

Gaining Ground by Going Green: How NHPF Partners to Improve Energy Efficiency

In 2013 The NHP Foundation began implementing a series of environmental measures at existing properties and incorporating such measures as “standard operating procedure” at those under rehabilitation and construction. NHPF President & CEO Richard Burns believes that creating and maintaining the highest quality affordable housing and lowering our energy and carbon footprint are not mutually exclusive. In fact, nothing helps improve the quality of our housing more than going green.

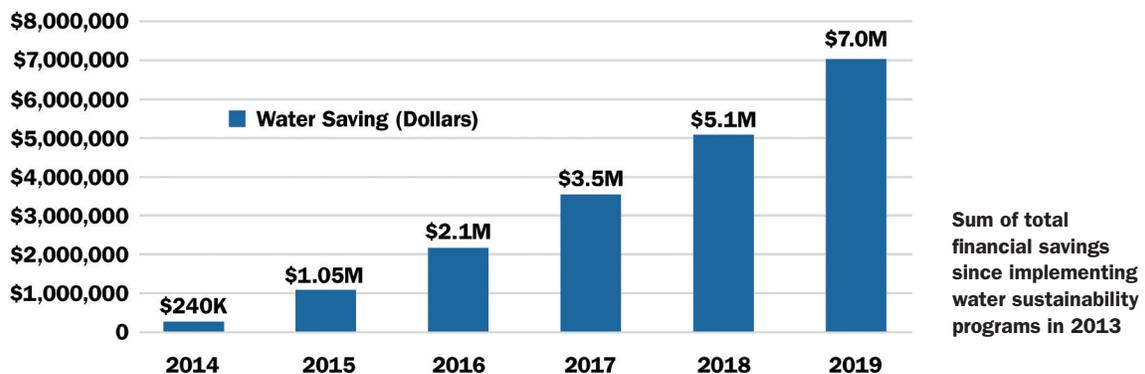
In the past few years NHPF has concentrated on infusing our residents and staff with a sustainable mindset, demonstrating in meaningful ways the value of concepts like water consumption reduction and energy efficiency. We have also spent time sharing the “good news” about cost and energy savings with residents who are only too pleased to learn what the organization saves in energy bills it puts into property improvements.

Since 2018, we’ve executed water-retrofit programs in 1,311 units which are expected to reduce water usage up to 35%. Portfolio water consumption continues to remain low at 57.60 gallons per square foot which is 28% below 2013 numbers. NHPF also completed rehabilitation of over 90 units in 2018 that included upgrades to Energy Star appliances and HVAC systems, water-efficient plumbing fixtures, solar panels that generate electricity for the common areas, and window replacements. As well, in 2019 NHPF completed retrofits at two of its affordable properties: a full water retrofit at Lancaster Club in Lancaster, OH and an LED lighting upgrade at Flanders West, Southington, CT.

2019 Data

The 2019 statistics bear out the efforts and achievements since 2014 via successful partnerships with providers such as [Grid Alternatives](#) which brings the benefits of solar technology to underserved communities and [Eversource](#), which supplies electric and natural gas energy. NHPF Asset Management also works very closely with [Bright Power](#), which increases the performance and value of buildings by collecting and monitoring usage data in addition to energy audits, energy analysis, enterprise certification, and more.

NHPF Water Sustainability Financial Savings 2014–2019





We are particularly proud of two successful recent joint efforts between NHPF and partner providers.

Parkchester + GRID Alternatives

Parkchester is a low-income multifamily complex located in Southeast DC. The apartment complex consists of nine buildings with 93 units. GRID Alternatives Mid-Atlantic installed a solar PV system that fully covers common area power consumption. This project was the result of a direct partnership between GRID Alternatives Mid-Atlantic and the NHP Foundation, made possible through DC Sustainability loan program. The cost savings allowed NHPF to perform upgrades in the units, including new appliances, heating and air-conditioning units, kitchens, bathrooms, and a new community center to house residential services. The solar covers the cost of the common area power consumption, allowing The NHP Foundation to complete a \$2 million energy efficiency upgrade for all 94 units, including:



- New energy efficient heating and cooling system
- Refurbished kitchens
- Energy saving light fixtures
- New energy efficient thermoplastic polyolefin (TPO) roofs on all buildings and one green roof
- Water conservation fixtures
- New community center and playground
- New solar panel for the common area

These changes improve the quality of life for residents while preserving the affordability of the complex.

