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Ken Kimball

Mark Zakutansky

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Transmission Repercussion

The price of transporting power through the Northeast

Ken Kimball and Mark Zakutansky



NORTHBOUNDERS ON THE APPALACHIAN TRAIL MOST OFTEN REACH the majestic Delaware Water Gap on the Pennsylvania and New Jersey border by May or June. Having traveled some 1,285 miles from Springer Mountain in Georgia, the Appalachian Trail traverses 25 miles through the Delaware Gap, crossing the Delaware River, passing the Appalachian Mountain Club's Mohican Outdoor Center, and rising 1,200 feet to the top of Mount Tammany. After the grueling summit at Mount Tammany, imagine the sight of a clear-cut corridor with new, 200-foot-tall towers carrying more than a dozen high-voltage wires transporting electricity to the greater New York City market. This proposed transmission line and a similar project in New Hampshire threaten the values for which these lands were set aside, values that the AMC will fight to protect.

In the northeastern United States, population growth in this already densely populated region of the country continues, putting pressure on our remaining undeveloped lands. The amount of open space and public land in the Northeast per capita is among the lowest in the country, and it is only getting worse. A U.S. Forest Service study, *Outdoor Recreation in the Northern United States* (2012, available online), projects that in the northern United States, federal and state park lands will decrease from 0.16 to 0.13 acres per person during the next 50 years. Paralleling this population growth is greater demand for energy and for corridors to move that energy—putting yet more pressure on the region's already diminished open spaces. Hydraulic fracturing, or fracking, for natural gas now occurs on one-third of Pennsylvania's 2.1 million acres of state forests. A large industrial wind farm is on schedule to be built on the Green Mountain National Forest in Vermont (the first such project in a national forest). And the project list is expanding.

Population growth and related energy demand represent an inherent challenge to the AMC's mission to "promote the protection, enjoyment, and understanding of the mountains, forests, waters, and trails of the Appalachian region." Like many problems, all of us are contributors to it in varying degrees, solutions are rarely easy, and trade-offs at times are an ugly reality. Let's take a look at the energy side of the equation, and particularly the transmission component that is affecting the region's open spaces, with an emphasis on public lands, a category of open space that many falsely assume is protected

This altered photograph depicts what the proposed Susquehanna–Roseland transmission line would look like in the Delaware Water Gap National Recreation Area.

NATIONAL PARK SERVICE

from such development. The AMC has taken a leadership role in our region to prevent further erosion of the values of our public lands and open spaces by inappropriate energy-related development.

Let's start with the basics. When you flip a switch, a circuit is completed, allowing energy to flow through your home's wiring to create heat, to excite gases in a florescent light bulb, or turn on some other energy-reliant appliance or tool. The energy comes from a wire connecting your house to a pole by the street, which then connects to progressively larger wires and poles crisscrossing our communities that then connect to higher capacity long-distance transmission power lines that transfer electric power from its source. High-capacity long-distance power lines are not popular backyard attractions for a variety of ecological, aesthetic, and possibly health reasons, so their siting is controversial.

The typical residential consumer calculates narrowly the cost of generating and transporting power, averaging the cost per kilowatt-hour plus the expense to distribute that kilowatt-hour times the number of kilowatt hours consumed monthly. Large commercial consumers use more sophisticated strategies. They acknowledge the variable cost of power and its transmission over much shorter time frames so that they can better match their consumption with lower rates. Unfortunately, the cheapest generated or transmitted electric power can at times have large environmental costs.

In economics, an externality, or transaction spillover, is a cost or benefit that is not transmitted through prices and is incurred by a party who was not involved either as a buyer or seller of the goods or services causing the cost or benefit. Negative externalities—also known as social costs—occur when products affect consumers negatively. The industry has always been a poor broker in balancing such trade-offs.

