

Healthy Neighborhoods Case Study

A non-profit that has been working to improve Baltimore's neighborhoods for more than a decade, [Healthy Neighborhoods, Inc. \(HNI\)](#) harnessed the Maryland Energy Administration EmPOWER Clean Energy Communities Low-to-Moderate Income Grant Program to extend its reach in some of the city's neediest communities. Working in partnership with the [Baltimore City Energy Office](#) and 11 other city nonprofits, HNI helped make 27 facilities more energy efficient. By lowering operating costs at these sites, HNI makes it possible for the savings to be directed to serving some of the city's most vulnerable residents such as the homeless, those with mental, physical or developmental disabilities, and persons with substance abuse disorders, among others.



Thermal imaging of the [Maryland Center for Veterans Education and Training \(MCVET\)](#) in Baltimore indicates building heat gain prior to MEA-funded insulation and other upgrades.

With its grant award, HNI was able to improve a total of 27 sites with a range of upgrades including HVAC systems, building envelope improvements, health and safety measures, lighting, appliances and other projects. HVAC and building envelope improvements together accounted for more than half of the total project costs of nearly \$1.2 million, followed next by lighting upgrades. Through [BGE incentives](#) and the [Baltimore Energy Initiative \(BEI\)](#), HNI leveraged \$408,660 to help cover the cost of several projects.

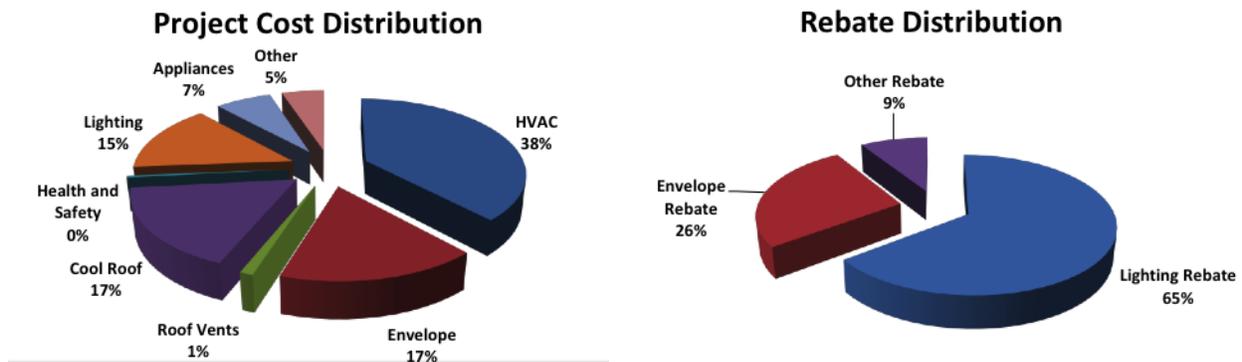
The grant award primarily enabled whole building upgrades in which a certified [Building Performance Institute](#) auditor analyzed the building using a blower door test, a visual inspection, thermal-imaging cameras, and other diagnostic tools to recommend cost-effective upgrades within each building. Ancillary gains from this whole building approach included enhanced health and safety as well as building operations and management benefits stemming from building performance information sharing.

Healthy Neighborhoods Project Summary ¹	
Total Project Cost (covered by various sources)	\$1,197,257
Annual Energy Cost Savings	\$131,200
Simple Payback	9.1 years (gross project cost) 7.9 years (net project cost with rebates)

Two cool roof projects were included in the award to assess whether the savings associated with these projects would demonstrate cool roofs to be cost effective in Baltimore. All roofing materials are either [ENERGY STAR](#) certified or meet ENERGY STAR specifications and also meet solar reflectance and thermal emittance requirements based on the roofing slope and material. The Baltimore Energy Office will monitor the two buildings' energy use for at least two years and analyze the effect of the cool roof on the building's heating and cooling loads. The energy savings associated with the cool roofs will be estimated by subtracting the anticipated energy efficiency savings associated with the non-cool roof energy measures installed under this grant scope from the total observed energy savings. MEA will receive a report detailing the findings of cool roof impact on the buildings' energy requirements in early 2017.

¹ Assumptions: residential electric rate, \$0.1347/kWh; commercial electric rate, \$0.1099/kWh; natural gas rate, \$1.00/Therm; lighting operating hours – 60 hrs/week (3,120 hrs/year); reduced hours due to occupancy sensors – 20 hrs/week (1,040 hrs/year); exterior lighting operating hours – 84 hrs/week (4,368 hrs/year)

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Organizations that focus their upgrades on measures like those outlined in the table below may be able to realize similar savings. Installing multiple measures in one project allows for the savings to be calculated in aggregate—a strategy that often helps offset the longer payback of some desirable energy efficiency measures. For example, the chart below illustrates how appliance and water heater upgrades, with payback periods that closely parallel the equipment’s expected service life, can be combined with faster payback lighting upgrades to bring the overall payback for the measures down to less than 7 years.

Sample Energy Efficiency Project Measures

Project Costs	
HVAC	\$456,417
Envelope	\$201,800
Roof Vents	\$13,430
Cool Roof	\$205,517
Health and Safety	\$5,557
Lighting	\$173,479
Appliances	\$80,497
Other	\$60,560
Total	\$1,197,257

GEDCO - Harford Senior Center

Energy Conservation Measure	Estimated Annual Energy Savings (kWh)	Estimated Annual Energy Savings (Therms)	Estimated Annual Cost Savings	Installed Cost	Estimated Payback (years)
Lighting	15,461.00		\$ 2,082.60	\$11,643.82	5.59
Appliances	463.00		\$ 62.37	\$ 649.00	10.41
Power Vented Water Heater		163.20	\$ 181.48	\$ 2,247.50	12.38
Total	15,924.00	163.20	\$2,326.44	\$14,540.32	6.25

Audits	\$64,100
% of Project Cost	5.4%

BGE Leveraged Funds	
Lighting Rebate	\$101,808
Envelope Rebate	\$41,534
Other Rebate	\$14,130
Total	\$157,472

BEI Leveraged Funds	\$251,188
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All Healthy Neighborhoods Energy Efficiency Project Measures

Estimated Annual Energy Savings (KWH)	722,154
Estimated Annual Energy Savings (Therms)	30,509
Estimated Annual Cost Savings	\$131,200
Installed Cost	\$1,197,257
Estimated Simple Payback (years)	9.1

Healthy Neighborhoods and its nonprofit partners each have a mission to use their limited resources to help people in need. The public/private partnership that supported this project—which links the nonprofits and the City in a common effort to improve building performance and occupant comfort—has emerged as a strong team that maximizes the impact of each organization’s contribution and delivers results for Baltimore.