

U.S. DEPARTMENT OF
ENERGY

Office of
**ENERGY EFFICIENCY &
RENEWABLE ENERGY**



Energize Connecticut: On-the-spot upgrades help households reduce energy use immediately

In 2021, John and Mary DiIulio, residents of southern Connecticut, reached out to their utility, United Illuminating, seeking energy efficiency improvements to their 95-year-old home. When technicians arrived to assess their home's efficiency, they performed a number of on-the-spot weatherization services. They wrapped hot water pipes with insulation, manually sealed ducts, and replaced incandescent light bulbs with LEDs. They also sealed air leaks to the outside.

The DiIulios took advantage of Home Energy Solutions, a Home



Homeowner John DiIulio meets with an auditor from Home Energy Solutions to discuss possible energy upgrades to his 95-year-old home.

Performance with Energy Star program available through Energize Connecticut. This state-wide initiative helps Connecticut customers save money and use clean energy by leveraging funding through a charge on customer energy bills. Energize Connecticut is an initiative of the Energy Efficiency Fund, the Connecticut Green Bank, and the State and is jointly administered by local electric and gas utilities.

One of the notable aspects of the Home Energy Solutions program is that auditors install upgrades during the initial visit. This ensures that

the household receives, at minimum, the benefits of basic improvements such as duct sealing. Other measures often installed during the initial visit include air sealing, the installation of aerators and low-flow showerheads, LED lighting (for income eligible customers only), and hot water pipe insulation. The average value of these upgrades is \$1,000; as a result, customers enjoy \$200 or more in annual energy bill savings.

This program is helping Connecticut reach its statewide goal of weatherizing 80 percent of the state's homes by 2030. To reach as many

Home Performance with ENERGY STAR®

is a national program that relies on utilities and energy agencies (Sponsors) and their network of specially trained home performance contractors to offer energy efficiency improvements that reduce energy bills and provide cleaner air and more comfortable temperatures inside the home. Common upgrades include adding insulation, sealing air leaks, and replacing inefficient cooling and heating systems. More than one million homeowners have participated in the program since it began in 2001, with each saving an average of \$500 a year in energy bills.



**Home Energy Score
was helpful because
it showed where we
could do something.
It pointed us in
the right direction
in terms of what
recommendations
made sense."**

Connecticut homeowner

Health and safety, too

During the initial visit, auditors also perform a health and safety evaluation. In addition to testing for carbon monoxide, combustible gas and combustion appliance safety, they may inspect the home for mold, lead, vermiculite, and materials containing asbestos.

Health and safety issues may prevent or delay energy efficiency measures; for example, air sealing cannot be performed in a home with a gas leak or elevated carbon monoxide levels, as it puts occupants at further risk. In fact, an estimated 25 to 30 percent of homes in Connecticut have a health or safety issue that prevents energy efficiency work from going forward. The problem is greater for low-income households, who tend to live in older homes and those with deferred maintenance.

For this reason, the governor's office, the Connecticut Department of Health, and several stakeholder groups developed the Weatherization Barriers Remediation Program, which launched in June of 2022. This program covers the cost of remediating hazardous conditions for up to 1,000 income-eligible households over the next three years. Households will be selected from a list of 20,000 homes which have not been able to participate in Connecticut's energy efficiency programs because of unaddressed health and safety issues.

"This is a massive step forward in equity for our programs, improving both housing and quality of living in Connecticut," says Tanya Mulholland, Home Energy Solutions – Income Eligible Program Manager at Avangrid, which owns and operates some of the state's utilities.

households as possible, any residential customer in the state can participate in Home Energy Solutions and the initial audit costs just \$50; the audit is free for customers who are income-eligible, whether they rent or own their home. Households with a combined gross income below the state's 60 percent income median, qualify.

Incentives to do more

At the end of every initial Home Energy Solutions visit, the technician generates a report describing the work that was performed on the spot and recommendations for further energy improvements, estimated incentives, payback, and local financing options. The homeowner also receives a Home Energy Score, free of charge. This tool, developed by the Department of Energy, helps homeowners evaluate their home's energy use by comparing it to others. Homes are ranked on a scale from 1 to 10; the higher the score, the more efficient the home.

The auditor discusses the report and the Home Energy Score with the homeowner, explaining how they can take advantage of incentives through Energize Connecticut to implement the recommended upgrades, which may include such measures as installing "smart" thermostats, adding insulation, upgrading the home's HVAC equipment or water heater, and replacing windows and appliances.

