THE LEGACY OF PENNSYLVANIA'S STATE PARKS AND FORESTS: THE FUTURE IS IN OUR HANDS

Going Green: The Benefits of Investing in Green Infrastructure

The Pennsylvania state park and forest system has 15 Leadership in Energy and Environmental Design (LEED) certified buildings and has instituted dozens of conservation best practices and energy efficiencies that can serve as models for homeowners and other land managers. While these investments may be significant in terms of up-front costs, their long term impacts save the Commonwealth's and its taxpayers' money in the long term, while protecting and enhancing our natural world.

Carbon Footprint Reduction

In 2007, Yellow Creek State Park was the first designated green state park, which means that the park underwent a pilot climate study to identify the sources of their carbon emissions, and then used that information to modify park management practices to reduce the park's carbon footprint.

A wind turbine at Yellow Creek State Park

As part of the Climate Leadership in Parks Program, which began in 2009, each park had the goal of lowering its carbon footprint by 20 percent within five years. Many parks have surpassed that goal, although a formal analysis of the entire park system has not yet been completed.

The spillway at Yellow Creek State Park's dam

State parks were able to make carbon footprint reductions through projects like installing solar hot water at Caledonia, installing a switchgrass-burning stove at M.K. Goddard, using a solar trash compactor at Gifford Pinchot, and adding a solar hot water site at Prince Gallitzin to replace the use of propane. Lighting audits were completed for a handful of state parks, such as Nolde Forest and Keystone, and lighting was then retrofitted with energy efficient alternatives.

Lower and Cleaner Energy Needs

By deliberately incorporating green and sustainable energy sources such as wind, solar, and geothermal into state park and forest facilities, they have been able to save annually on their heating, cooling, and lighting needs. For instance, the bureaus of state parks and state forests worked together to install a biomass boiler in the maintenance building at Caledonia. The boiler uses firewood or wood pellets, some of which comes from hazard trees that are removed from the park, thus turning a waste product into low-cost heating.

The savings afforded through these and other pilot projects allow state park and forest staff to invest in additional green technologies, such as the wind turbines installed at Yellow Creek, Pymatuning, and Tuscarora state parks. State parks and forests act as an example to the public of how to save money while investing in clean energy technologies for their home or business.

Green Example: Unique Solar Shingles at Mt. Pisgah State Park Save Money

Mt. Pisgah State Park Office with original solar array (left) and new solar singles (right)

On June 30, 1979, Mt. Pisgah State Park became the first DCNR facility ever to install a solar array. The rooftop solar installment provided thermal heating to the park office for more than 30 years.

Over the past three years, DCNR's Sustainability Initiative began assessing new opportunities for solar photovoltaic installations across the Commonwealth. During this process, a more efficient solar array was considered for Mt. Pisgah's roof. To do this, the original solar installation would have to be removed and a roofing contractor would have to replace the roof with architectural shingles to support a new solar module.

One of DCNR's electrical engineers researched how the agency could simplify the solar installation through solar shingle technology. Solar shingles provided DCNR with the unique opportunity to meet two needs by installing and showcasing new solar technology that works as both shingling for the park office's south-facing roof and a source of clean energy to take the park office to net zero (the array annually produces as much electricity as the office uses). Construction on this project began on December 19, 2017 and was completed the week of March 6, 2018. The new rooftop system has a 5.67kW capacity and will produce an estimated 6,045kWh/year in electricity.

Green Buildings Protect the Environment and Save Money

The way state park and forest buildings are constructed and landscaped today helps to protect the environment. Native plants in landscaping, as well as green infrastructure techniques for managing stormwater (rain gardens, vegetated swales, rain barrels, etc.), filter out pollutants from runoff before it can enter our streams and rivers. For example, the Tiadaghton State Forest office building has a green roof that filters and absorbs rainwater, reducing the amount of stormwater to be managed, and Weiser and Buchanan state forests have native plant gardens that manage stormwater while being attractive to visitors and wildlife alike.

The green roof at Ohiopyle State Park reduces utility costs and filters rainwater

Significant energy savings from building "green" can lead to major cost savings. In 1999, the annual average electricity costs at Prince Gallitzin State Park were $90,000. In 2008, the costs dropped to $56,000, due primarily to the electrical conservation ethos established by the park's Chief Treatment Plant Operator Don Yeagle. He made it his mission to learn where the park was wasting energy and made adjustments accordingly, and he worked with the utility company to lower costs for seasonally-used buildings.

The public has acknowledged the efforts that state parks and forests are doing to conserve energy and be a model for others.