St. Denis Senior Apartments
Louisville, KY

Case Study: Solar Domestic Hot Water

SunWind Power Systems Inc.
Energy Solutions Now, Rewards for Generations

"Utility costs make up a sizeable portion of the monthly expenses for our residents. Using free energy from the sun to reduce hot water costs will be a great value for years to come. The measurable benefit to the environment is just as important as the reduction of utility costs – this system is truly a win-win solution for this project."

GABE FRITZ
Project Manager, The Housing Partnership, Inc.

Solar Power Saves Low Income Seniors Hundreds of Dollars in Electric Bills

Low Monthly Utilities a Key to Affordable Living

Deciding to install a solar hot water system was a natural choice for Catholic Charities and The Housing Partnership, Inc. as they converted a former elementary school in Louisville, Kentucky into modern and fashionable apartments. The 34 unit complex will provide affordable housing for low-income seniors, and keeping utility costs as low as possible was a key component of the Partnership's strategy for affordability. The advantage of a renewable energy system is that the upfront investment in solar equipment will pay dividends for decades as residents receive a significant portion of their hot water through free, clean energy from the sun. The decision to invest in a renewable energy systems will shield residents from expected 4-8% annual increases in purchased energy costs. With those increases, the annual gas savings provided by the solar system could reach $4,300-7,500 per year during the life of the system!

Solar Equipment Integrates Seamlessly with Traditional Systems

The sixteen solar collectors mounted on the roof harness more than 82 million BTUs of energy from the sun over the course of a year. This energy is transferred into a tank where fresh water is pre-heated before being fed to a traditional gas-fired supplemental water heating system. With this arrangement, the solar equipment heats cold supply water and is able to provide the most efficient energy capture possible. The gas-fired heater ensures plentiful hot water for the building by adding additional energy as needed. The entire system is fully automated to optimize energy savings, provide cold weather freeze protection, and require no operating or maintenance activities from building owners.

Louisville's Premier Solar Hot Water System Delivers Big Environmental Benefit

In addition to the quality-of-life payback that residents will receive from low utility costs, they can also be proud of the environmental benefits that their building provides. As one of Kentucky's largest solar hot water installations, this system will keep more than 450,000 pounds of carbon dioxide out of the atmosphere over the life of the system. That is the carbon equivalent of 40 passenger vehicles burning more than 23,000 gallons of gasoline, and would take an acre and a half of pine forest to sequester that much carbon. With decades of financial and environmental benefits along with easy integration into a commercial renovation, this project shows that there is nothing "alternative" about solar…it's going mainstream!

Key Facts

Location	4209 Cane Run Road Louisville, KY
System Size	Sixteen 32 ft^2 Collectors 125 gal. pre-heat tank
Installed	Fall 2009
Annual gas savings	83,000 ft^3 natural gas
Lifetime CO_2 reduction	450,000 pounds