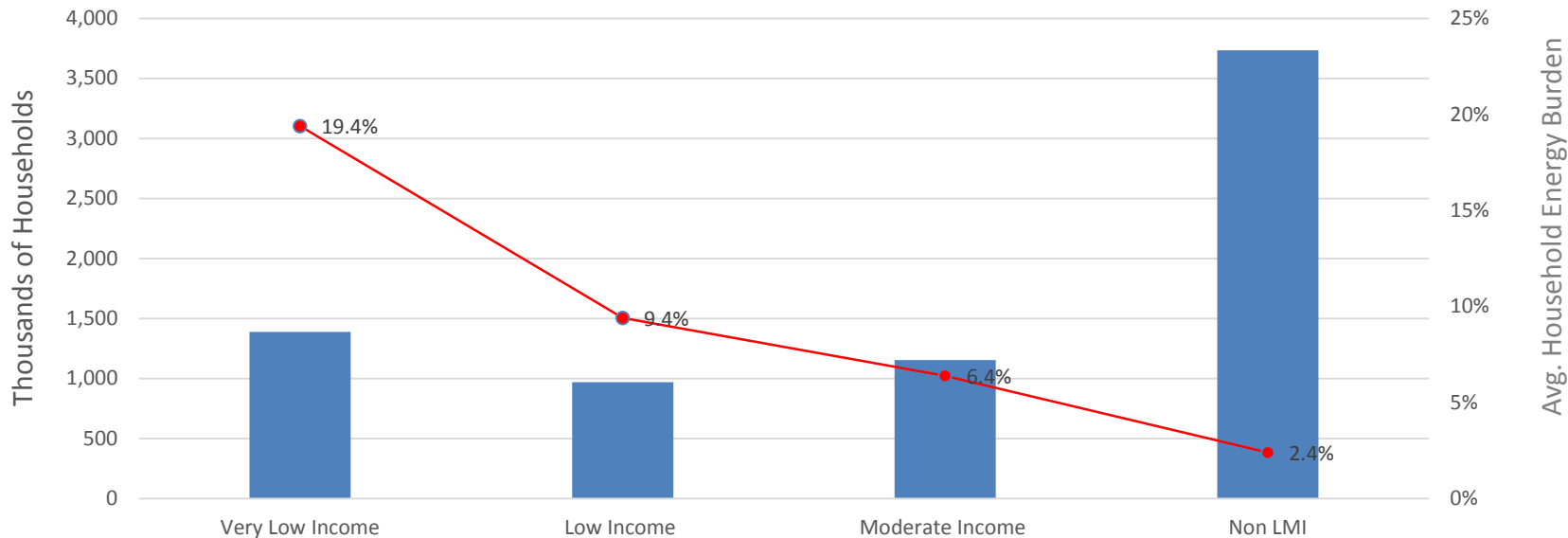
Plenary Session 1: Advancing Energy Affordability and Access to Clean Energy in New York State

2018 LIFE Statewide Conference
May 22, 2018

Context

- 3.5 million low to moderate-income (LMI) households in NYS
 - Low-income household: annual income at or below 60% state median income SMI
 - Moderate-income household: annual income between 60% SMI and 80% SMI or AMI, whichever is greater
- Energy costs have a disproportionate impact on LMI households
- Primary barriers to clean energy improvements beyond capital constraints include: lack of information on available programs and opportunities to improve efficiency, structural deficiencies, split incentive
- Advancing energy affordability and access to clean energy solutions is a priority under REV

Distribution of LMI Households and Avg. Energy Burden



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OPPORTUNITY.

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Forum on Energy

NYS Invests nearly \$700 million annually

Bill Payment Assistance

Utility Bill Discounts

Home Energy Assistance Program

~\$560 million

~1.6 million households

Energy Efficiency/ Weatherization

Clean Energy Fund

Weatherization Assistance Program

Utility-administered programs

Home Energy Assistance Program

~ \$123 million

~25,000 households

Access to Renewables/ Market Development

Clean Energy Fund

REV Demos

~ \$16 million



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Public Service
Commission

Public Service Commission Action to Advance Energy Affordability and Access to Clean Energy