Savings summary

- System Size: 118 kW (DC)
- Lifetime Savings: \$274,000
- Lifetime CO2 Savings: 3,077 tons
- Equivalent of trees planted: 71,579

About GRID Alternatives Mid-Atlantic

GRID Alternatives Mid-Atlantic is an affiliate of GRID Alternatives, a national leader in making clean, affordable solar power and solar jobs accessible to low-income communities and communities of color. Using a unique, people-first model, GRID develops and implements solar projects that serve qualifying households and affordable housing providers, and offers solar education and hands-on job training to help people jumpstart their solar careers. Our work brings together affordable housing organizations, job training groups, government agencies, municipalities, utilities, and local communities to make solar a win for everyone.

Bayview Towers + Eversource

Bayview Towers affordable housing community of 200 one-to four-bedroom apartments in Stamford, CT partnered with Eversource which provided energy-saving upgrades at the property and is serving as a model for other energy-saving efficiencies across our portfolio.



NHPF looked for ways to improve the overall property, increase the comfort of each apartment, and help residents save on their energy costs. Eversource and Energize Connecticut provided technical and financial assistance to make the energy-saving upgrades at Bayview Towers.

Through the Multifamily Initiative, Eversource worked with The NHP Foundation's selected contractors, CMC Energy Services, Inc. and New England Mechanical Services, Inc., to create a comprehensive agreement outlining the eligible measures, implementation costs, and the energy savings that would result from the improvements. The improvements included:

- Changing inefficient lighting to high-efficiency LED lighting throughout the entire complex, including the living spaces, common areas, and exterior spaces
- Weatherization measures, including air sealing around doors and windows and other air leaks in the building envelope
- Replacement of boilers with new energy-efficient as a family-friendly property, the interior and exterior lighting upgrades have also made a dramatic difference in the brightness, reliability and security of shared common areas, parking lots, and the outdoor playground.

The weatherization and lighting upgrades to each apartment, and the updating of the heating system's boilers and equipment provided residents and property staff with increased safety and comfort. The 2019 gas and electricity usage was –34% and –4% lower when compared to baseline (2014). These very favorable usage results generated approximately \$85k in savings which will be put in use this year to improve playground fencing, upgrade the current security camera system, and other property related projects.

Savings summary

- 265,300 kilowatt hours annually
- 25,800 CCF natural gas annually
- \$60,400 annual energy costs
- An average of \$300 per unit
- \$800,000 over the predicted use of equipment and improvements natural gas models
- Installation of energy savings controls on the new boilers, including variable frequency drives and new hot water pumps
- Nearly \$440,000 in incentives

The energy saved on this project over the lifetime of the measures is equivalent to:

- 3,879 tons of carbon dioxide (CO₂) emissions avoided, or
- 1,813 tons of coal not burned, or
- 877 cars taken off the roads for one year.

About Eversource

In 2012, Northeast Utilities and its operating companies Connecticut Light & Power, Public Service of New Hampshire, Western Massachusetts Electric and Yankee Gas merged with NSTAR Electric & Gas to better serve New England. On December 4, 2017, Eversource closed the deal on an acquisition of Aquarion Water Company, making Eversource the only electric company in the US that also owns a water utility. Aquarion serves 230,000 water customers in Connecticut, Massachusetts, and New Hampshire. Combined, we power the possible for New England.

