



## **The Atlantic County Utilities Authority**

The Atlantic County Utilities Authority was formed in the late 1960s by the Atlantic County Board of Freeholders and charged with developing a comprehensive approach to wastewater management. At that time, Atlantic County had more than 20 small, outdated sewage treatment plants, most of which discharged effluent into streams, tidal waters and other surface waters. Over the years, the situation resulted in the degradation of the county's fresh water resources, estuaries and marine environments.

### **Wastewater Treatment Facility**

With the construction of the Coastal Region Wastewater Treatment Plant in 1978, conditions began to improve. Since that time the system has been expanded to serve the needs of residential and commercial development throughout the county as well as demands placed by increased tourism. As a result, our back bays, rivers and streams are now fit for recreational activities such as swimming and fishing.

The ACUA's Wastewater Treatment Facility has been the recipient of several awards, including two Association of Metropolitan Sewerage Agencies' Platinum Awards, recognizing more than 10 consecutive years of complete and consistent compliance with the ACUA's National Pollutant Discharge Elimination Permit.

### **Solid Waste Facility**

In June of 1981 the Board of Freeholders designated the ACUA as the implementing agency for the Atlantic County Solid Waste Management Plan. Prior to the freeholders' action, trash generated in the county had been buried in 46 unlined landfills, which had become a direct threat to our groundwater resources. The Pinelands Commission required that many of these landfills be closed by August 8, 1990. These new environmental regulations, together with New Jersey's Mandatory Recycling Act, necessitated a completely new system of solid waste management in Atlantic County. Starting in 1990, the ACUA established a nationally recognized system to recycle, compost, and dispose of solid waste. A double-lined landfill, recycling center, composting site, transfer station, and ancillary facilities were built on a 360-acre site known as the Howard "Fritz" Haneman Environmental Park. The park, located in Egg Harbor Township, has been home to the ACUA's annual Earth Day celebration for the past 19 years.

Upgrades are being made to the ACUA's recycling center and in 2011 Hudson Baylor Corporation will begin operating a state-of-the-art single-stream processing system at the ACUA's recycling center.

### **EcoProducts**

The ACUA has also developed its own line of EcoProducts, including furniture and containers made from recycled materials, Ecosoil, EcoTopsoil, Ecomulch, EcoRoot mulch, and other mulch varieties. The products are made from 100% organic materials originating in southern New Jersey.

The ACUA's solid waste and recycling programs have also received several awards, including The Excellence Award in Planning & Financial Management from SWANA, The Recycling Center of the Year Award for Solid Waste Technologies Magazine, The Fund for New Jersey Award for the Team Management Programs, the Excellence Award for Recycling Programs from SWANA, and also from SWANA the Bronze Excellence Award for Landfill Management (an international award).

On January 1, 2009 the ACUA implemented a single stream recycling method in an attempt to increase recycling compliance rates while reducing the hassle for ACUA customers. Through single stream recycling individuals can place all recyclables in one container, including plastics (grades 1-7), metals, glass, paper, and cardboard. The implementation of this system has ensured that fewer recyclables are taking up space in the landfill, and more of these materials are being reused. Single-stream recycling not only increases recycling participation rates, but allows the Authority to realize collection efficiencies.

### **Leading the way with renewable energy**

The ACUA has established itself as a community leader in protecting the environment and advancing the use of renewable or green energy to help reach that goal. The ACUA has been honored with numerous awards for its green initiatives, including the Renewable Energy Project of the Year Award for 2006, the 2007 award for Innovative Renewable Energy Projects by the Interstate Renewable Energy Council (IREC), and the 2008 Environmental Leadership Award.

### **Geothermal Heating and Cooling**

One of the ACUA's first green energy projects was its administrative building, or Geo Building, located at the Haneman Environmental Park. When built in 1992, the building was designed with a geothermal heating and cooling system, making it one of the first installations of this type in southern New Jersey. It also incorporates other environmental features including high efficiency lighting, skylights, energy star appliances, eco-friendly paper products, low-flow aerators on faucets and fixtures, a community garden, compost areas, and carpeting made from recycled plastic soda bottles, among other things.