Low Income Forum on Energy

Ted Kelly, Assistant Counsel
NYS Department of Public Service

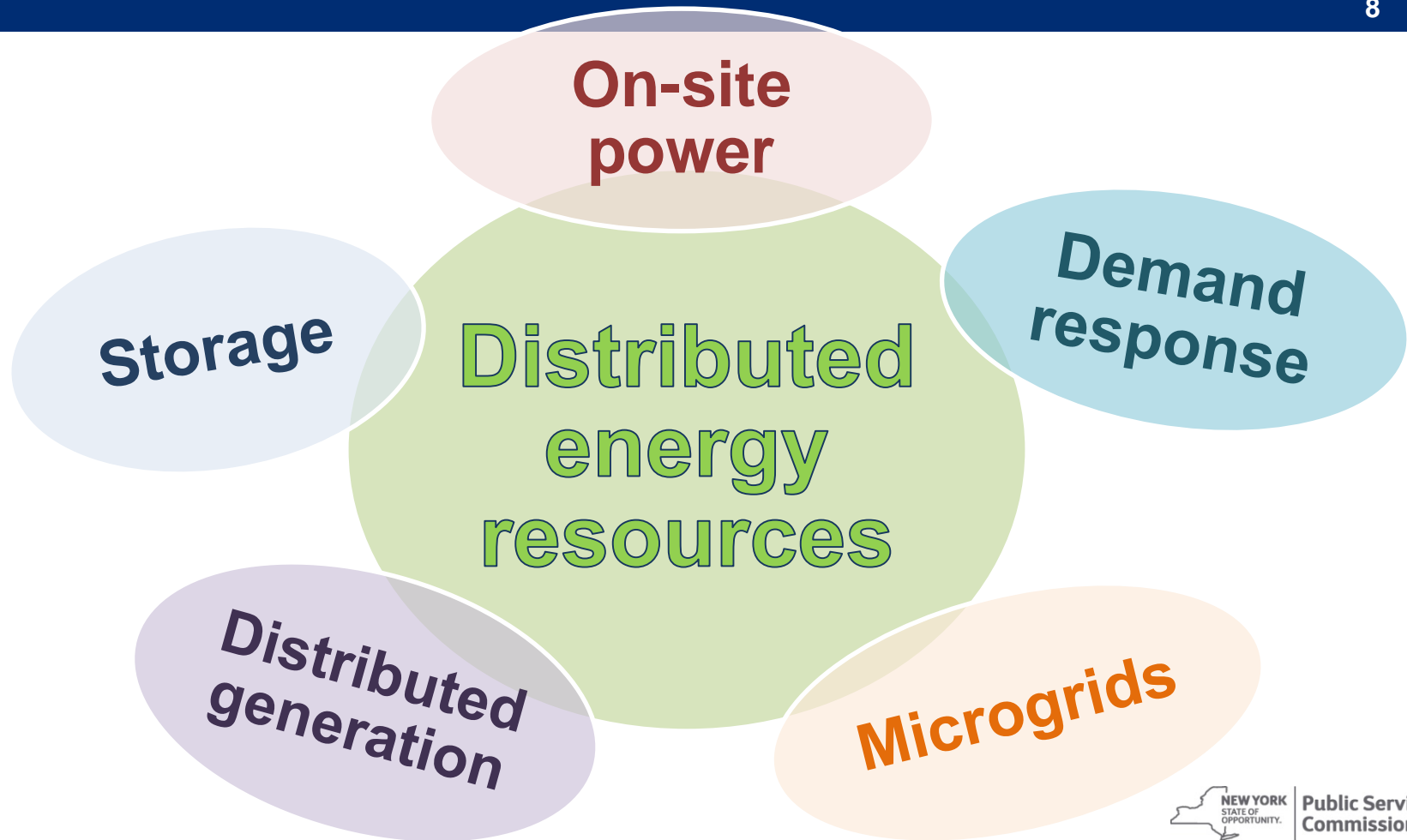
Reforming the Energy Vision

Case 14-M-0101

REV is Governor Cuomo's strategy to build a cleaner, more resilient and affordable energy system for all New Yorkers

REV places clean, locally produced power at the core of New York's energy system, protecting the environment by reducing greenhouse gas emissions & increasing our use of renewable energy





REV Initiatives

- **Demonstration Projects**
 - **Online marketplaces for energy products and services at each utility**
 - **NYSEG Community Energy Coordination**
 - NYSEG partners with a consulting firm to aggregate local demand for clean energy technologies and target outreach to areas where DERs can provide the greatest system benefits
 - **National Grid Fruit Belt Neighborhood Solar in Buffalo**
 - Helps low- to moderate-income customers access clean energy while reducing arrears through a utility-owned neighborhood solar project in an economically distressed area
 - **National Grid Demand Reduction Demonstration Project in Clifton Park**
 - Uses customer education and price signals to incentivize customers to reduce peak electric load and overall electric and gas energy use