Energize Connecticut offers a full suite of incentives to customers who want to pursue further energy upgrades. The insulation rebate, for example, can be used to insulate attics, basements, walls, garages, and/or rim joists; it currently pays up to \$1.70 per square foot or 75 percent of the project cost, whichever is less, with a cap of \$10,000. Insulation is covered at 100 percent for income-eligible customers.

Following their initial audit, the Diullios moved forward with additional measures. On a subsequent visit, technicians insulated the basement ceiling, which serves as the thermal boundary between the home and the unconditioned basement. They also performed additional duct sealing



Common energy upgrades implemented through Home Energy Solutions include adding or enhancing insulation and air sealing.



A blower door test helps evaluate a home's air tightness and is an important part of the initial assessment.

and replaced the natural gas water heater with an ENERGY STAR model. Altogether, these improvements should reduce the family's annual energy bills by over \$1,400.

Based on the technician's recommendations, the Diullios may choose to further enhance their home's energy envelope by insulating their attic. They have also received a rebate for a new ENERGY STAR-certified refrigerator.

Tracking progress

In 2022, the Home Energy Solutions program was revamped so that homeowners may also receive a free final Home Energy Score once one or more of the recommended measures are implemented. This way, homeowners can track their progress.

"The goal of Home Energy Solutions is for a customer's energy efficiency journey not to end at the in-home weatherization assessment and service," says John Karyczak, the Home Energy Solutions Program Manager at Avangrid. "The Final Home Energy Score can be used as a tool to increase the number of customers that install deeper saving measures like insulation, windows, and HVAC equipment."

After the initial audit, the participating utility sends regular reminders to the customer, encouraging them to schedule any recommended upgrades. Once these are complete, their Home Energy Solutions contractor or a utility inspector calculates a final Home Energy Score.

In addition to helping them save energy, Home Energy Solutions provides customers with a greater sense of "energy literacy" following the audit, says Karyczak. "The value proposition for the customer should

