Balancing Energy and Environmental Needs

The New York Power Authority's North Country Initiatives

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Abstract

The New York Power Authority's (NYPA) longstanding commitment to environmental protection and enhancement is being demonstrated through two major initiatives in Northern New York, one within the Adirondack Park and the other also of significance to the North Country. With its partners in the Tri-Lakes Reliability Project, NYPA is working to help resolve the area's critical power delivery problems by building a new power line with utmost concern for this environmentally sensitive region and by promoting energy efficiency and clean energy technologies. The effort underscores the many challenges of balancing energy needs and environmental stewardship. Along the St. Lawrence River, NYPA is implementing an extensive environmental program, again affirming that energy and environmental priorities need not be in conflict.

Introduction

These are challenging times for electric utilities. The industry faces an ever-increasing demand for a reliable, affordable power supply to meet the needs of the digital age. Meanwhile, amid rising concerns about threats such as global warming and climate change, utilities are being called upon to produce and deliver electricity in an environmentally compatible manner and indeed to bring a new level of environmental awareness to all of their activities. While these expectations now stand at unprecedented levels, the New York Power Authority, the nation's largest state-owned electric utility, has been demonstrating since its earliest days as an operating entity that energy and environmental requirements need not be in conflict.

Nearly 50 years ago, in July 1958, the electricity flowed from NYPA's first generating project, now known as the St. Lawrence–Franklin D. Roosevelt Power Project. The 800-megawatt (mw) hydroelectric facility on the St. Lawrence River at Massena immediately became a major source of clean, renewable energy for Northern New York and other upstate areas. Beyond that, the conservation and recreational programs that NYPA implemented when it built the project, including development of facilities such as Robert Moses State Park and the Wilson Hill Wildlife Management Area, set the standard for hydroelectric projects throughout the nation.

Today's Power Authority operates 18 generating plants and more than 1,400 circuit-miles of transmission lines in various parts of the state. About 75 percent of the electricity NYPA generates is emission-free hydropower, thanks largely to the St. Lawrence–FDR project and the authority's still larger 2,400-mw Niagara Power Project near Niagara Falls. NYPA is also a national leader in efforts to clean the air and reduce dependence on foreign oil by advancing energy efficiency, clean energy technologies and electric and hybrid-electric transportation.

Two of NYPA's most notable current initiatives are being carried out in environmentally sensitive areas of the North Country. One, in the heart of the Adirondack Park, is a multifaceted endeavor to resolve longstanding power reliability problems that have plagued the Tri-Lakes region and to do so with utmost deference to environmental concerns. The other, also of relevance to the Adirondacks in several respects, includes a number of environmental initiatives developed through a collaborative process that led to the issuance of a new 50-year federal operating license for the St. Lawrence–FDR project in October 2003.

A New Partnership

NYPA has long played a role in the Adirondack Park. Since 1967, the authority has supplied low-cost electricity to the municipal systems serving the Villages of Lake Placid and Tupper Lake. It has worked with the villages on energy efficiency projects since the 1980s. The Tri-Lakes Reliability Project, being undertaken in line with a 2004 agreement among the villages, National Grid and NYPA, represents the authority's most extensive energy and environmental efforts in the Park. The Tri-Lakes region also encompasses the Village of Saranac Lake, which, as a National Grid customer, is represented by that utility.

With limited exceptions, it has been almost 30 years, dating to the Lake Placid Olympics in 1980, since the Tri-Lakes region's electric system has been upgraded. Even that work failed to resolve long-term power delivery problems, which have been most acute in Tupper Lake, located at the end of a 46-kilovolt (kv) power line that is the primary means of carrying electricity to the village. Power flows in the village and throughout the region have been effectively capped, while population and use of technology have grown. Repeated calls to cut back on electricity use have become an annual ritual during the peak winter demand periods. In Tupper Lake,
rolling brownouts and even outages have occurred periodically, threatening public health and safety.

Decades-long efforts to build a new power line to meet the region's needs were frustrated until conclusion of the 2004 agreement that created a partnership between the public and private sectors and state and local governments. The agreement calls for completion of a new 46-kv line by the 2008–09 winter season. But unlike past proposals, which were confined to the conventional approach of building a new line, it also includes a substantial emphasis on energy efficiency and clean energy projects to help meet the area's growing power needs and to protect its environment.

The role of each party to the agreement maximizes its respective strengths.

NYPA was responsible for obtaining regulatory approvals to build and operate the line from the Adirondack Park Agency (APA), the New York State Department of Environmental Conservation (DEC) and the U.S. Army Corps of Engineers. NYPA has provided financing and will own the line until January 1, 2012, when National Grid will purchase the facility. The Authority is also working with the villages on energy efficiency and new energy technologies.

National Grid, with NYPA as a partner, will construct the line and related substation facilities; will maintain and operate the line; and will reimburse the authority for its up-front costs. The villages are responsible for a portion of the financing and for connecting their systems where necessary.