REV Initiatives

- **Non-Wires Alternatives**
 - Provides DER opportunities and results in savings for all ratepayers by deferring or replacing need for traditional utility infrastructure spending
 - Aggregation opportunities can allow participation of small customers
 - Example: Con Edison's Brooklyn Queens Demand Management Project (BQDM)
 - Demand reduction and distributed resource investments, including demand response, generation, and storage, is deferring need for \$1 billion substation
 - Each electric utility has one or more NWAs under development

Increased Data Availability: Utility Energy Registry and Green Button Connect

17-M-0315 and 16-M-0411



Increased Data Availability

- **Utility Energy Registry**
 - Will provide municipal level aggregated energy usage data across New York State through open online portal for energy planning and development
- **Green Button Connect**
 - Will allow customers to access detailed information on their energy data and share it with providers they select

Community Distributed Generation and Value of Distributed Energy Resources

15-E-0082 and 15-E-0751

Community Distributed Generation and VDER

- Expands access to benefits of distributed generation to customers unable to install rooftop solar
- Customers receive bill credits based on value of generation to the system, including environmental value
- Supports New York's 50% by 2030 renewable energy goal

CDG and VDER Low Income Initiatives

- **VDER Low Income Working Group proposed allowing low income customers to dedicate a portion of their bill credit to a CDG subscription fee**
- **Con Edison Shared Solar pilot will provide low income customers with bill savings based on production of solar panels on Con Edison buildings**

Community Choice Aggregation

14-M-0224



Public Service
Commission

Community Choice Aggregation

- **Municipalities procure energy for their residents on an opt-out basis**
- **Leverages purchasing power and economies of scale to negotiate attractive rates and meet local energy goals**
- **Four approved aggregations including several dozen municipalities across the state, with various levels of DER integration**

Low Income Affordability

14-M-0565

Low Income Policy and Program Design

- Target is an energy burden at or below 6% of household income
- Goal of reaching all 2.3 million low-income households in New York; all households that currently receive a HEAP benefit are now eligible
- Tiered discounts based on need
- Substantial increase compared to preexisting programs, both in terms of benefit amount and eligible households

Customer Protection: Retail Access and DER Oversight

15-M-0127 and 15-M-0180

Retail Energy Market

- **ESCOs only permitted to serve low-income customers with products that guarantee savings**
- **Broad review of retail energy market currently underway**
- **Enforcement activity against ESCOs that violate Uniform Business Practices continues**

DER Oversight

- **New set of rules approved by Commission in October 2017 to protect customers of DER providers: Uniform Business Practices for DER Suppliers (UBP-DERS)**
- **Include disclosure and registration requirements for Community DG and rooftop solar providers**
- **Customers of DER providers can submit complaints to the Department**

What is the CEF?

- 10-year, \$5 billion funding commitment
- Supports Governor Cuomo's Reforming the Energy Vision (REV), *a strategy to build a clean, resilient, and affordable energy system for all New Yorkers*
- Reduces cost of clean energy by accelerating adoption of energy efficiency to reduce load while increasing renewable energy to meet demand

Market Development

Reduce costs and accelerate customer demand for energy efficiency and other behind-the-meter clean energy solutions, and increase private investment.

Focus on strategies to reduce soft costs and other nonmonetary barriers:

- Provide information, data, and education
- Offer technical assistance and provide standardized, simple, robust tools
- Provide quality assurance
- Pilot, demonstrate, and replicate new technologies and business models
- Aggregation to reduce costs through economies of scale

NYSERDA LMI Portfolio

Initiatives to improve energy affordability for LMI households and improve access to clean energy solutions for LMI households and affordable building owners. \$234.5 million of CEF funds committed over first three years of CEF.

- Standard Offer Programs
- Market Development Initiatives
- Awareness and Education
- Creative finance solutions
- Emphasis on aligning policy and deployment with other program administrators for greater impact and reduced admin burden

Energy Efficiency

Initiative	Target Market	Service Provided	Incentive	Est. Annual Budget	2017 Production
EmPower NY	Low-income; 1-4 family homes-owners and renters; renters in MF buildings	Energy efficiency, in-home education	No cost to resident, avg. workscope of \$4,000, cap of \$7,000	\$33 million	Nearly 9,000 households
Assisted HPwES	Moderate-income; 1-4 family homes	Energy efficiency	50% of cost of workscope	\$9 million	Almost 3,000 households
Multifamily Performance Program	Affordable multifamily buildings (5+ units).	Energy efficiency	Tiered, per unit incentive structure based on achievement of energy savings	\$10 million	4,400 units
Affordable New Construction	Affordable low and high rise new construction	Building performance	Tiered, per unit incentive structure based on building performance	\$8 million	Nearly 1,000 units