### **Landfill Gas to Energy**

In March of 2005 a 1.6 Megawatt landfill to gas (LFG) energy project was completed and has since been expanded to a 5.4 Megawatt system. The system captures methane gas, which is known to be 21 times more potent than CO<sub>2</sub>, from the ACUA's landfill and uses it to create electricity. The landfill gas project supplies 100% of the environmental park's electricity needs, with excess electricity going to the grid. The project was completed by AC Landfill Energy, LLC (ACLE), a joint venture of DCO Energy and South Jersey Industries. The LFG project generates approximately 42,638,400 KWh of electricity per year, enough energy to power 2,757 homes and offset the energy equivalent of 25,083 barrels of crude oil each year. The ACUA has submitted an application for membership to the Climate Action Reserve (CAR), which would allow them to register the LFG project to obtain monetary credits for each ton of greenhouse gas that is reduced.

Of the estimated 2,000 or so municipal solid waste landfills currently operating in the United States, approximately 480 have LFG utilization projects. The EPA estimates that approximately 520 additional MSW landfills present attractive opportunities for LFG projects.

### **Alternative Fuel, Hybrid and Electric Vehicles**

Long before alternative fuel vehicles had the media's attention, the ACUA was using propane-powered vehicles. Then in December 2004 the ACUA purchased four Hybrid Ford Escapes to demonstrate that hybrids have a place in business fleets. The ACUA also added two Hybrid Chevy Silverado pick-up trucks to its light-duty fleet. The ACUA has also converted its entire fleet of more than 106 diesel vehicles to biodiesel, making it the largest fleet in New Jersey to use this alternative fuel. The ACUA uses a B5 blend, a fuel blended with 5% biodiesel, which is derived from soybean oil and 95% conventional diesel fuel. The ACUA relies on biodiesel fuel for the daily operation of its 50 recycling and trash collection trucks



and 30 pieces of heavy equipment including motors, bulldozers, landfill compactors and tractor-trailers. The use of biodiesel in a conventional diesel engine results in substantial reduction of unburned hydrocarbons, carbon monoxide, and particulate matter compared to emissions from diesel fuel. In addition, the exhaust emissions of sulfur oxides and sulfates (major components of acid rain) from biodiesel are essentially eliminated compared to diesel.

The ACUA is converting its fleet of refuse collection trucks to compressed natural gas (CNG). This clean burning, domestically produced fuel will reduce greenhouse gas emissions by 25% and drastically reduce the ACUA's fuel expense. The ACUA's CNG fueling station opened in October of 2010, and is available to third party fleets. The ACUA will have 16 CNG collection trucks by 2012 with the long-term goal of converting the entire fleet to CNG.

On July 16, 2009 the ACUA unveiled three of the area's first electric charging stations with two situated at the Haneman Environmental Park and one at the Wastewater Treatment Facility. The ACUA currently owns an electric car manufactured by Global Electric Motors, named Sunny. Sunny is a two-passenger, low-speed electric car used for onsite work, and is powered purely by renewable energy sources. In February 2010, the ACUA purchased an all electric Ford Ranger pickup truck which is used by Wastewater Collections staff. The Ranger can travel approximately 60 miles on a charge, and charges in about six hours. The Ranger "fills up" on electricity generated from wind and solar at the wastewater treatment facility.

### **Solar Energy**

In June of 2006, in partnership with WorldWater & Power Corporation and Altermity Power, a 500-kilowatt photovoltaic solar project was completed at the ACUA's Wastewater Treatment Facility. The project has a total of five arrays including two that are ground mounted, two roof mounted and the final array serves as a canopy over the parking lot. Approximately 2,700 photovoltaic panels were used in the project. It produces approximately 650,000 kWh of energy per year, and as of January, 2011, the solar project had produced 3 million kWh of electricity since it became operational. The electricity produced from the solar project accounts for approximately 3 to 5 percent of the energy used at the Wastewater Treatment Plant.

