

GREEN POWER

The Division of Power and Water (Power Section) has been in the forefront of efforts among municipal power systems in Ohio to investigate, and develop, power sources locally that are more environmentally friendly. Although a very small portion of its power needs come from so-called “green” sources, as technology develops city power will move closer toward greater use of the technology.

O’Shaughnessy Hydro Plant

When Columbus built the O’Shaughnessy Dam in the 1920’s, it provided for future construction of a hydroelectric plant. It took more than 60 years, but the five megawatt hydro turbines were installed in a bunker below the dam. The plant was dedicated in 1987.

Like any modern power generation system, the O’Shaughnessy Hydroelectric Plant is engineered to get the most out of its power source. While the principle of using water to make energy is not revolutionary, it is a remarkably effective system.

How it works

River water, over 10,000 gallons a minute, enters a tunnel called a penstock below a gatehouse on the O’Shaughnessy Bridge. Debris is screened out, so only uncluttered river water gets through. This “fuel” travels down the penstock at a rapid pace. Just before it enters a turbine it passes through the “wicket” gates which rotate, giving the water more power to turn the turbine. The action of the water on the turbine engages the electric generator which sends electricity surging into power lines. Water is discharged back into the Scioto River below the dam.

The five megawatt hydro plant was the first new one built in Ohio in 50 years when it went on line in the 80’s, not counting Ohio River developments; certainly a progressive move by the city of Columbus.

Using natural resources wisely

The great concept behind hydro power is using a recyclable resource - river water - to provide a useful consumer product - electricity. Unlike other energy sources, such as coal or natural gas, the river water is a reusable resource. In fact, the water leaves cleaner than when it comes into the plant. Fishermen often can be seen fishing outside the plant below the dam.



Phoenix Methane Plant

There’s a unique golf course off Jackson Pike in south Columbus called the Phoenix Golf Course. What makes it unique is that it is built on top of a long closed Franklin County landfill.

That’s not the only unique aspect of this sports facility. It’s also the site of a small methane powered electric generating station owned by the city of Columbus and benefiting the customers of the Power Section of the Division of Power and Water.

As trash decomposes in a covered landfill, it produces gas: methane gas. In the past all of the methane was burned off at various locations. The technology was developed to use methane in specially designed generators to produce electricity. Thus, methane at the former local landfill was no longer “wasted” much of it was now producing a useful product: electricity.

The city of Columbus partnered with the Phoenix Golf Course to have an Australian Company build the methane plant. The Phoenix Golf Course methane plant is the only one of its kind in central Ohio.

As electricity is generated, the power is fed back into the city power grid for use by its customers. One of the customers using the “green” power is the golf course. Electricity coming off the grid from the methane facility also power lights and equipment in local businesses.

An important facet of using methane as a fuel to make electricity is the emissions are clean and produce no pollution. The methane plant is capable of producing 2.7 megawatts of electricity (there are a thousand kilowatts to a megawatt). It generates approximately two megawatts on a regular basis. This is two megawatts that does not have to come from expendable fossil fuels such as coal and natural gas.



Partners with the Power Section in this venture were; the Columbus Schools, the Ohio Energy Project, American Municipal Power, Ohio, the Foundation for Environmental Education and the Ohio Department of Development’s Office of Energy Efficiency.

The solar school installation was funded through a grant from the state Office of Energy Efficiency and in-kind contributions from other partners. The Power Section of the Division of Power and Water installed the solar panels on the side of the Africentric School, including a monitoring device that feeds into the school. The schools did most of the necessary interior installation, getting the necessary wiring into the computer room.

The really great part of the solar project is that it is more than just a way to generate a little bit of electricity. Actually, one of the primary purposes is as an educational tool to teach students about renewable energy sources and even allow them to monitor weather.

A monitor in the computer room at the Africentric School is to have access to a software program which allows students to watch in real-time how much power the panels are generating from the sun’s rays. The program also allows students to monitor air temperature. Then the idea is to allow them to study how season, climate and weather affect the system’s ability to produce power.



Solar power at local school

Students at the Africentric School at Grant Street and Livingston Avenue in Columbus have a great opportunity to experience the power of the sun because of a project initiated through the Power Section of the Division of Power and Water.

City Power partnered with several organizations to install a small, one kilowatt solar unit on the side of the school building. The panels work: they transform the sun’s rays into usable electricity.