Two transmission corridors placed through critical public lands are planned: in the Mid-Atlantic region, the Susquehanna–Roseland transmission line through the Delaware Water Gap National Recreation Area, and, in New England, the proposed Northern Pass transmission line to carry power generated by Hydro-Quebec through New Hampshire and the White Mountain National Forest. These proposed transmission line upgrades would slice through wide swaths of these public lands, adding visually degrading towers and expanded rights of way to accommodate them. Millions visit the White Mountain National Forest and the Delaware Water Gap National Recreation Area each year. They are among the most popular and heavily used public lands in the region—to say nothing of the variety of wildlife that call

these places home. Even though reasonable alternatives to these proposed transmission routes exist, they have been mostly ignored because they don't represent the best economic return to the developers of these proposed projects. For example, it would be possible to bury the Northern Pass line in a different corridor, a technique used in other regions and countries.

What is at risk? The Delaware Water Gap National Recreation Area, straddling New Jersey, Pennsylvania, and New York, has a long history of threats to its beauty, such as the Tocks Island dam project, natural gas drilling, and pipelines, as well as encroaching development. The proposed Susquehanna–Roseland transmission line would cut through the heart of the park near Walpack Bend, bringing a wider right of way and 200-foot-tall towers to replace much smaller existing towers that are below tree height. Miles of new, permanent access roads would greatly affect the integrity of wildlife habitat and the experience of visitors, whether they are enjoying the many sweeping overlooks or paddling down the Delaware River, recognized under the Wild & Scenic Rivers Act for its scenic and recreational qualities. The line would also cut across the Appalachian National Scenic Trail and pass only a few miles from the AMC's Mohican Outdoor Center, a base for hikers and other outdoor enthusiasts as well as the AMC's New York and New Jersey Youth Opportunities Program.

In New Hampshire, the Northern Pass project would bring electricity into the New England market, adding approximately 1,100 steel lattice towers up to 135 feet tall to create a 180-mile-long, high-voltage transmission line through New Hampshire. Approximately 10 miles of it would pass through the White Mountain National Forest, crossing the Appalachian Trail. The AMC conducted a visual impact analysis in September 2012 for the 120 miles



Wooden towers about 50 feet tall historically have carried power through the White Mountain National Forest. Hydro-Quebec's proposed Northern Pass towers would replace these towers with a parallel set of 85-foot-high steel monopole and lattice towers that would exceed tree height across 10 miles of the WMNF.

