CLEVELAND HOUSING AUTHORITY: IMPLEMENTING AN ENERGY PERFORMANCE CONTRACT IN PUBLIC HOUSING

SOLUTION OVERVIEW
High energy costs in multifamily housing make it difficult to sustain affordable rental housing for low-income families. Utility costs are the largest variable operating expense for affordable multifamily buildings. Reducing operating expenses in these buildings helps maintain affordability, and frees up capital that can be used toward maintenance repair needs or resident services.

Cleveland Housing Authority (CHA) manages a portfolio of 420 apartments across 14 locations in Cleveland, Tennessee. To secure financing for energy and water efficiency retrofit measures, CHA initiated an Energy Performance Contract (EPC) through the U.S. Department of Housing & Urban Development’s (HUD’s) EPC program. Once approved by HUD, CHA used EPC funds to implement a series of measures to improve the energy and water efficiency of its portfolio, leading to a direct reduction in overall utility expenses and creating cost savings for CHA’s low-income residents. These improvements led to resident utility savings of over $486,800.

ORGANIZATION TYPE
Public Housing Authority

BARRIER
A lack of finances prevented retrofits on a portfolio-wide scale as well as the capacity needed to work with all partners involved.

SOLUTION
CHA applied for participation in HUD’s Energy Performance Contracting program, which allows PHAs to partner with an ESCO for the procurement and installation of energy and water saving measures.

OUTCOME
CHA partnered with an ESCO and performed energy and water efficiency upgrades across their portfolio, resulting in over $480,000 in cost savings to residents.

For more information, visit https://betterbuildingssolutioncenter.energy.gov
PROCESS
In 2015 CHA began exploring options for an Energy Performance Contract, a financing technique that uses future utility cost savings from the installation of energy and water conservation improvements to repay the costs of the installation. In late 2016 CHA received HUD approval for a portfolio-wide EPC, and joined the Better Buildings Challenge to pledge a 20% reduction in energy consumption within 10 years.

CHA’s first step in this process was to convert all its public housing units from owner-paid to tenant-paid utilities. To do this CHA implemented an “Interim Rent Adjustment” for each tenant, allowing them to receive a reduction in their monthly rent amount equal to the utility allowance for their unit. Over a 12-month period, CHA staff met with each tenant to explain the rent adjustment and provide education on energy- and cost-saving resident best practices.

Completing HUD’s EPC application process required outside help, as CHA did not have the internal capacity. They applied for and received technical assistance via a grant from the State of Tennessee’s Department of Environment & Conservation. Completing the EPC application involved the following steps:

- Conducted investment grade energy audits for the entire portfolio
- Identified cost effective Energy Conservation Measures (ECMs)
- Calculated savings
- Identified a metering method
- Identified a verification method
- Established a baseline for energy and water consumption data
- Demonstrated cost reasonableness
- Submitted plans for financing the work
- Solicited an Energy Services Company (ESCO)
- Submitted the complete package to HUD for review and approval

Once HUD approved the EPC application, CHA sent out a Request for Proposal (RFP) for a qualified ESCO to measure, design, and install ECMs in all of CHA’s public housing units to guarantee energy and water cost savings that would support repayment of loan products. CHA selected Johnson Controls, Inc. (JCI), a Better Plants Challenge Goal Achiever in 2017.

JCI and CHA conducted surveys sampling each construction style and bedroom size among the apartments in CHA’s portfolio. The survey results identified and evaluated existing equipment to determine replacement needs, providing the basis to plan appropriate retrofit measures. ECMs included:

- Installing 14 SEER HVAC systems in all apartments
- Installing LED exterior/interior lighting
- Installing high-efficiency water heaters
- Replacing appliances with ENERGY STAR® appliances
- Air-sealing building envelopes
- Installing low-flow toilets, faucets, and shower aerators
- Resident energy conservation education
HUD requires annual Monitoring and Verification (M&V) reports which track cumulative consumption and resulting cost savings based on existing utility rates for the reporting period. CHA & JCI worked with the local utility to obtain the consumption data for M&V reporting.

FINANCING
A key advantage of HUD’s EPC program is access to HUD’s EPC incentives, which allows PHAs to retain 100% of the savings over the life of the contract. Without an EPC, HUD would recapture any savings through reduced operating subsidies after three years. These incentives allow utility savings to be used in place of capital funds to finance energy improvements. CHA used two EPC incentives: the Resident-Paid Utility Incentive and the Add-On Subsidy Incentive.

- Resident Paid Utility Incentive: This incentive allows public housing authorities (PHAs) to include resident-paid utilities under their consumption reduction incentive. The PHA must use at least 75% of the project’s annual projected cost savings to finance the cost of the improvement.
- Add-On Subsidy: The Additional Operating Subsidy, or “Add-On” Incentive, is an increase in total operating subsidy eligibility provided by HUD as a conservation incentive.

CHA used both of these incentives to leverage construction funding in the form of tax-exempt loans through Tennessee’s Community Investment Tax Credit (CITC) Program. The total project cost was $2.3 million, funded in two portions: $1.9 million through CITC and the remainder through a traditional tax-exempt loan. No CHA funds or other financing were used for the project.

OUTREACH
As part of CHA’s leasing protocol, all residents were informed of the ECM improvements and the opportunity for energy and water savings on their utility bills. JCI, in collaboration with CHA, provided tenant education events that announced the goals for the project as well as specific training on how to best use new appliances and promote energy- and water-saving habits in resident’s daily routines.

MEASURING SUCCESS
Energy Use Intensity (kBtus/square foot) and cost data for the reporting period are compared to baseline data to identify savings achieved. Any anomalies that indicate consumption problems are investigated and result in a site visit and follow up to determine the need for equipment repair or adjustment and/or resident education. CHA includes equipment checks as part of monthly inspections and routine preventative maintenance.

OUTCOMES
The EPC has been in place since January 1, 2019. CHA achieved a 21% EUI reduction against its 2016 baseline, becoming a Goal Achiever in the Better Buildings Challenge in 2020. The first-year results showed resident-paid utility savings of $238,500 and the second-year results showed savings of $248,295, for a total savings to date of $486,795.