### **First Commercial Wind Farm in New Jersey**

One of the most visible and highly publicized projects embarked on by the ACUA was the construction of the wind farm at the Wastewater Treatment Facility. The ACUA partnered with Community Energy Inc. to build the 7.5-megawatt wind farm known as the Jersey-Atlantic Wind Farm, or JAWS. The wind farm consists of five 1.5 MW state of the art wind turbines manufactured by General Electric. The tower hubs are approximately 262 feet high, each with three rotors of 118 feet for a total height of 380 feet. When operating at design wind speeds the wind farm can produce up to 7.5 MW of electric power. At certain times the wind farm provides all of the electricity needed to power the entire facility, but when the wind is not blowing it has to draw power from the grid. On average, the electricity produced from the wind farm satisfies about 57 to 60 percent of the Wastewater Plant's total energy needs.

The estimated cost of the wind farm was \$12.5 million. The ACUA did not have to inject any capital into the project since it does not own the wind farm, but instead leases out the land and purchases the electricity at a fixed rate. Community Energy, the company that constructed the wind farm, was awarded a \$1.7 million grant from New Jersey Board of Public Utilities that was used to offset design and construction costs. In addition, Community Energy applied for a \$1.92 million customer supply grant through Atlantic City Electric. The remaining costs needed to complete the project were funded by Community Energy's equity investment partners. The wind generation facility was dedicated on December 12, 2005 and has been fully operational since January 2006.



## **Protecting Water Resources**

In early 2003, Atlantic County Executive Dennis Levinson designated the Atlantic County Utilities Authority as the lead agency in Atlantic County to monitor, review and report on groundwater issues. A Groundwater Advisory Committee was established to assist the ACUA with this responsibility.

The ACUA worked to raise water conservation awareness through the implementation of the Water - Use It Wisely program, which was launched on World Water Day, March 22, 2005. The water conservation campaign was funded by a \$167,000 grant from the NJDEP and targeted all users of water in Atlantic County. The ACUA's goal in the campaign was to reduce water use in the county by 10 %. The Water – Use It Wisely conservation campaign is a multi-media campaign designed in response to the public's request, "Don't tell us to save water- show us how."

Although the water-use restrictions imposed during the drought of 2002 have been lifted, water conservation needs to be a continuing priority in Atlantic County and throughout the country. Potable, or drinking, water is a precious resource that must be protected and preserved for the future. Some of the events in the ACUA's water conservation effort included workshops on how to implement water-saving procedures in the home and in the office. There continues to be educational programs for local teachers to bring back water-conservation lessons to the classroom. A marketing campaign utilizing media outlets was also implemented to increase awareness among residents and visitors of the area.

## **Cutting Carbon Emissions**

In February of 2007, the ACUA became the first organization in New Jersey to join the Climate Chicago Exchange (CCX). CCX is the world's first and North America's only legally binding rules-based greenhouse gas (GHG) emissions allowance trading system. By joining CCX, the ACUA made a commitment to cut its GHG emissions by 6% of 2000 levels by the year 2010. In October 2009, ACUA gained membership in Climate Action Reserve (CAR), and is registering carbon offset credits from capturing landfill gas. Each credit has a market value which provides ACUA with funds to support additional green initiatives.

The ACUA is constantly evaluating new opportunities for green projects. Some future projects include, the installation of solar arrays on capped landfill cells, a waste heat recovery system at the Wastewater Plant, a plasma gasification system, a car wash that captures and reuses water, vehicle-to-grid technology, and others.

The ACUA's initiatives seek not only to provide for a cleaner, healthier community, but also to serve as a model for other organizations while offering ACUA employees the opportunity to make a significant contribution that will last for generations.