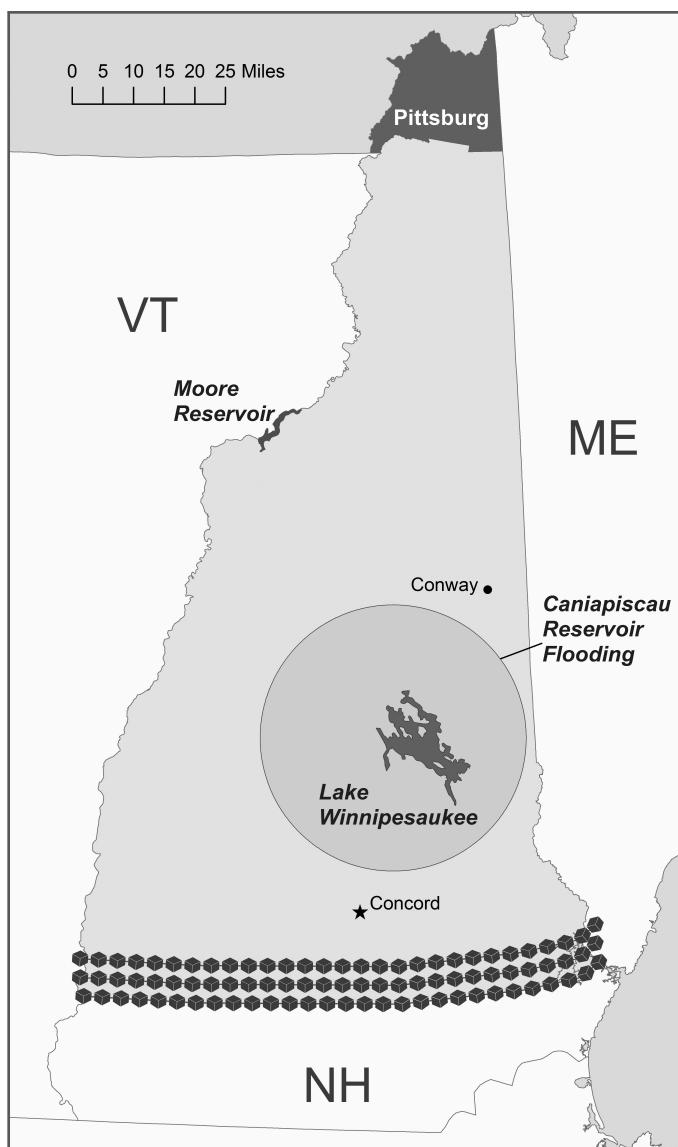
APPALACHIAN MOUNTAIN CLUB

of the Northern Pass route that have been mapped to date. We identified 3,000 acres of the White Mountain National Forest that could be visually affected by the project, including many popular scenic overlooks from the AT on Mount Kinsman. The Society for the Protection of New Hampshire Forests has gone so far as to purchase lands and easements in New Hampshire's North Country to block the proposed transmission line and is working to raise more than \$3 million from private sources to complete these projects.

Why would a power company try to build new transmission infrastructure through these cherished public lands? The answer, unfortunately, is simple. Negotiating easements or condemning lands from thousands of individual landowners for projects such as these is a long and expensive process. Publicly owned lands offer large tracts managed by only one landowner, with a clear regulatory process in place to review such project requests. Many of these lands were designated and set aside for public use with grandfathered uses that existed before they went into public ownership, including small transmission lines. Power companies have claimed, falsely in many cases, that these grandfathered easements allow them to now construct new and much bigger towers and expand the boundaries of their easements, all to greatly expand the transmission capacity of the existing corridors.

Money drives all transmission investments. As witnessed with the Susquehanna–Roseland transmission line, the two utility companies secured guaranteed investment returns from energy regulatory agencies before proposing the project. This allows the companies to split all costs of the investment with 50 million ratepayers while guaranteeing a return on every dollar spent of between 11.7 percent and 12.9 percent. Even if the line is not ultimately built, the two utility companies face no financial risk. Moreover, additional costs that would be incurred from alternatives, such as burying the lines or siting the line outside of the park, would mean a greater overall cost that ratepayers would bear. Though these hard costs can be easily calculated, the permanent loss of the value of scenic and recreational assets is much more difficult to factor in to the decision-making process.

Energy planning is important. Much of the need for the Susquehanna–Roseland project was artificially created when a generating station in New Jersey was connected to the New York City market, no longer serving the local communities. This in turn created demand to import power from areas in Pennsylvania and beyond. Since New Jersey, New York, and much of New England have enacted laws to curb carbon emissions and invest in renewable energy supplies, the price per kilowatt-hour is higher in New York City than



The shaded areas on this map of New Hampshire offer one way to understand the immensity of Hydro-Quebec's power operation in Canada. Hydro-Quebec's reservoirs flood an area about 80 percent the size of the state (see light shaded area). The largest Hydro-Quebec reservoir is about 21 times the size of Lake Winnepesaukee. The proposed Northern Pass 1,200-megawatt power line that would transmit electricity through New Hampshire on the way to Connecticut requires a "reservoir flooding equivalent" to submerging the town of Pittsburg (291 square miles). APPALACHIAN MOUNTAIN CLUB

in areas of Pennsylvania. Importing power allows utility companies to charge higher rates for energy from dirtier sources, while circumventing state regulations and agreements about energy supply. The Regional Greenhouse Gas Initiative has not addressed this situation, which is known as leakage.

Unlike the Susquehanna–Roseland project, Northern Pass is a merchant line being proposed by a Quebec government-owned company. The project is not a so-called reliability project, because it is not necessary to ensure electric supply on the grid. The purpose of the project is instead simply to advance the interests—and finances—of the companies involved. As a result, the regional energy planning agency, ISO–New England, does not endorse Northern Pass.