The new line's benefits in terms of enhancing the lives and livelihoods of Tri-Lakes residents are clear. Besides serving Tupper Lake directly and helping to end the village's chronic power shortfalls in severe cold weather, the line will free power supplies previously destined for Tupper Lake to be used throughout the Tri-Lakes region and in surrounding areas. Yet, for all the line's promise from a power delivery standpoint, environmental concerns have been paramount in planning for the project.

Selecting a Route

Constructing a power line in any area is daunting, but the difficulties in this
case have been magnified by the special nature of the Adirondack Park. First it was determined that a 46-kv line, with the 75-foot right-of-way required for safe operation, would best dovetail with the existing system serving the Park and provide the needed reliability with the least environmental impact. After extensive consideration of existing power sources and environmental factors, it became evident that a route from the west, beginning in Newton Falls in the Town of Clifton, or one from the north, starting near Stark Reservoir in the Town of Parishville, would be most feasible. Either route would pass through Sevey Corners in the Town of Colton and continue to the Town of Piercefield, where the line would link with an existing line to Tupper Lake.

NYPa and National Grid began researching potential routes from the two starting points. Many issues emerged. Residential, municipal and business properties, the Forest Preserve, scenic vistas, wetlands, rivers, streams, roadways, hills, mountains, wildlife habitats, fisheries, historic properties, soils and other elements were considered. Possible routes were driven, walked, recorded aerially and examined through existing maps and Geographic Information System technology. NYPa then mapped dozens of potential route segments.

It was determined through this process that Stark Reservoir would be the proposed route, with Newton Falls as the alternate. Existing distribution lines along much of the Stark Reservoir route could be accommodated on the poles to be used for the new line. In contrast, the portion of the alternate route from Newton Falls to Sevey Corners consisted largely of woodlands, with no power line rights-of-way. All seemed in order for the Stark Reservoir proposal except for one potential problem: a three-mile stretch along State Highway 56 that crosses State Forest Preserve lands.

Constitutional Questions
In most instances, use of Forest Preserve land for purposes other than conservation requires an amendment to the New York State Constitution, a lengthy process with no assurance of success. In addition, Forest Preserve property taken for the power line's right-of-way would have to be replaced by land of equal or greater value. Recognizing that either or both of these requirements could lead to delays that would jeopardize timely completion of the project within the budget, NYPa that the bypass would be preferable to the route through the preserve. The authority thus incorporated the bypass into the proposed Stark Reservoir route.

Outreach and Approval
Through the period leading to permitting of the line, NYPa engaged in an open and transparent process by holding an extensive series of meetings from May through November 2005 with public officials, opinion leaders and business, economic development and environmental groups. There was a public open house in Tupper Lake in June 2005. After reviewing comments from these sessions, the authority fine-tuned the proposed and alternate routes, began preparing an Environmental Impact Statement and again met with interested stakeholders.

NYPa submitted its permit application to the APA in late November 2005. The application then underwent further public scrutiny, which included a January 2006 public meeting that the authority conducted to gather more input. The APA approved the permit, with construction on the bypass, in March 2006.

Shortly after permit approval, interest in the Forest Preserve route surfaced in various circles, and NYPa officials had numerous discussions with interest groups and state legislators. NYPa agreed to pursue a Constitutional amendment as long as it would not prevent the line from being built on time and on budget. If the amendment process was unsuccessful, the permitted route with the bypass would be followed.

Under the State Constitution, an amendment must be approved by two successive Legislatures, and then submitted to the voters by referendum. Both houses of the Legislature approved the amendment in 2006 and it was passed by the State Senate again in February 2007. If the Assembly also approves the measure in this session, it will be on the
statewide ballot in November. Meanwhile, NYPA and National Grid are proceeding with design work on the bypass and Forest Preserve options to ensure that either route will be ready and that the line's deadline and budget targets will be met.

Conserving Hydropower

Though Tupper Lake and Lake Placid pay some of the lowest electric rates in the state thanks to their supplies of NYPA hydropower, there are limits to the hydro allocations. When the villages' electricity use exceeds their allocations, they must pay higher market or contract prices for additional energy. Therefore, conserving the low-cost hydropower is vital.

Many energy efficiency measures have been undertaken by the villages, independently or with partners such as NYPA, National Grid or the Independent Energy Efficiency Program, which includes a number of the state's municipal electric systems. Lake Placid, for example, took a major conservation step in 2006 when it introduced a new rate structure requiring residential customers to pay significantly more for electricity used beyond a specified level in the peak winter period. Lake Placid and Tupper Lake in 2003 and 2004, respectively, instituted moratoriums on certain uses of electricity.

The 2004 agreement builds on past initiatives, going back to the power authority's Watt Busters program in the 1980s and 1990s. Under the agreement, NYPA has:
- Conducted 68 free energy audits for a targeted sampling of municipal facilities, residences and businesses in Tupper Lake and Lake Placid in 2005. The audits gathered information to help identify energy efficiency projects suitable for various structures. As one result, Tupper Lake and Lake Placid are working with NYPA to investigate the feasibility of placing energy efficient refrigerators in public housing units.
- Funded a biomass feasibility study for Tupper Lake, with results pending at this writing. With the wood industry's prominence in the Adirondacks, a biomass generator, using appropriate wood stock, has long been considered a way to alleviate the strain on the power system. By generating power locally with a local renewable resource, environmental, energy and economic development goals could be achieved.
- Pledged to contribute $2 million for "green building" components in the proposed Lake Placid Convention Center. NYPA has expertise in this area, with its own administrative office building in White Plains having recently become the first building...
in New York State to earn Gold-EB (Existing Building) status under the U.S. Green Building Council's Leadership in Energy and Environmental Design rating system.

