



Case Study:  
Princeton Village Apartments,  
Princeton, WV

Community Housing Partners (CHP) Energy Solutions, Program Administrator

Appalachian Power TakeCharge Virginia Low-Income Multifamily Program

Rob's Heat & Air, subcontractor

Trane, equipment partner

**\$343,155**

Total Value of  
Upgrades

**\$32,375**

Estimated  
Annual Savings

**239,639**

Annual kWh  
Savings

## The Property

Princeton Village Apartments is a 105-unit low-rise, townhouse style income-qualifying multifamily property in Princeton, West Virginia, the county seat of Mercer County. The complex, built in 1982, spans 11 wood frame buildings with a designated heat pump for each individually metered unit and electric resistance water heaters. The low-income, elderly, and special needs residents qualify for HUD Section 8 project-based rental assistance. Residents receive utility allowances and pay approximately 30% their adjusted income on rent and utilities. The property is owned by Dalcour Management.

## High Efficiency Heat Pumps Improve Comfort, Save Money

With an average age of 19 years, and several as old as 40 years, the aging heat pumps at Princeton Village had not only declined in performance but were not ever capable of performing to the high efficiency standards of today. Updating the old 11 SEER heat pumps with new high-efficiency 16 SEER units realized significant energy and utility cost savings and increased comfort for the residents.

74 units were replaced through the [Appalachian Power TakeCharge Virginia Low-Income Multifamily Program](#) which allows for HVAC replacement and maintenance. We partnered with [Trane](#) to procure the heat pumps in bulk and contracted with Rob's Heat & Air of Princeton, WV for installation. Since this is the first CHP multifamily project in West Virginia, it was especially rewarding to work with a local HVAC vendor, bringing even more benefit to the local community.

In addition to the heat pumps, Appalachian Power's TakeCharge Virginia Low-Income Multifamily Program also covered water heater and pipe insulation, LED bulbs and low-flow faucet aerators and showerheads.

"The HVAC contractor and CHP weatherization crew were very friendly and helpful. They also explained everything they were doing.

And now my air conditioning cools quickly, and my home is much more comfortable. I already liked living here at Princeton Village and now I love it!"

— Becky, Princeton Village resident



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The heat pump replacements and other efficiency upgrades resulted in an overall annual savings of 239,639 kWh worth \$32,375 (\$308 per unit). Residents pay a fixed amount of their adjusted income on rent and utilities at a HUD property like Princeton Village. Savings realized through energy efficiency upgrades means more funds for deferred maintenance and resident services, improving long term sustainability and quality of life at the property.

## Scope of Work

### Heating & Cooling

#### Heat Pump Replacements

- 74 units older than 10 years, or less than 11 SEER, were upgraded to Trane 16 SEER, 9.6 HSPF units.

### Baseload

Water Heater Insulation Blankets – all units

Hot Water Pipe Insulation

LED Lightbulbs

Low-Flow Faucet Aerators

Low-Flow Showerheads

### Health & Safety

All 105 units were assessed for health and safety, including indoor air quality issues and other hazards.

## The Process

All CHP Energy Solutions projects start with a 12-point Health & Safety Assessment. Assessments were conducted on all 105 units to ensure no hazards were present and to identify other issues that can affect indoor air quality like broken exhaust fans. CHP Energy Solutions then conducted diagnostic energy audits on 5 units. After assessments and diagnostics, the installation work began in phases that allowed for minimal disruption to residents. CHP Energy Solutions crews organized their pipe insulation, bulb, and low-flow fixture work so that they only needed to access the apartment once for these installs. The new air handlers are larger than those replaced and larger access for these inside units was cut into the drywall in the apartments. Communication with the property manager and residents was a top priority to ensure residents were fully informed as to when crew would be in their living space, what they would be doing and why.

“When first contacted by CHP Energy Solutions the property owner and I were skeptical at what they told us could be completed at the property. But we stayed the course, and it was the best thing we have ever been a part of! The entire CHP staff and crew made every effort to accommodate us. Our tenants are more than grateful to for the 74 brand new Trane heating and cooling systems. They are already saving substantial money and are forever grateful.”

— Nick Reichard, Princeton Village Property Manager

