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HEADLINE: Region lacks plan for power

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Parts of nation generate excess electricity, but prospects dim for getting supply transmitted to area

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Power plants in the 13 states around New York and in Canada are producing thousands of megawatts of excess electricity that can't be tapped here because of an inadequate transmission network that restricts how different systems share energy.

The constraints in transmitting electricity would make it difficult for regions such as Westchester County and New York City to make up for the loss of any major power suppliers over the next few years, particularly during peak usage periods. That means the state would have difficulty absorbing the loss of the Indian Point nuclear power plants in Buchanan, which can produce up to 2,000 megawatts to serve about 2 million homes, and which opponents have been clamoring to have shut down since Sept. 11.

"With the electricity system, it's not just 'Can you get the power?' but 'Can you get the power to where it is needed?'" said Ken Klapp of the New York Independent System Operator, or ISO, which controls the state's power grid. "You may be able to get some power from New England, but you can't necessarily replace all that power."

Yet the power is out there, waiting to be tapped, which is why federal regulators have proposed a potential solution that could ease transmission bottlenecks throughout the nation. The Federal Energy Regulatory Commission, which oversees power supplies, last year asked regional independent system operators to consider merging where possible, enabling power producers to more easily share their product.

The Pennsylvania/New Jersey/Maryland system, which currently serves 25 million people, is planning to merge with the Midwest and Southwest ISOs, adding 22 states and the Canadian province of Manitoba to a seamless power market.

Later this month, the ISOs in New York, with 19 million customers, and New England, serving 6.5 million people in Connecticut, Massachusetts, Vermont, New Hampshire, Rhode Island and Maine, will send a formal proposal to FERC to merge

those two systems. They also propose the creation of a regional transmission organization, or RTO, which would own and improve the entire transmission network.

Until now, there was little reason for individual companies to improve the capabilities of the state's power grid, said Steven Sullivan of the New York ISO.

"What's the incentive for Niagara Mohawk to do something with their system just because the people downstate want that power?" he said. "With the RTO, we can identify those areas where the system is most constrained and develop solutions for that. There will be one company managing the distribution of electricity, and that will be their sole function."

The solution won't come quickly, however. While planning for improvements to the region's transmission system would proceed as part of the formal merger process and could be completed in a year or two, it could take up to four years to complete the merger and the establishment of an RTO, Sullivan said. The plan would have to be approved by FERC, the individual state public utility commissions, and the utilities involved.

"The New York ISO has a study due out this fall which looks at all the transmission issues in the state, and where upgrades are most needed and what the cost savings would be," he said. "That is the first step towards improving the system."

The ability of the region to forgo Indian Point, power operators say, would depend on improvements in the transmission network, the effectiveness of conservation measures and the willingness of new power providers to enter the market.

"There may be developers who see some benefit in (Indian Point) closing," Klapp said. "If you lose 2,000 megawatts, there will be a strong demand for power in that region."

The limited ability of geographic neighbors to share electricity stems from the current nature of the nation's deregulated power markets.

Each region of the country is served by its own independent system operator, networks that were developed in the late 1990s to oversee each region's energy market and to send power where it is needed over the power grids.

Transmission lines, however, are owned by individual power companies, such as Consolidated Edison, which were built to serve their own customers. As a result, a region's power grid is not a seamless network but a collection of smaller power systems linked together by transmission lines.

In theory, that should not pose problems. But the links between the smaller grids have limits as to how much electricity they can hold, just as electric sockets in a home will overheat if too many cords are plugged into them.

"Electricity functions like water in a backyard pool," Sullivan said. "If you drop a bucket of water into one side and walk around to the other side and take out a bucket, the net result is no change in the pool's water level. You haven't taken out the same molecules, and it doesn't matter."

"Electricity should work the same way - you put some in, and can take it out

anywhere."

In reality, the limits in the transmission system cut that theoretical pool into several little ones connected by straws. Electricity from Westchester to New York City has to go through a substation in Yonkers, for example, with a capacity of 1,200 megawatts on two transmission lines, one of which is currently broken.

"We don't know where the electricity from Indian Point really goes," Sullivan said, "except that it goes into the system. You can have 10,000 megawatts sitting in Westchester, but you cannot get it into the city. A lot of Indian Point's electricity probably goes to the city, but the rest of it gets clogged at the substation (in Yonkers)."

Among the independent system operators with excess energy, the Pennsylvania/New Jersey/Maryland network - which serves seven mid-Atlantic states and Washington, D.C. - is the world's largest wholesale electricity market and the third-largest power grid after France and Tokyo. That network, spokesman Ray Dotter said, projects a surplus this summer of 1,300 megawatts, which is expected to balloon to 7,000 megawatts in 2005.

But only four of the network's 12 transmission lines into New York state come to Rockland County and eastern New York, and at most they can transmit about 2,000 megawatts, Dotter said. None of these lines go directly from New Jersey into New York City.

New England currently has an excess generating capacity of about 6,000 megawatts, and expects that figure to swell to 9,000 megawatts by 2005, according to Ellen Foley, spokeswoman for the New England ISO. But the region has only eight transmission lines to New York, capable of carrying about 1,600 megawatts.

An additional transmission line is currently being laid across Long Island Sound, but it will provide only another 250 megawatts of electricity to the region by the end of this year.

Canada now has nearly 4,000 megawatts of electricity it sends to New York through its plants near Niagara Falls and Quebec. But only half that power can reach Westchester and New York City through the state's transmission system.

New York itself is divided between west and east. The eastern portion, which includes Indian Point, runs north up the Hudson Valley to Albany, west to Utica, then north to the St. Regis Mohawk reservation on the St. Lawrence River. Sullivan said only about 2,000 megawatts can be sent to the state's eastern section, regardless of demand, because the major transmission lines have to go through one limited transmission area.

"You have three nuclear plants in Oswego, hydroelectric plants from Quebec, and power coming from Ontario," Sullivan said. "That electricity all physically wants to go to the eastern part of the state where the demand is. But you have four major power lines going into two. That is like a superhighway going onto a two-lane road, and that is where the traffic backs up. We can have an abundance of power in the western part of the state, and an abundance of demand in the Hudson Valley to New York City. But we cannot get it there."

New York is not the only state that has problems with transmission limits. Maine and Rhode Island, for example, still are not fully integrated into New England's regional grid.

"We have locked-in power generation, especially in Maine," said Foley of the New England ISO. "We can't tap their energy on high demand days and we have had to just let it sit there. They would like to be able to send it to an area of high demand."

There have been times, she said, when Maine let its power plants sit idle and bought cheaper power from Canada.

The Pennsylvania/New Jersey/Maryland ISO, meanwhile, though geographically close, has no power lines going into New York City.

"We weren't thinking about power trading when these transmission lines were built 30 years ago," said Dotter, that network's spokesman. "It would not have made economic sense then to put power lines under (the Hudson River). It may well make sense now."

The need for more transmission lines and a better transmission system may be obvious, but the solution is difficult to achieve. Sullivan said proposed transmission lines draw far more opposition from affected communities than proposed new power plants.

"It is difficult to site a power plant," he said, "and it is more difficult to site transmission lines. Despite the fact that science has shown that electromagnetic waves around transmission lines do not pose health risks, many people still have the perception that they do, and therefore they do not want the power lines anywhere near them."

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