# Sewage Geothermal Installation

## PWD's Energy Plan Progress

In alignment with the City's Greenworks Philadelphia Initiative, the Philadelphia Water Department (PWD) developed a Utility-Wide Strategic Energy Plan, establishing energy conservation and generation objectives for the Department. This is one of a series of reports on PWD's progress in achieving its strategic energy objectives.

*PWD's Sewage Geothermal Installation, located at the Southeast Water Pollution Control Plant.*

*Mayor Michael A. Nutter cut the ribbon on the Sewage Geothermal Installation on April 12, 2012.*

## PWD brings sewage geothermal technology to the City of Philadelphia

In February of 2012, PWD put its Sewage Geothermal Installation into operation at the Southeast Water Pollution Control Plant. The installation extracts the thermal energy from the sewage arriving at the plant and uses it to heat the plant's compressor building and gallery space, saving PWD $18,000 annually.

To reduce its carbon footprint and help insulate the Department and its ratepayers from highly variable energy costs, PWD decided to explore the use of sewage geothermal technology as a sustainable and cost-effective method for facility heating and cooling. PWD collaborated with NovaThermal Energy to test the technology at Southeast and introduce NovaThermal's unique, patented geothermal process to the United States. The project was partially funded through a $150,000 Greenworks Pilot Energy Technology Program Grant; the balance of the $240,000 project cost was covered by NovaThermal. As a result, the system was installed at no cost to PWD and its ratepayers.

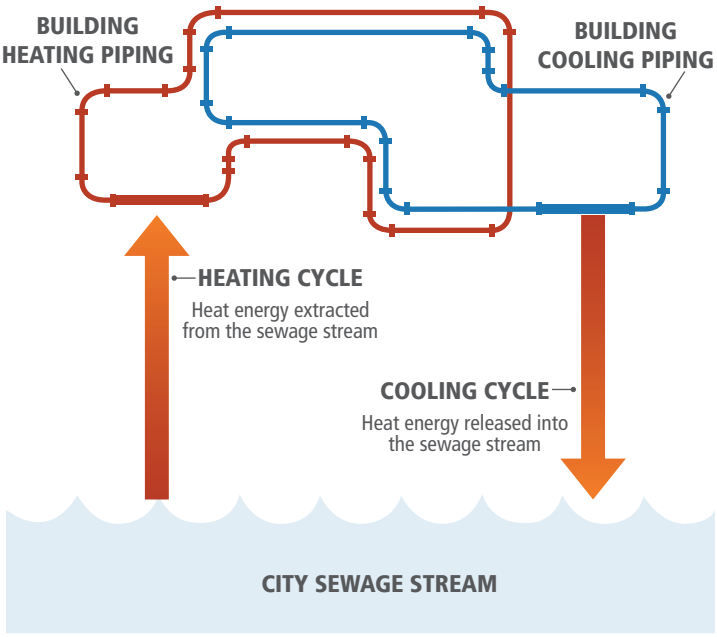
## Important Facts

The Sewage Geothermal Installation consists of a filter, heat pump and the appurtenant piping needed to extract the thermal energy from the wastewater arriving at Southeast and to use this energy to heat the plant's compressor building and gallery space.

Filter - A portion of the wastewater entering the plant passes through an anti-block filter. This filter handles up to 265 gallons of sewage per minute and removes wastewater solids that would otherwise interfere with the heat pump downstream.

Heat Pump - The highly efficient heat pump extracts up to 978,000 BTUs of energy per hour from the wastewater. One unit of electrical power supplied to the heat pump yields four units of heat, which significantly reduces the natural gas required for heating the building.

## Using sewage for heating and cooling




## Triple Bottom Line - Plus Analysis of the Sewage Geothermal Technology

Our **Triple Bottom Line - Plus Analysis** measures our impact on the community using the following five categories:

- Social Equality
- Environmental Benefits
- Economic Gains
- Technological Innovation
- Leadership

- Raises public awareness about alternative energy sources and sustainability
- Aids the City in meeting its Greenworks Philadelphia goals
- Fosters the development of local businesses and a non-discriminatory workforce
- Uses renewable energy to heat the compressor building and gallery space
- Moves the plant closer to its ultimate "Net Neutrality" in energy use
- Diversifies the City's bank of available energy sources
- Reduces the City's exposure to volatile energy prices
- Reduces the amount of energy the City purchases from commercial providers
- Uses existing infrastructure, reducing construction and installation costs
- Introduces NovaThermal's sewage geothermal process to the United States

Philadelphia Water Department