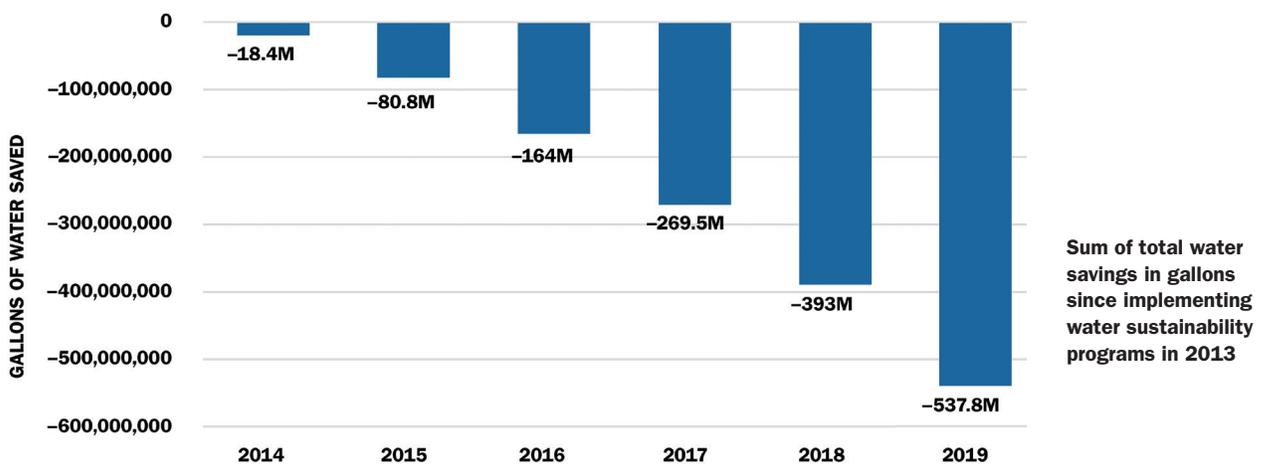
The measures described here have already helped The NHP Foundation maintain energy-efficient, comfortable and affordable properties and set the stage for other important initiatives.

2020 and Beyond . . .

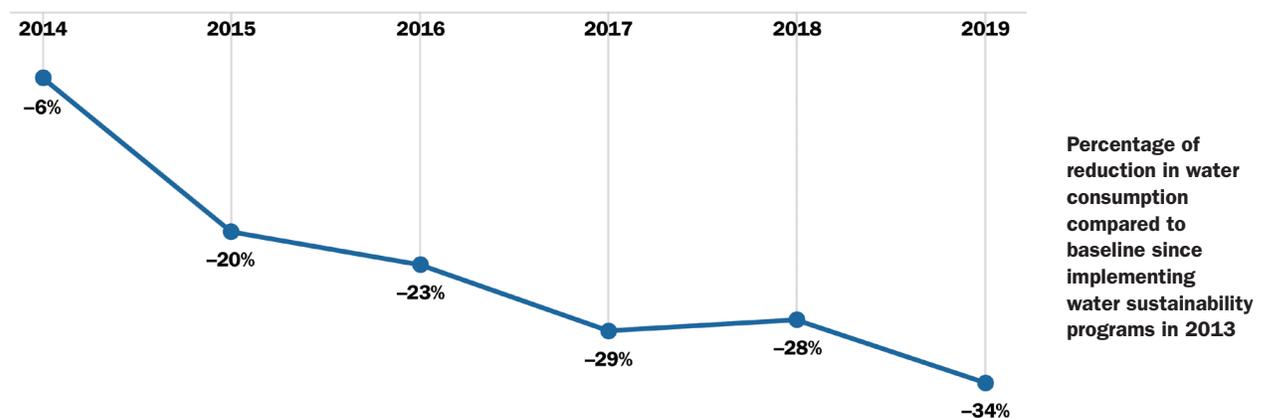
In 2020 NHPF is building on and expanding the environmental practices that have already borne cost savings. This includes first-time installation of solar panel systems at four of our DC properties equaling 887 units of affordable housing, often producing enough energy to cover entire common areas of apartment communities.

As well in 2020, two DC properties, Benning Heights and Woodmont Crossing are partnering with the Department of Energy & Environment (DOEE) and DC Sustainability Energy Utility (DCSEU) on their Solar For All Initiative. Our recent installation of solar panel systems at both locations offer our residents the opportunity to receive an energy bill reduction of up to \$500 savings annually. There is no cost to participate and homeownership is not required. NHPF is looking to realize \$30K in potential savings for residents in a 12-month period.