Access to Renewables

Initiative	Target Market	Service Provided	Incentive	Est. Annual Budget	2017 Production
Affordable Solar	Single family LMI homeowners; regulated affordable housing	Incentives for on-site solar installation	Double NY Sun incentive for single family; added incentive for affordable housing	\$7 million (3 year budget)	Nearly 9,000 households
Solar for All	CDG developers, low-income customers	CDG subscriptions	No cost to participant	\$21 million (3 year budget)	N/A Target of 10,000 customers
Affordable Solar Predevelopment and Tech Assistance	Shared solar/multifamily solar that provide benefit to LMI residents	Tech assistance for the development of a shared solar project that benefits LMI residents	Up to \$200,000	\$3.6 million (multi-year budget)	Currently supporting 8 CDG projects benefitting
REVitalize	Organizations that serve or represent lower income and EJ communities	Technical assistance for the planning/ development of community-scale clean energy projects	\$65,000 per project	\$725,000 (3 year budget)	Currently supporting 4 community-led projects

Market Development Initiatives

Initiative	Target Market	Service Provided	Budget
RetrofitNY	Affordable multifamily buildings, A&E firms, manufacturing, financiers	Solutions development and market transformation through engagement with industry, design competition, and piloting solutions	\$30.5 million (10 year budget)
Healthy Homes	Single family and multifamily buildings	Study the potential for integrated health, housing, and energy intervention	\$215,000 (total budget)
Community Renewable Heating and Cooling Campaign- LMI Pilot	LMI residents, affordable multifamily buildings	Funds to test innovative approaches to increase adoption of RH&C to	\$300,000
Community Energy Engagement Program	Residents, multifamily and small business owners statewide	Community outreach with focus on improving affordability and increasing deployment of clean energy solutions	\$970,000
Low-Income Forum on Energy	Organizations and individuals that serve low-income energy customers	Awareness and education	\$1.3 million (10 year budget)

Coordination

Utility Coordination

- Exploring gaps in services, revisiting
- Testing new approaches

Interagency Coordination

- Low-Income Energy Task Force
- Aligning clean energy with affordable housing initiatives at HCR, HPD
- Coordination on HEAP (OTDA) and WAP (HCR)
- Embedding energy efficiency considerations into aging and health initiatives

Philanthropic Partnerships

- Exploring opportunities to leverage foundation interests and investments



Approaching Scale

Build on foundation of successful programs by

- Optimizing deployment of current resources across NYS
 - Align on policy across agencies, reduce administrative redundancy and cost, improve understanding of market segment to better inform strategy for target resources
- Exploring new models for deploying clean energy services
- Exploring and testing new models for facilitating access and incorporating third party capital
- Complementing current resources/approaches as new models are developed



NYSERDA

**Department
of Public Service**

New Efficiency: New York

A milestone energy efficiency target and comprehensive strategy —
New York State's ambitious approach.

➤ 40% Reduction

in Greenhouse Gas Emissions (from 1990 baseline)

❖ on path toward 80% reduction by 2050

➤ 50% of Electric Generation

from Renewable Energy Sources

❖ **Clean Energy Standard (mandate)**

➤ 23% Decrease

in Energy Consumption by Buildings (from 2012 baseline)

➤ Emphasizes Deeper Energy / Carbon Savings

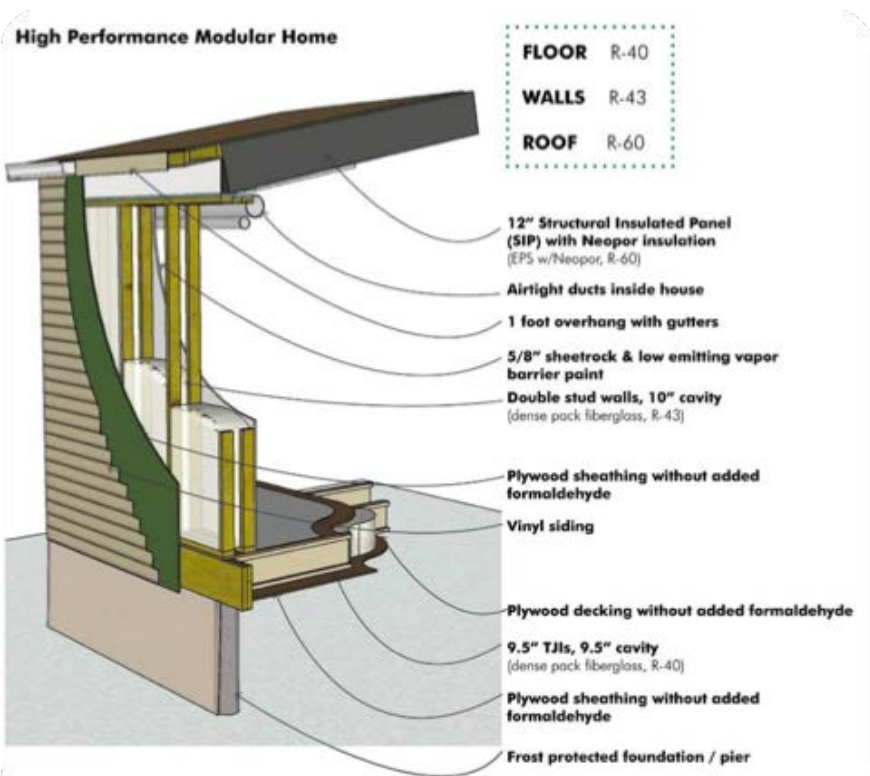
- ❖ Fuel Neutrality
- ❖ Beneficial Electrification
 - Decarbonize Heating and Cooling (Heat Pump Adoption)
- ❖ Advance Codes and Standards
- ❖ Lead by Example with State-Owned Buildings
 - SUNY
- ❖ Financing Strategies

