

Energy Upgrades and Enhancements (MA007) New Bedford HA

Beginning in 2012, New Bedford Housing Authority (NBHA) underwent a site-wide array of infrastructure retrofits and upgrades designed to make NBHA more energy-efficient, cost-effective and environmentally-friendly PHA. Through various funding sources, the NBHA is undertaking the largest energy performance upgrade in the organization's seventy-five year history.

The total value of the energy performance program was \$3.7 million of which \$1.8 million was spent in the Federal developments and \$1.9 million was spent in our State developments.

Most of the Authority's forty-six housing developments, totaling more than 2,500 units, received energy efficiency upgrades under the energy performance program. Some of the measures completed comprised of the following:

- Photo voltaic panels were installed on twelve buildings at our Bay Village site and twelve buildings at our Westlawn development thereby producing our own power too two of our largest developments. These PV solar systems were funded through two Capital Fund Recovery Competition (CFRC) grants totaling more than \$2.4 million dollars. The installations were completed in September 2011 and greatly contributed to reducing annual energy consumption by 35% in 2012, as well as reducing their carbon footprint by more than 200 tons of CO₂ per year.
- Replacement of existing heating systems with new high-efficiency condensing gas boilers, rated at 96.4% efficiency. These systems were installed at Fillmore Street, Shawmut Avenue, Richmond Street, Loftus Street and Church Street.
- A new solar hot water system was installed at Harwich Manor. The system uses solar power to pre-heat hot water for domestic use.
- The Authority received funding from the Low Income Energy Affordability Network (LEAN) to install three micro combined heat and power units. These units were placed in three state-funded duplexes replacing twenty-four year old furnaces. This LEAN funded project cost approximately \$105,000 to complete.
- Two developments received three ultra-efficient micro-CHP systems again thanks to funding LEAN. The units installed are ECR free watt Micro-CHP systems, a furnace combined with a generator that produces heat with byproducts of electricity. The brand model won the 2011 EPA Energy Star Emerging Technology Award. These micro-CHP systems operate at 90% efficiency and reduce an average-sized home's annual environmental impact by 3 tons of CO₂ emissions.

- Building envelope restoration and weather-stripping of all windows and doors reducing air leakage; increased insulation in walls, attics, basements and new distribution ducts at many developments.
- Improved building ventilation systems with new clothes dryer transition ducts and new exhaust fans for bathrooms.
- Under the Low Income Multi-Family (LIMF) Program, the program supplied and installed at no cost to the Authority interior compact florescent light bulbs in tenant-owned light fixtures. A total of 9,699 were installed at a material cost savings to the NBHA of \$47,331. More importantly, CFL bulbs use about 75% less energy than standard incandescent bulbs and last up to ten times longer. Buildings with common interior hallways and offices received new energy efficient light fixtures and bulbs that are controlled by motion sensors. The fixtures operate at a low stand-by level with full light output instantly with any motion. This work was completed with funding from the LIMF Program as well for a total material savings of \$168,935.
- All 934 existing high pressure sodium exterior lights were replaced with new Light Emitting Diode (LED) fixtures. The cost of each fixture was \$369 resulting in a savings of \$344,646. These lights were also supplied and installed by the LIMF Program.
- To date, 240 refrigerators have been replaced with Energy Star Frigidaire models. These refrigerators were supplied and installed through the LIMF Program saving the Authority over \$125,000 not including the utility cost savings.
- The Authority upgraded to more water-efficient toilets in hundreds of their units. Many of our units still had 3.0 GPF toilets so this upgrade will see a substantial savings in water costs. As part of our Energy Performance Contract, all units were installed with energy efficient aerators and showerheads substantially reducing water usage as well.
- In 2011, the Housing Authority began an aggressive recycling program by installing over 215 large papers and plastic recycling totes throughout our developments. Through a comprehensive education program, the tenants have overwhelmingly adopted the recycling program thereby reducing enormously our waste into the City landfill.

As a result of these upgrades, from 2011 to 2012, our State developments have reduced electrical costs by 9% (6.2% decrease in consumption) and natural gas costs by 13% (12.9% decrease in gas consumption), saving over \$284,000. The Federal developments reduced their electricity costs by 17% (9.8% decrease in consumption) and 13% less gas (10.8% decreases in consumption) in 2012, a savings of almost \$882,000.

All components of our energy performance program have met HUD's criteria under its Energy Action Plan for conserving development energy usage, reducing waste emissions, and improving building design. We hope the future will bring more opportunities to modernize our

developments, expand our renewable and co-generative capabilities, and further integrate sustainable initiatives into all our operations.

Excellent Job New Bedford!!