NEW ECOLOGY

ENERGIZE DELAWARE
Multifamily Housing
Energy Checkups and Funding

Carrington Way Apartments

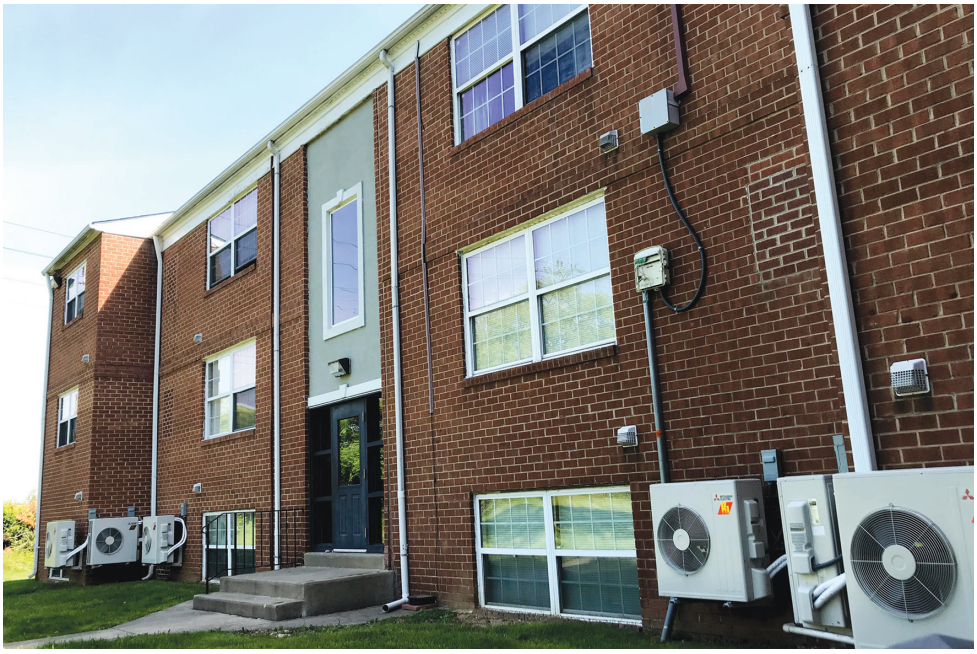
Location: Newark, DE • *Size:* 15 Buildings comprised of 165 units •
Owner: The Capital Realty Group

PROJECT BACKGROUND

Carrington Way is an affordable, 165-unit multifamily apartment complex located in Newark, Delaware. By 2020, the nearly 50 year-old development was showing its age and in desperate need of some energy efficient upgrades. The owner, Capital Realty Group, enrolled the complex in the Existing Building pathway of the Energize Delaware Affordable Multifamily Housing Program, an initiative of the Delaware Sustainable Energy Utility (DESEU). Their goal was to identify cost-effective energy and water efficiency upgrades and evaluate feasible renewable and clean energy systems, while reducing maintenance requirements.

PROJECT SAVINGS

- 57% energy use reduction
- 48% carbon emissions reduction*
- 38% water use reduction



*Carbon emissions calculated using the National Renewable Energy Laboratory (NREL) Cambium's data (Electric) 2022 NREL Cambium Dataset - LRMER; NEWE Grid - Mid-case w/ 95% Decarbonization by 2050 Combustion + Precombustion.

As the administrator of the program, New Ecology, Inc. (NEI) conducted an ASHRAE level II energy audit to identify upgrade and savings opportunities, which were then implemented through the Program. Throughout the process, NEI provided project management, which included: project scoping and bidding management, contractor submittals, technical assistance, construction support and oversight, and post-construction on-site staff training.

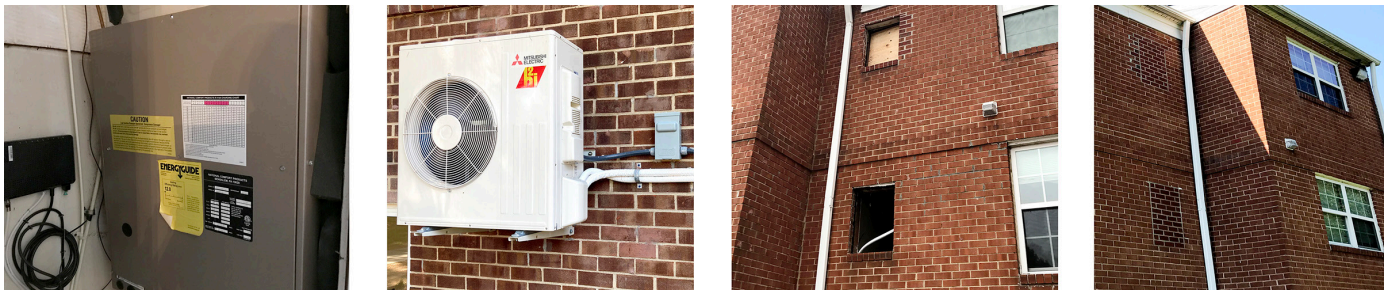
Thanks to the Energize Delaware program, the cost of upgrading multiple energy and water consuming systems in the apartment complex was subsidized by a $445,000 rebate to the owners. The upgrade and rebate assistance through DESEU were a major factor in enabling their ability to extend the affordability status of the complex, as they recently submitted a twenty-year extension to their Housing Assistance Payments Contract (HAP) contract with the US Deptartment of Housing and Urban Development (HUD).

SOLUTIONS AND FEATURES

The subsidies for energy and water efficiency upgrades, which greatly lowered operating costs, fostered the ability to extend affordability and retain HUD status for another 20 years.

- End-of-life gas-fired central boilers with DHW (domestic hot water) coils were removed, and replaced with new in-unit high-efficiency air source heat pumps which distribute ducted heating and cooling via EC fan motors. The variable speed split systems achieve up to 19 SEER and 11 HSPF.
- New high-efficiency gas-fired condensing storage hot water heaters and thermostatic mixing valves were installed to serve each building with domestic hot water, and existing piping was insulated.
- Attic air sealing and insulating, along with in-unit air sealing, were performed to reduce drafts, and new bathroom exhaust fans, ducting and dampers were installed to promote improved indoor air quality.
- New LED lighting was installed in each unit, and occupancy controls were installed in common areas which already utilized LED fixtures.
- New ultra low-flow toilets and water-conserving aerators and showerheads were installed throughout the residential buildings.

BEFORE **AFTER** **BEFORE** **AFTER**



BEFORE AND AFTER: Aging condensing units were replaced with exterior, wall-mounted heat pumps. The abandoned wall penetrations were fully insulated and finished with brick.

New Ecology analyzed the property's utility data consumption more than 12 months after the upgrade. As a result of these upgrades, water consumption decreased 42%; gas consumption decreased 78%; and electricity consumption increased 1%. In terms of utility costs, the property's water bills decreased 38%; gas bills decreased 78%; the owner's electricity bills decreased 0.8% and residents' utility bills increased 0.7% with a combined electricity cost penalty of 0.5%. For residents, this increase amounts to about $0.46 per unit per month. The property's EUI went from 83 to 36, a 57% reduction; and operating carbon emissions decreased 48% from 5.2 kg CO2e / sf to 2.7.