* Utility Allowances * PAYS * C-PACE * On-Bill Finance * R-PACE

❖ Net Zero Buildings ➡ Net Zero Communities ➡ Net Zero State



Feasibility Study Underway by Vermont Energy Investment Corporation:



- ✓ Technical Specifications
- ✓ Market Assessment
- ✓ Economic & Energy Analysis
- ✓ Market Forecast and Impact
- ✓ Manufacturing Resources



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RetrofitNY

RetrofitNY

*LIFE Conference
Albany, NY
May 22, 2018*

Create a large scale, self-sustaining market for high performance retrofit solutions

Industry-designed, cost-effective, long-lasting retrofit solutions for tenanted buildings reaching or approaching net zero energy.

Implement solutions on a large scale to drive industrialization, reduce cost, and standardize and guarantee long-term performance.

ENERGIESPRONG

38



United Kingdom



Germany



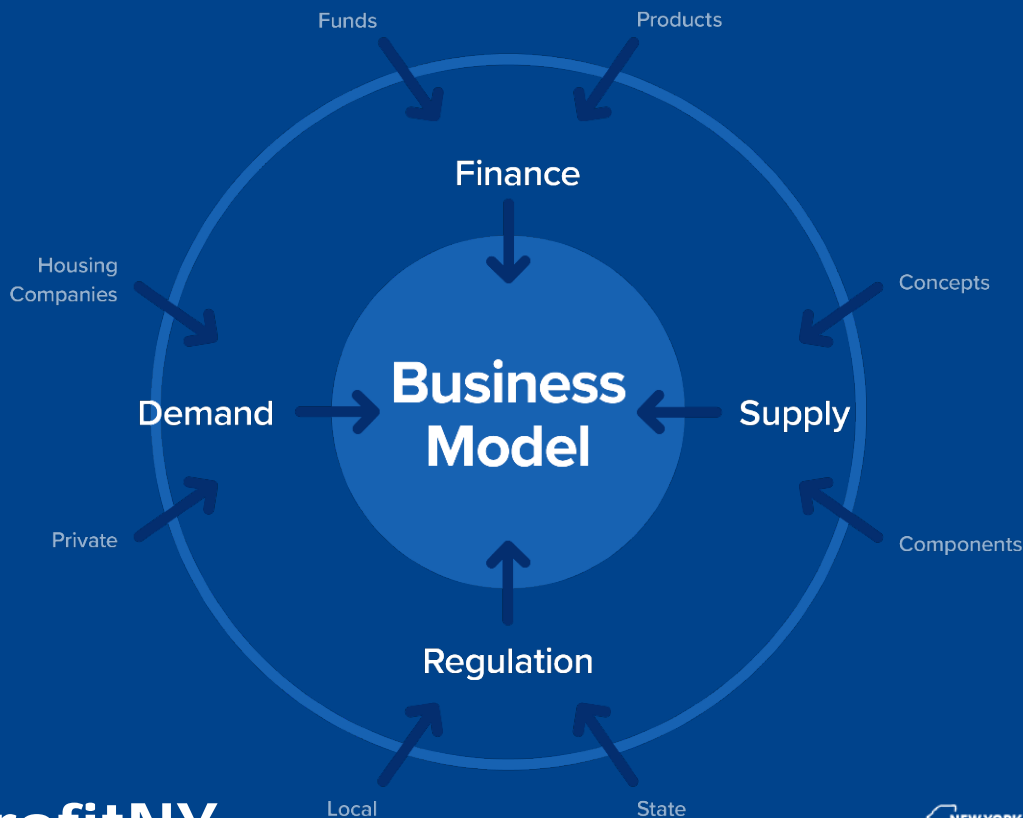
France



New York

Revolutionizing the way multifamily buildings are renovated, keeping residents in their homes.

