Pioneering Energy Crops in the Northeast

Project Update:
The Salix Consortium

Energy crops for electricity production are becoming a reality. Led by Niagara Mohawk Power Corporation, the Salix Consortium, formed in 1994, is an association of twenty corporations and industrial, government agency, farming, and research organizations supporting commercial development of willows for generating electricity. These fast-growing trees, developed through genetic engineering specifically for maximizing growth and pest resistance, are grown for utilities across the Northeast region for cofiring with coal in existing power plants.

THIS PROJECT DEMONSTRATES COFIRING FAST GROWING WILLOW TREES WITH COAL IN UTILITY POWER PLANTS.

Long Term Goals

The Salix Consortium's objectives are twofold. First, it aims to establish willows as a commercial biomass energy crop in the Northeast and upper Midwest regions. To do this, it will attempt to develop a reliable market for willow at a cost of less than $2 per million Btu by 2001. Second, it will demonstrate and quantify the environmental and economic benefits of cofiring willow with coal in existing electric power plants.

Several power companies have already announced tentative plans for participation. New York State Electric & Gas Company's Greenidge Station (recently acquired by AES Corp. of Arlington, VA) may cofire 5,000 tons of willow per year grown on 400 acres near the plant. Since 1997, the Greenidge station already has been cofiring wood obtained from other (i.e., non-willow) sources. Further north on the shores of Lake Erie, Niagara Mohawk's 600 MW Dunkirk Station (recently acquired by NRG Energy Inc.) will cofire willow grown on 400 acres near the station.

In addition to these plans, the Salix Consortium has planted willow at additional trial sites at various locations throughout the Northeast to lay the basis for eventual scale-up to commercial operation.

Daniel Peck/PIX05084

Willows such as these planted by the State University of New York will soon be providing clean, renewable energy from utility power plants throughout the Northeast region

Recent Accomplishments

During 1999, Salix participants made a number of advances, including:

- Cumulative planting of 300 acres of willow near the Dunkirk Station and an additional 34 acres in four areas of central New York
- Initiated construction to retrofit the Dunkirk Statioon for willow cofiring
- Completed preliminary design for retrofitting the Dunkirk Station and fuel supply plan
- Installed biomass cofiring systems retrofit and conducted test burns of willow at NYSEG's Greenidge Station
- Produced more than 850,000 willow cuttings at State University New York at Syracuse-College of Environmental Science and Forestry (SUNY-ESF) and Saratoga Tree Nursery
- Modified and tested two willow planters (Cornell University) and used these extensively in the 1999 spring planting tests (200 acres).

