## **Retrofitting Multifamily Buildings: A Sustainable Model for Energy Savings**

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## Introduction

Energy efficiency upgrades in multifamily residential buildings could save building owners and residents up to \$3.4 billion and reduce energy use and greenhouse gas emissions significantly. However, this market is both underserved by utility energy efficiency programs, which traditionally focus on the single family market; and difficult to serve due to barriers faced by building owners. These barriers include obtaining accurate information about effective measures, difficulty in finding qualified contractors, and access to financing. The impact of high energy costs is especially acute in low/moderate income housing, where higher energy prices can increase operating expenses to the extent that this housing is no longer affordable.

## **The Program Design**

This poster presents CNT Energy's residential retrofit program, which has evaluated and rehabbed over 12,000 multifamily housing units, achieving natural gas savings of more than 3,034,320 therms, electricity saving of more than 8,217,950 kilowatt hours, and 17,607 metric tons of CO2. A key component of the program's success is collaboration with a mortgage lender. This combination of technical assistance and financing offers building owners a one-stop shop solution for installing energy efficiency upgrades.

The program design includes verification of energy savings by utility bill analysis. Baseline energy use is calculated pre-retrofit, then monitored for two years following the measure installation. If projected energy savings (estimated from the measures that were installed) are not achieved, CNT Energy performs a "tune-up" to investigate possible causes for the discrepancy and facilitate solutions.

## Findings

The energy savings of the retrofit buildings were recently verified by an independent third-party reviewer. This study found that on average, buildings that completed energy efficiency upgrades through the program saved 20 percent on natural gas use, with savings increasing to 26 percent during the heating season months of November through March, measured against comparable buildings that did not make efficiency improvements. The process of verifying metrics is emerging as a priority as Chicago establishes building performance benchmarking.

CNT Energy's program is grounded in technical assistance, including building assessment, construction management, oversight, and coordination of utility rebates. It also requires expertise in softer skills. For example, a prerequisite for a successful program is buy-in by building owners. An ongoing program challenge is to convince building owners to invest in work such as air sealing and insulation, as opposed to more visible and cosmetically appealing improvements such as new window installation. Other upgrades have a social engineering aspect; i.e. retraining the maintenance staff to use new temperature monitoring equipment to balance a building's steam heat, instead of overheating to prevent resident complaints.

The CNT Energy multifamily retrofit program is a proven and sustainable model for performancebased energy efficiency programs.