[Nysenrda.ny.gov/RetrofitNY](https://nysenrda.ny.gov/RetrofitNY)



We are looking for solutions that

Are designed to

- **Be cost-effective:** planned rehab budget + savings
- **Improve the appearance of the building**
- **Improve health, comfort, quality of life for tenants**
- **Achieve or approach net-zero energy**
- **Eliminate fossil fuel use onsite**

Are delivered with

- **Residents in place with limited disruption**
- **A long term energy performance guarantee**



Woodrow Wilson Apartments
Amsterdam, NY
Circa 2014



Woodrow Wilson Apartments
Amsterdam, NY
Circa 2016

Courtesy: Beacon Communities, LLC



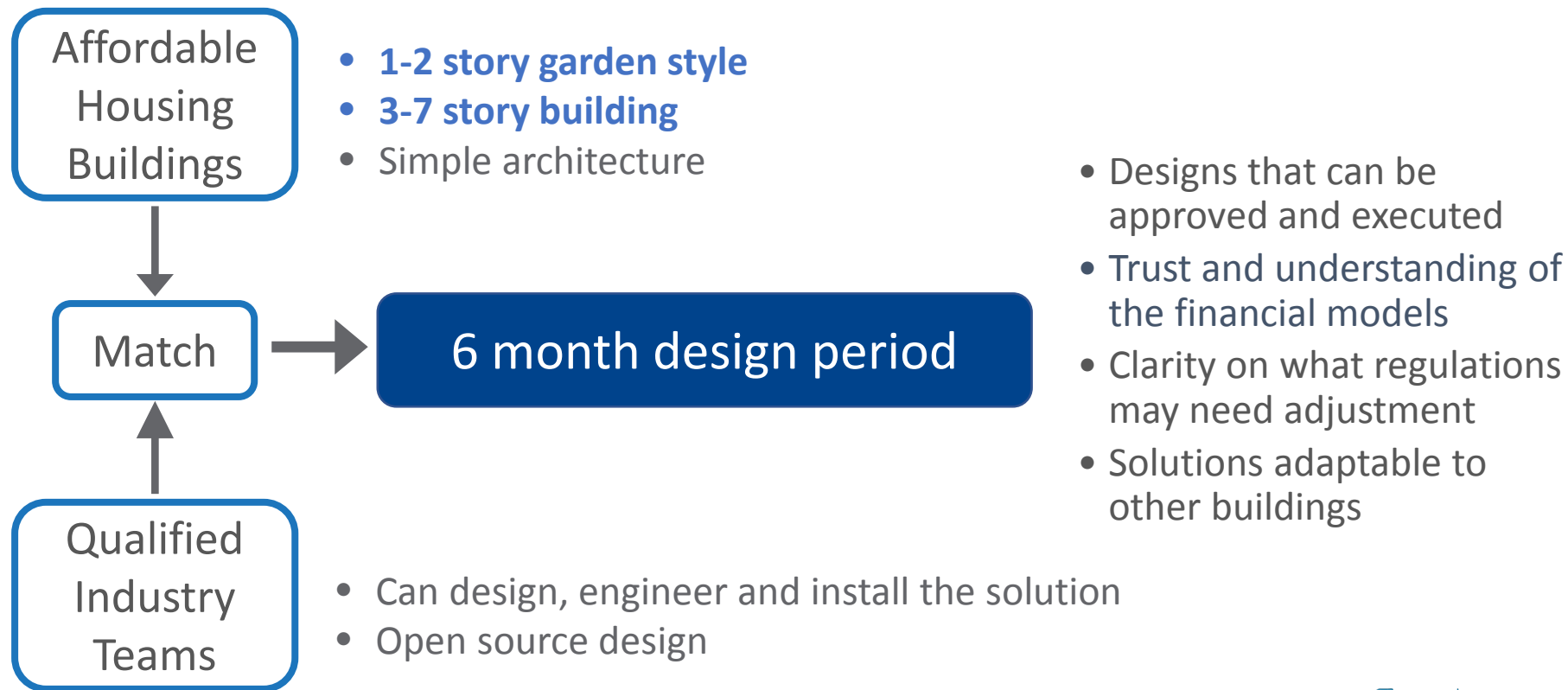
Key Components of the Energiesprong Solution