To increase their profits, the power companies involved are attempting to change Connecticut law to include imported hydroelectric power as a renewable, clean energy source, which theoretically could help the state reach its goals of reducing greenhouse gas emissions under its renewable energy portfolio and provide financial credits to the transmission line operator. Attempts to influence Connecticut law have been kept at bay for the time being, with legislators wary of allowing Canadian hydropower to receive the same financial incentives as locally sourced wind and solar power. A similar scenario played out in Vermont, unfortunately with success in that instance, and something similar has been attempted in New Hampshire, but as yet without success. Although hydroelectric power uses a renewable resource, it is not “green” power. Such large-scale harnessing of dammed waterways probably could not pass muster under U.S. environmental review processes (despite Americans’ interest in buying the power). The reservoirs created by Hydro-Quebec flood areas of boreal forest on the order of almost 80 percent of the size of New Hampshire. These flooded forest soils decompose, emitting substantial amounts of toxic mercury into aquatic ecosystems, and methane, a very powerful greenhouse gas, into the environment. The volume of water diverted for this massive hydroelectric complex is disrupting entire river ecosystems, equivalent to nearly three times the entire flow of the Androscoggin, Saco, Merrimack, and Connecticut rivers combined as they drain from New Hampshire’s borders. Greenhouse-gas-neutral, or environmentally benign, this energy source is not.

DO WE NEED THESE IMPACTS TO OUR PUBLIC LANDS TO DELIVER ELECTRICITY? Energy demand is still rising every year, but its rate of increase is declining.

In the middle of the last decade, energy use was rising at a rate of almost 8 percent, and even during the oil embargo of the 1970s, energy use increases averaged between 2 and 4 percent annually. Currently, residential energy use is only expected to rise 0.7 percent through 2040, according to the Energy Information Administration. Compact fluorescent light bulbs, energy efficient appliances, investments in renewables, and other sources of clean, locally generated electricity are making the difference. Once an infallible marker of economic growth, energy use is no longer on the upward trajectory of the past.

Efforts to reduce energy use are working, bringing into question the need for transmission lines proposed under an energy growth model that no longer holds true. Reevaluating need has already led to the cancellation of a high-voltage transmission line connecting coal-burning power plants in West Virginia to Frederick, Maryland—known as the Potomac Appalachian Transmission Highway, or PATH. After six years of project planning, the utility companies were challenged in court over their dated energy demand projections, ultimately leading to the withdrawal of the permit applications. A similar fate could be in the future for the Susquehanna–Roseland and Northern Pass projects.

The AMC has formally taken the position that high-priority public lands such as the Delaware Water Gap National Recreation Area and the White Mountain National Forest are too valuable to face a death by a thousand cuts. These critical open spaces should not be proposed as routes of least resistance for energy infrastructure. Millions of dollars of taxpayer funding and hundreds of thousands of volunteer human-hours have contributed to enhancing these particular public lands and trails, making them more accessible and enjoyable. The AMC has formally intervened in both of these permitting processes, still ongoing with Northern Pass, and in a legal challenge to the permit issued by the National Park Service in the case of the Susquehanna–Roseland transmission line. Without keeping our high-priority public lands, waters, and trails as pristine and protected as possible, particularly those places long cherished, the AMC's central mission will be undermined.

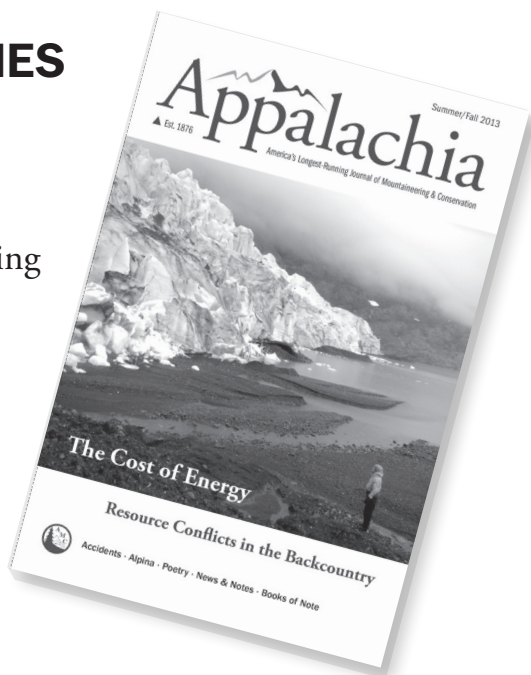
DR. KENNETH KIMBALL is the AMC's director of research. MARK ZAKUTANKSY is the AMC's Mid-Atlantic policy manager.

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