NHPF Total Water Reduction (Gallons) 2014–2019



NHPF Reduction in Water Usage (Percentage) 2014–2019





Ridgecrest Village Apartments + NEO

At one of the partnered properties, Ridgecrest Village Apartments, a 272-unit apartment development in the Congress Heights neighborhood of Washington, DC. NHPF and NEO, LLC recently installed 1,855 KW PV system that consists of roof top solar panels and solar carports. It will produce enough energy to cover 100% of the property's energy needs, resulting in a 50% savings in energy costs.

About NEO,LLC

NEO is a renewable energy developer with focus on solar, energy storage, and Microgrids. NEO applies sustainable financing, engineering, and construction in realizing new developments and operating existing projects. NEO was founded by Henry Neoman, an entrepreneur, and business developer with over 20 years of experience in renewable energy, real estate, and technology. Henry developed and managed projects and operations in the USA, Europe, Latin America, and the Caribbean; with a Bachelor's in engineering from Polytechnic University of Turin in Italy, and an MBA in finance from Strathclyde University in the UK. Henry developed, financed, and implemented over 20 MW of energy projects in the US and Caribbean.

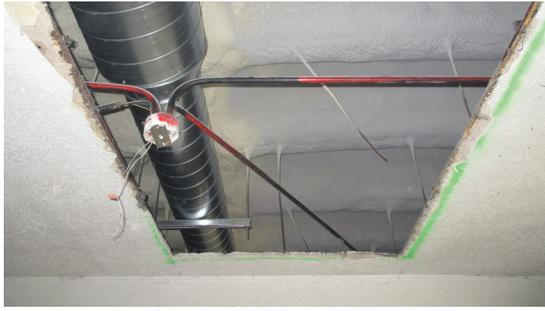


NHPF Affordable SRO The Mark Twain in Chicago, Achieves Enterprise Green Communities Certification

In 2020, the country's only national green building certification program designed explicitly for the affordable housing sector featuring a comprehensive set of guidelines to encourage green building practices awarded The Mark Twain this certification.

The work within the SRO included all new mechanical, electrical and plumbing systems including a new extremely energy-efficient variable refrigerant flow mechanical system for central heat and air conditioning for all units. In addition to succeeding with all mandatory program criteria, the project achieved the points required for certification by:

- Being a compact development (with three times the density of the census block in which the project is located)
- Developing in proximity to critical resources for healthy living and access to opportunity including access to public transportation (with a Chicago Transit Authority Red Line Station which provides 24-hour a day public transportation at the corner; access to three different bus lines within 175 feet; and bike lanes on the street where the project is located)



The Mark Twain, Chicago, IL
The spray foam insulation at the exterior walls and underside of the roof deck were huge improvements to the exterior envelope.

- Increasing accessibility to fresh local food, 0.1 miles from the Division St. Farmer's Market
- Offering Universal Design, with 20% of the units designed to meet ICC/ANSI A117.1 Type A requirements
- Reducing energy usage with Home Energy Rating System (HERS) Index Scores lower more efficient than required by the program.

The level of sustainability to the preservation of this historic building includes 29% more efficiency than is required by the energy code and a 29% indoor water use reduction. "Green" work illustrated here is of the exterior wall and roof insulation. The spray foam insulation at the exterior walls and underside of the roof deck were huge improvements to the exterior envelope.



The Enterprise Green Communities Criteria was created in 2010 to yield lowered utility costs, a healthier living environment and increased sustainability while benefiting the financial stability of both residents and affordable housing owners. Chicago has seen 16 Green Communities certified buildings since the program's inception.

"Maintaining affordability through preservation of SRO housing, as NHPF is doing with the Mark Twain, is so important for the city. And by rehabbing the Mark Twain to the Green Communities Criteria, NHPF has ensured that they've created a smarter, more energy-efficient building that will provide stable, healthy and sustainable homes for years to come," said Krista Egger, National Initiatives Vice President, Enterprise Community Partners.

It is through efforts like these that NHPF sets a standard for other valuable property upgrades that will benefit our residents for years to come.



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