Elements

- Highly insulated building envelope
- New mechanical works
- On-site generation

We Are Starting the Pilot Phase





6 month design period



Deal Closing
+
Construction

Gap Funding Available

Supporting the Teams

- Transfer of knowledge from Energiesprong
- Coaches
- \$75,000 stipend
- IPNA for Buildings

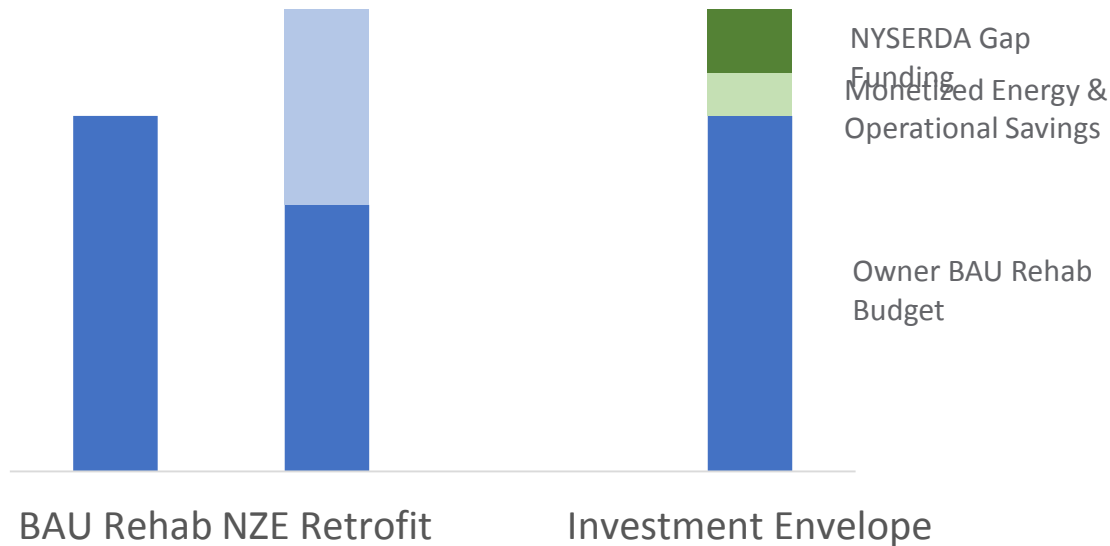
Making the Deal

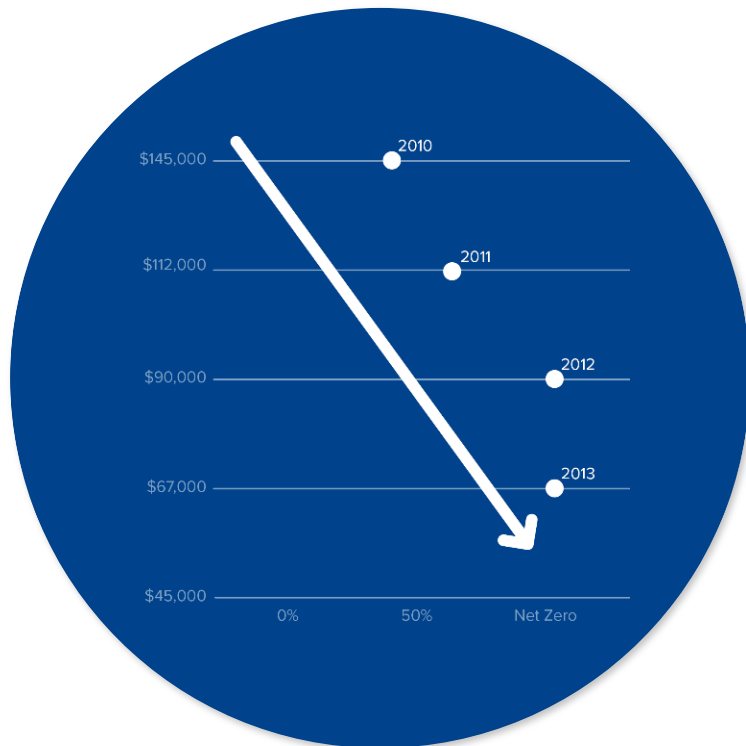
- Regular touch base
- HPD, HCR and HUD
- Financing partners
- Permitting agencies

Encourage collaboration among teams and open communication with owners and agencies

The Investment Envelope

- Marginal cost of NZE retrofit vs. BAU Rehab = \$25-30k/unit
- Monetized operational savings + NYSERDA funding to bridge the gap
- NZE Retrofits can quickly become more cost-effective in coming years via cost compression, innovation, standardization, and scale





A successful model to show market potential

Cost per Unit & Performance of Retrofits

By reaching scale, this solution will become the standard.

