

CITY OF PHILADELPHIA

CASE STUDY:

**COST-SAVINGS FROM SOLAR-POWERED COMPACTORS FOR
TRASH AND RECYCLING**

**Impacts of Solar-Powered Trash Compactors, Companion Recycling Units and
Wireless Notification Technology on Operating Costs, Fuel Consumption and
Vehicle Emissions in Center City Philadelphia**



Inaugural Report

June 2009

Executive Summary

On April 30, 2009, Mayor Michael Nutter unveiled the first of 500 solar-powered trash compactors and 210 companion single-stream recycling units to be installed throughout Center City Philadelphia. The City had been making 17 trips each week to empty 700 wire baskets throughout Center City, at an annual cost of about \$2.3 million. After replacing those 700 receptacles with 500 solar-powered compactors and 210 recycling units, the City collects only 5 times a week, at an annual operating cost of about \$720,000 – representing a 70% savings. Performing those 17 collections each week required 33 workers on 3 shifts, while performing the 5 collections per week under the new program requires only 9 workers on a single shift. The other workers have been re-assigned to other, more productive tasks. The deployment plan was a comprehensive package including a 3-year financing program, a 4-year extended warranty and service plan, and a wireless monitoring system on all 500 units.

Highlights of the program include:

- Immediate savings: By entering into a 3-year financing arrangement, the City has no up-front capital cost and will realize collection cost savings in the first year of approximately \$850,000.
- Ongoing savings: The City will save nearly \$13 million in cumulative collection cost savings over the next 10 years, net of the equipment cost.
- Annual operating cost reduction of 70 percent: compaction reduces collection demand, which directly reduces operating costs and associated vehicle fuel use and emissions.

	Before	After	Savings
Collection frequency	17/week	5/week	12/week (70%)
Annual operating cost	\$2,300,000	\$720,000	\$1,580,000 (70%)
Cumulative 10-year cost	\$23 million	\$10 million	\$13 million (70%)

In conjunction with the installation of the solar-powered trash compactors, the City introduced public space recycling for the very first time in Philadelphia. Mayor Nutter has launched a major public relations and neighborhood education campaign called "Philly Throws Green" with a (www.phillythrowsgreen.org). This program is part of the Mayor's broader initiative called "Greenworks Philadelphia" (www.greenworksphila.org), the new comprehensive sustainability framework designed to help the City meet its proclaimed goal of becoming "America's number one green city."

In the current economy, many cities and towns are actively seeking ways to reduce operating costs and balance their budgets. The City of Philadelphia is demonstrating that solar compactors can significantly reduce annual operating costs in the first year, and for years thereafter, by reducing collection frequency requirements. Providing the City's first public-space recycling program and having the ability to track operations are additional features of the program, which offers clear economic, environmental and educational benefits.

