



## **Housing Authority of the City of Newark - Energy Conservation Program**

### **Energy Conservation Program**

On March 31, 2011, the Authority executed a water and energy services agreement with CLT Efficient Technologies, d/b/a Constellation Energy Projects & Services, NJ (“Constellation Energy”) to implement a comprehensive energy management and energy improvement program<sup>1</sup> through a guaranteed energy performance contract (“EPC”). The project is designed to produce energy and cost savings generated through energy conservation measures installed at various public housing sites. On October 15, 2011, the Authority closed on the project financing (the “Loan”), the proceeds of which were used to pay project costs, including energy conservation measure design, acquisition and installation costs (“Phase I”). The financing is expected to be repaid exclusively from operating subsidy allocated to the Authority based on the operational cost savings generated after the installation of the energy conservation equipment. An added feature of the project is that performance of the equipment and the potential consumption savings are being guaranteed by the contractor, Constellation Energy, which is added assurance that the project equipment will achieve the consumption savings projected over the 15 year contract term.

In May 2013, the Authority took steps to refinance its Loan. The Loan was refinanced with a lower interest rate loan which produced savings. The fund realized from such savings allowed the Authority to incorporate additional work into its energy conservation program and increase program savings throughout the term of its guaranteed energy performance contract with Constellation Energy. The additional scope of work included new boilers at a family site and new windows at three (3) senior hi-rise buildings (“Phase IA”).

The Phase I and Phase IA (“Combine Phase I”) project is currently exceeding the expected annual guaranteed cost savings and, as a result, the Authority is implementing a Phase II project (“Phase II”). In July 2015, the U.S. Department of Housing & Urban Development approved the Authority’s Phase II energy improvement program utilizing the excess savings generated by the Combined Phase I project. The Authority negotiated an Amendment #3 to its Water and Energy Services agreement with Constellation Energy to incorporate other energy conservations measures that were not a part of the Combined Phase I scope of work.

### **Energy Conservation Measures**

The Combined Phase I project included lighting conservation measures (hallways, apartments, common space), water conservation measures (toilets, showerheads, aerators), building automation controls to better manage and monitor various building systems, energy saving windows/patio doors and blinds, decentralization of the boiler and domestic hot water system for a development with 353 units in 27 buildings, construction of five (5) co-generation plants to service three (3) developments consisting of seven (7) hi-rise buildings totaling 924 units (co-generation plants use natural gas to produce both heat for domestic hot water and electricity for the buildings), two (2) new boilers at a large 3-story walk-up residential site with 227 units, and new windows, patio doors and blinds for three senior hi-rise buildings totaling 280 units.

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<sup>1</sup> Additional information relating to the Authority’s Energy Conservation Program, including a full copy of the Authority’s Energy Conservation Program Plan, is available at the offices of the Authority located at 500 Broad Street, Newark, NJ. The additional information, includes, but is not limited to: 1) results of the energy audit; 2) costs of the energy conservation measures, 2) the projected energy savings including calculations; 3) a description of Program energy conservation measures; 4) a description of the energy services guarantee associated with the Program.

The Phase II project will include, but is not limited to, the following scope of work: new boilers at town homes including piping insulation; new windows and patio doors at three (3) senior hi-rise buildings totaling 834 units; steam traps and radiator valve replacements at various sites; insulation of steam pipes at various sites; roof replacements, repair to ventilation and storm drainage systems at various sites; solar panel installation; wind turbine installation; new heating, ventilation, air-conditioning, cooling systems and conversion of a boiler and heating system from electric to gas at a 15-story, 206 unit, senior hi-rise building.

## **Energy Project Snapshot**

### **Energy Service Company (ESCO)**

CLT Efficient Technologies dba Constellation Energy Project & Services New Jersey (CEPS)

### **Project Cost**

Combined Phase I - \$52,182,502

Phase II - \$84,000,000

**Total - \$136,182,502**

**Total Project Guaranteed Cost Savings - \$219,952,835**

**Residential Sites** – Family, Hi-Rise and Townhomes (34 different communities) affecting 414 buildings, 10,724 residents and 6,275 homes.

**Equipment Useful Life Cycle is up to 25 years.**

### **Environmental Impact**

Due to the reduction in electric and fossil fuel consumption associated with Combined Phase I and Phase II this project will minimize the creation of pollutants. The estimated annual impact is summarized below and translated into concrete terms:

	<b>Electricity kWh Reduction</b>	<b>Natural Gas CCF Reduction</b>	<b>Total Combined Reduction</b>
<b>Phase I Project</b>	7,761,975	1,788,466	
<b>Phase II Project</b>	2,748,018	562,478	
<b>Totals</b>	<b>10,509,993</b>	<b>2,350,944</b>	
<b>Metric Tons of Green House Gas Emissions</b>	7,247	12,814	20,061
<b>Green House Gas Emissions Equivalent to Reducing</b>			
Passenger Vehicles Driven for a Year	1,526	2,698	4,224
Miles Driven by an Average Passenger Vehicle	17,255,181	30,508,844	47,764,025
Tons of waste sent to a landfill	2,598	4,593	7,191
Garbage trucks of waste recycled instead of landfilled.	371	657	1,028

### Co<sub>2</sub> Emissions Equivalent to Reducing

Gallons of gasoline consumed	815,481	1,441,849	2,257,330
Pounds of coal burned	7,784,292	13,763,388	21,547,680
Tanker trucks worth of gasoline	96	170	266
Homes energy use for one year	661	1,169	1,830
Wind turbines installed	2	4	6
Homes electricity use for one year	997	1,763	2,760
Railcars worth of coal burned	39	69	108
Incandescent lamps switched to CFLs	189,568	335,174	524,742
Barrels of oil consumed	16,854	29,799	46,653
Propane cylinders used for home barbeques	301,966	533,905	835,871
Coal fired power plants in one year	0.002	0.003	0
<b>Carbon sequestered by</b>			
Tree seedlings grown for 10 years	185,825	328,557	514,382
Acres of U.S forests in one year	5,940	10,503	16,443
Acres of U.S. forests conserved from	56	99	155