This is where the market is headed, and you can be ahead of the curve.

10



1,000



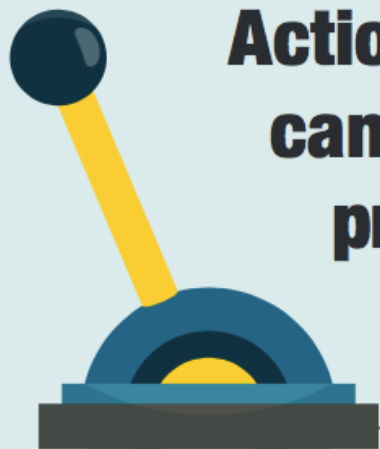
Report

McKinsey Global Institute

February 2017

Reinventing construction through a productivity revolution

A construction worker wearing a yellow hard hat and a high-visibility safety vest is shown from the side, looking down at a tablet computer. The background is a solid yellow color.

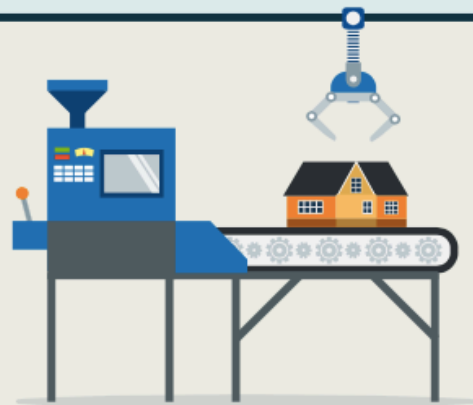


**Action in seven areas
can boost sector
productivity by
50–60%**

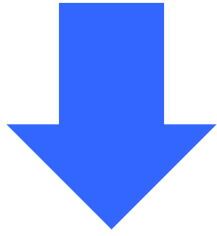
- Reshape regulation
- Rewire contracts
- Rethink design
- Improve procurement and supply chain
- Improve onsite execution
- Infuse technology and innovation
- Reskill workers

5–10x productivity boost

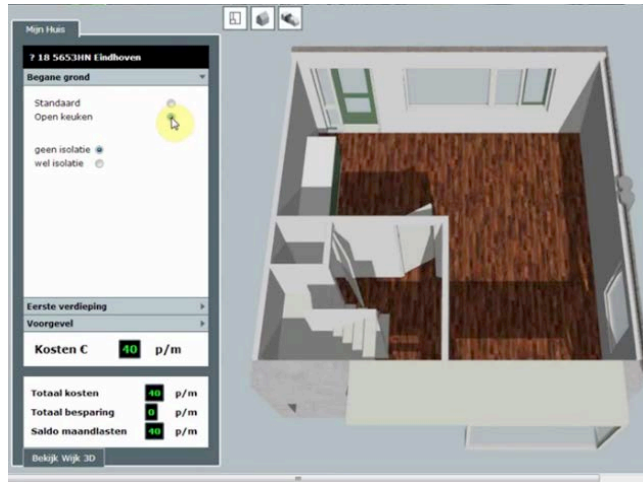
possible for some parts of the industry by moving
to a manufacturing-style production system



Project and craftsmanship oriented



Industrial production, IT systems, marketing and sales channels













A photograph of a utility room, likely a basement or attic, showing a complex arrangement of HVAC and plumbing equipment. On the left, a large grey furnace or boiler unit is mounted on the wall, with a black vent pipe extending to the left. Above it, large ducts are wrapped in silver insulation. In the center, a red and black control unit is mounted on the wall, with various pipes and wires connected to it. To the right of the red unit is a white control unit. Below the white unit, a red expansion tank is visible. On the far right, a white water heater is mounted on the wall. The room has a wooden ceiling with exposed rafters and a concrete floor. The text "20th century solutions scale essential to transform" is overlaid at the bottom of the image.

20th century solutions
scale essential to transform



High Performance Buildings

To reach scale, we must capture all available economics:

- Operational Savings – energy, water, maintenance (e.g., LL 11)
- Grid Benefits
 - Permanent – long term load reduction through ultra low load profiles
 - Temporary – Demand Response
- Rate Design – Behavior
- Carbon Benefits – social cost of carbon
 - Heat pumps absorbing excess grid capacity
- Health Benefits – Medicaid Redesign
- Net Zero Buildings ➡ Net Zero Communities ➡ Net Zero





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RetrofitNY

Thank you
RetrofitNY@nyserda.ny.gov