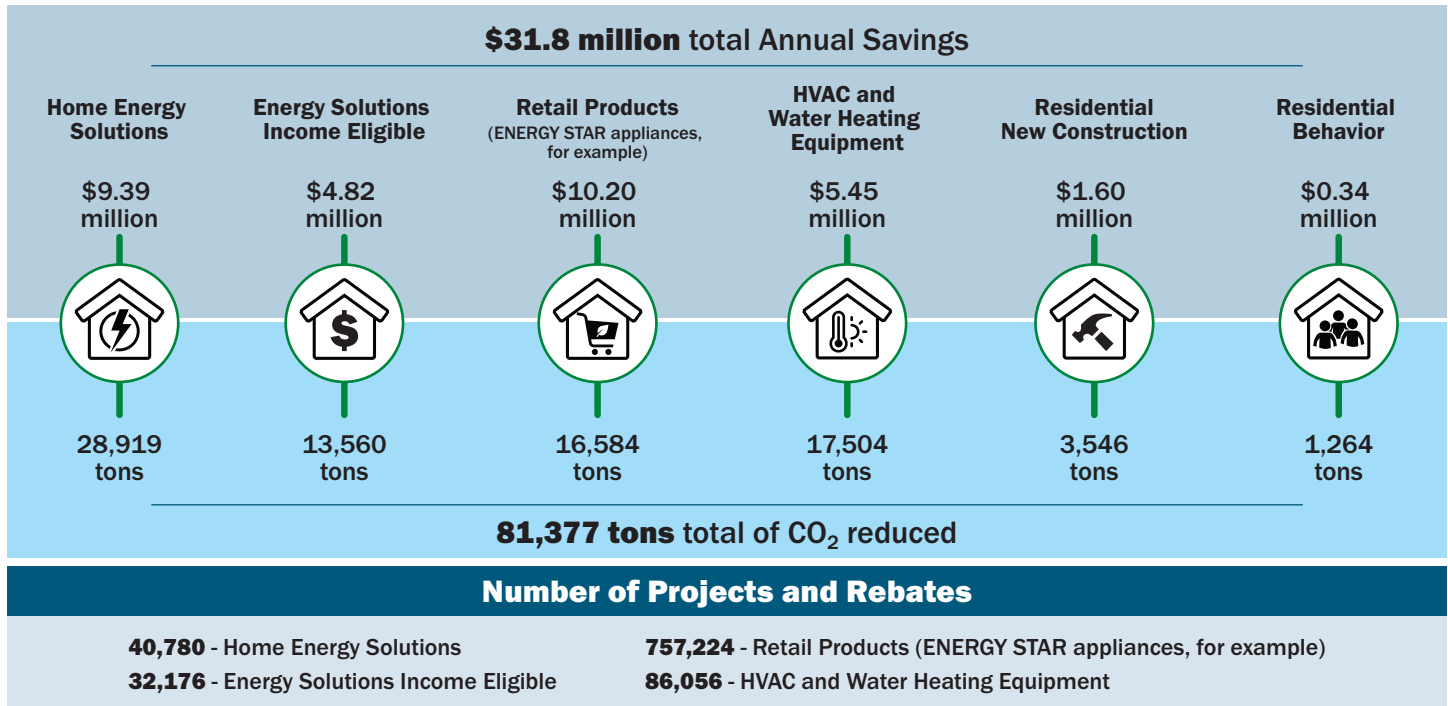
Streamlining Approvals

Home Energy Solutions has developed a Low-Income Qualification Tool to make it easier for low-income households to take advantage of the program. Contractors can use this GIS-based mapping tool to identify and pre-qualify customers who live within distressed Census tracts or who are signed up for Hardship programs. Such customers can register for the Home Energy Solutions – Income Eligible program without having to provide back-up documentation, thus streamlining the process. A recently developed search feature helps contractors identify customers who have previously applied for the Home Energy Solutions – Income Eligible program so they can pre-verify them for weatherization services and deeper saving measures like insulation and HVAC equipment.

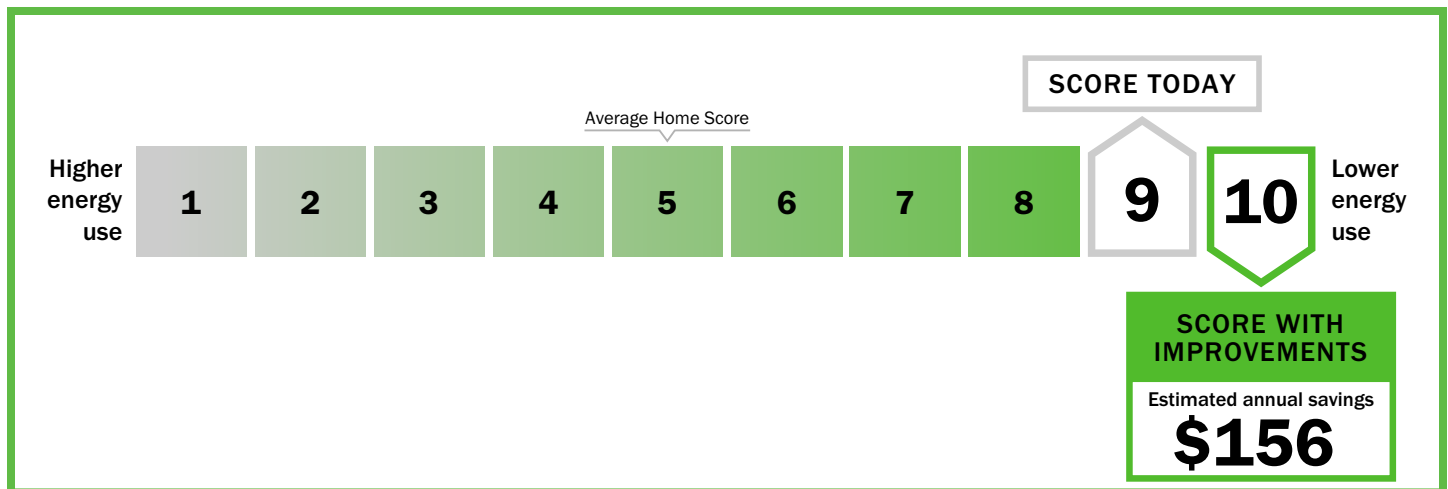
Energize Connecticut by the numbers:

Energize Connecticut 2021 Residential Programs

Number of customers engaged (all residential programs) - **987,877** | Total Lifetime Savings - **\$409.2 million**



Sample Home Energy Score

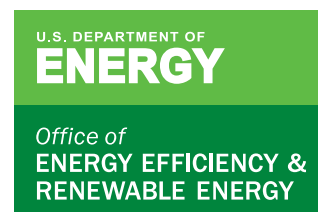


When Home Energy Scores are calculated before and after upgrades, homeowners can track how much energy the upgrades are estimated to save.

not stop at weatherization,” he adds. “Using the Home Energy Score allows assessors to provide this simple-to-understand way to educate customers about energy efficiency specific to their home.”

Energize Connecticut has been recognized as a leader in using Home

Energy Scores to help inform efforts to upgrade homes. In 2021, Energize Connecticut completed the most Home Energy Scores of any participating partner. As of June 2022, Energize Connecticut had completed more than 45,000 Home Energy Scores. ■



For more information, visit:
<https://www.energy.gov/eere/buildings/home-performance-energy-star>

DOE-EE-2693 • February 2023