

August 3, 2003

Section: News

Page: 1A

Cooling system decision pending

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The Journal News

Plants may need to modify for safety of fish in Hudson

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State environmental officials will cap three decades of debate in the fall by deciding if the Hudson River can indefinitely sustain the annual loss of billions of fish and plants, a byproduct of power plants' electric generating process, or if plant owners must spend billions of dollars developing new **cooling** systems.

The decision will pit the economically unmeasurable value of the earliest part of the river's food chain - baby fish, eggs, small plants and microscopic organisms - against the economic interests of one of the region's major power resources. A state study has found that the most ecologically sound **cooling** systems reduce a plant's effectiveness, cutting available electricity during peak periods by 200 megawatts - enough to power about 200,000 homes.

Environmental activists say the choice should be easy.

"You cannot measure the value of these resources," said David Gordon of the environmental group Riverkeeper. "The Clean Water Act requires industries to use the 'best technology available to minimize adverse environmental impact.' Congress made that decision in 1972. This is 30 years later, and it should have been done already."

The power industry contends that it is not harming the river to the extent claimed by critics.

"Our studies indicate we have not impacted the adult populations on the river," said Jim Steets, spokesman for Entergy Nuclear Northeast, which owns the Indian Point nuclear power plants in Buchanan. "If it has minimal impacts on the river, it seems pointless to add a **cooling** system that would have different types of impacts, is expensive, would reduce our output and add to electricity costs. It just doesn't make any sense."

The state Department of Environmental Conservation is under court order to decide by Nov. 14 whether to issue discharge permits for Indian Point, the Bowline Point Steam Electric Generating Station in West Haverstraw and the Roseton Generating Station in Newburgh. The Clean Water Act requires industries to have permits to pollute waterways, and the hot water discharged into the Hudson by these power plants is considered a form of pollution.

The plants last received their five-year discharge permits in 1982 and have operated without updated permits ever since, while the state studied the issue. Indian Point, Roseton and Bowline are the first-, sixth-, and seventh-largest users of water in the

state, respectively, taking in 1.69 trillion gallons annually.

At issue is the "once through" system used to cool steam that turns the plants' giant electric-generating turbines. The plants draw water directly from the river, pump it through heat exchangers to cool the steam, and return the hot water to the river. Power plants designed 30 to 40 years ago were sited on rivers because of the free abundant water for **cooling** and the ability to conveniently deliver fuel by barge. Back then, "Concerns regarding harmful impacts on fish populations were usually a secondary consideration," said a final environmental impact statement released last month by the DEC.

The DEC report found that studies of five of the more than 100 species of fish in the Hudson showed that the power plants killed nearly 1.5 billion of those fish annually, as well as fish eggs, larvae and plant life that are critical to the river's food chain. The smallest organisms, which flow with the water into the **cooling** system, die as the water is heated. Larger fish that get drawn into the plants are blocked by a filtering system that eventually deposits them back into the river. The state found that up to half of those fish die in the process from the force of the water pinning them to the filters.

The plants also discharge heated water into the river, forming a thermal barrier that some passing fish cannot survive, according to the state's analysis. Federal law requires companies to use the "best technology available" to prevent fish and plants from being killed inside their operations. There is a less stringent standard for ecosystems damaged by the thermal discharge.

The DEC already has determined that the most effective remedy is to retrofit each plant with a "**closed-cycle**" **cooling** system, the equivalent of an industrial radiator that continually recycles the plants' **cooling** water. The recycled water would be hotter than the fresh water from the river, though, and as a result, there would be a decrease in plant efficiency ranging from 2.9 percent at Bowline to 7.3 percent at Indian Point during peak periods.

"If you were to try and backfit a system like this, the costs would be enormous," Steets said. "They are probably prohibitive. It would cost several hundred million dollars for **cooling** towers, and we would lose a lot of power."

Bowline spokesman Louis Friscoe said the **closed-cycle** system could not be applied to every facility.

"We don't have available space for **cooling**-tower technology unless you start to fill in the river to make land accessible to put a tower on, and that isn't likely," Friscoe said. "You are talking about retrofitting an older plant, which is difficult, if not impossible, to do."

Earlier this year, the DEC allowed the Lovett Generating Plant in Stony Point to experiment with a Gunderboom in Tompkins Cove, a fine mesh screen designed to block baby fish and fish eggs. Use of these screens, the state report said, is nearly as effective as the **closed-cycle cooling**. As a result, the state has proposed granting the Danskammer Generating Station in Newburgh a permit to use the screens for at least five years, and may propose the same for the larger Hudson River plants.

"The experiment worked well enough that the state was convinced it was a viable technology," said Friscoe, spokesman for the Mirant Corp., which owns both Bowline and Lovett.

The experiment was not flawless, however. Barnacles and small plant life found the mesh a perfect place to breed.

"In just 29 days, there was fouling on the Gunderbooms between 60 percent and 95 percent," Riverkeeper's Gordon said. "The experiment indicated to us that the Gunderboom is going to fail over the long term."

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