Still another outgrowth of the agreement is the Tri-Lakes Energy Expo that NYPA helped sponsor with National Grid and others in 2005 and 2006. Each drew over 300 people, who met with more than 20 local businesses specializing in a wide range of energy-saving products.

Independent of the agreement, the authority is implementing a $5.7 million energy efficiency project for the state Olympic Regional Development Authority at Whiteface and Gore mountains that will save electricity and oil in the snowmaking process, reduce greenhouse-gas emissions and prevent oil used in snowmaking from reaching the mountains. The initiatives follow NYPA energy efficiency projects completed at Whiteface in 1998 and at the two mountains in 2005.

St. Lawrence Commitments

NYPA's receipt of a new 50-year federal operating license for the St. Lawrence-FDR project followed an innovative, deliberative and cooperative process involving local governments and school districts, regulatory agencies, environmental organizations and other interested groups and individuals. Among other provisions, resulting agreements provided for the authority to return project lands not required for operations to local communities and residents, to make annual payments to the local governments and school districts and to carry out major improvements at state and local parks on project lands. Significantly, they also committed NYPA to spend about $66 million for fish and wildlife habitat improvements, research projects, shoreline erosion control and related efforts, all in keeping with the authority's traditional stewardship of natural resources in the St. Lawrence-FDR project area.

NYPA is working with the U.S. Fish and Wildlife Service, the DEC and New York Rivers United to implement 10 habitat improvement projects along the St. Lawrence River, with the focus on species requiring assistance. Many of these long-term initiatives, costing a total of $8.4 million, will employ a phased and adaptive management approach, with careful monitoring of results and appropriate refinements as the efforts proceed. A technical advisory council, composed largely of environmental specialists and resource agency representatives from outside the authority, oversees the work and will select additional projects.

Four of the current projects, now well under way, are intended to enhance nesting opportunities for the osprey; common tern; common loon; and various rare, threatened and endangered species of grassland-nesting birds. (While the loon is most strongly associated with the Adirondacks, the osprey also frequently breeds in the region.) The common tern is listed as a threatened species in New
York State, while osprey and loon are species of special concern. Monitoring to date has shown a substantial increase in nesting pairs for the common tern and some nesting by osprey.

The Wilson Hill Wildlife Management Area is a haven for migratory and nonmigratory waterfowl.

Three other projects, in various stages of design and implementation, are intended to create a more diverse and rich ecological community by enhancing existing wetland areas. The remaining projects will provide improved breeding or spawning habitats for Blanding’s turtle and lake sturgeon, both New York State threatened species, and for walleye, a sought-after sport fish.

The authority is also working in conjunction with the DEC in a $9.6 million program to create optimal nesting and nursery conditions at the Wilson Hill Wildlife Management Area, operated by the DEC and comprising 3,300 acres, of which 1,800 acres are wetlands. The area is a haven for migratory and nonmigratory waterfowl, including Canada geese, ringneck, mallards and black ducks. Measures will include construction and renovation of dikes and additional water control structures and installation of a pump station to better manage water levels in the wildlife area.

Aiding Eel Migration

NYPA has already achieved significant success with a $2 million eel passage facility that it installed to help juvenile American eels move safely over the St. Lawrence–FDR project’s power dam on their 2,500-mile migration that begins in the Sargasso Sea, north of Bermuda in the Atlantic Ocean, and goes as far as Lake Ontario. Extensive consultation with the Fish and Wildlife Service and the DEC during the project’s relicensing process identified the need for the facility to complement one that Ontario Power Generation operates.

The principal components of the NYPA passageway, which capitalizes on the eels’ instinct to swim against flowing water, are a ladder that allows the eels to climb about 100 feet to the top of the dam and a 960-foot-long passage facility, the first of its kind, which deposits them upstream of the dam.

The passageway performed very well during its first season, from July through October of 2006, passing more than 8,000 eels into the upper St. Lawrence River. Approximately 8,000 eels also passed at the eel ladder on the Canadian side of the dam; the combined total for the two facilities represents the highest number of eels passing upstream of the dam in more than 10 years. The NYPA Research Fund that NYPA established as part of the St. Lawrence–FDR relicensing. The money has been turned over to the Fish and Wildlife Service, which selects projects after consultation with a Fisheries Advisory Committee that includes representation from local communities. Current projects, besides the eel research, entail measures to promote reproduction of lake sturgeon and wetland and watershed protection. In addition, access will be restored to 35 miles of the Salmon River through removal of a dam.

The Power Authority’s programs in connection with the relicensing, like its approach to the Tri-Lakes Reliability Project, typify its commitment to environmental stewardship and protection. That commitment extends to all
References