Near Term Plans

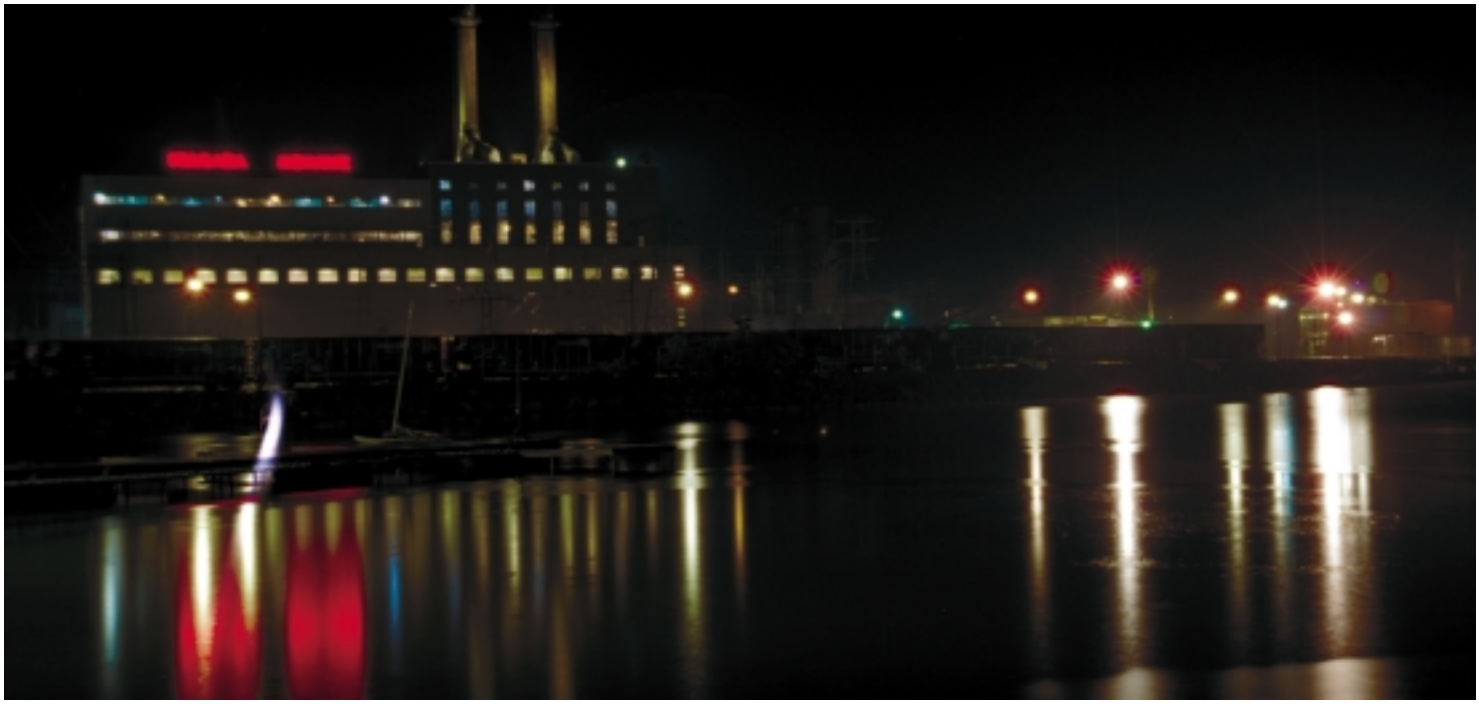
Work will continue in 1999, including:

- Plant an additional 300 acres of willow near the Dunkirk Station, scheduled for the spring of 2000; harvesting is schedules for the winters of 2001 through 2003
- Test the cofiring retrofit of Dunkirk Station

- Study environmental benefits, avian biodiversity, root dynamics, soil sustainability, and productivity of willow plantings at SUNY-ESF
- Analyze ash samples from cofiring at the Greenidge, Dunkirk, and Seward stations at GPU, Inc., and test the ash for suitability for use in Portland cement.

Project Participants

- Niagara Mohawk Power Corporation, *Syracuse, New York*
- New York State Electric & Gas Company, *Binghamton, New York*
- GPU, Inc. (formerly General Public Utilities), *Johnstown, Pennsylvania*
- Burlington Electric Department, *Burlington, Vermont*
- Ontario Hydro, *Toronto, Ontario, Canada*
- Electric Power Research Institute, *Palo Alto, California*
- Antares Group, Inc., *Landover, Maryland*
- FORECON, Inc., *Jameston, New York*
- South Central New York Resource Conservation and Development, *Norwich, New York*
- State University of New York at Syracuse, *Syracuse, New York*
- Cornell University, *Ithaca, New York*
- University of Toronto, *Toronto, Ontario, Canada*
- Montreal Botanical Gardens, *Montreal, Quebec, Canada*
- New York State Energy Research and Development Authority, *Albany, New York*
- Oak Ridge National Laboratory, *Oak Ridge, Tennessee*
- National Renewable Energy Laboratory, *Golden, Colorado*
- U.S. Department of Agriculture, *Washington, D.C.*
- U.S. Department of Energy, *Washington, D.C.*
- AES Corporation, *Arlington, VA*
- NRG Energy Inc., *Minneapolis, MN*



David Parsons/PIX06708

The Dunkirk Power Station in New York

For More Information:

Visit the BioPower Web site:
http://www.eren.doe.gov/biopower
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