

THE TRUTH ABOUT CLOSED-CYCLE COOLING

The power industry has a strong interest in spreading myths concerning closed-cycle cooling because they would rather maximize their profits than spend money to install this modern technology. Don't believe these myths. Let the facts speak for themselves. The reality is that closed-cycle cooling is standard, affordable technology that is highly effective at reducing a power plant's impacts on local water bodies. In fact, closed-cycle cooling is used at several New York power plants today. The New York State Department of Environmental Conservation's proposed policy on closed-cycle cooling is therefore a welcome, if small, first step towards ensuring that all steam-electric power plants in New York use closed-cycle cooling — the best technology available to protect our rivers, lakes and estuaries and the life they support.

Requiring Closed-Cycle Cooling Would Not Have Any Significant Effects on the Price or Supply of New York's Electricity

The power industry often claims that requiring cooling cells would cause energy shortages and push up electricity prices. In fact, a detailed analysis by McCullough Research shows that such a requirement would, at most, cause two old and inefficient power plants to close, but there is plenty of reserve capacity. Furthermore, the change in electricity prices as a result of requiring cooling cells would be minimal (<1%). McCullough's analysis also shows that there is actually an opportunity to lower the cost of electricity in New York through reform of the current market mechanism, which currently results in high prices for the consumer and huge profits for the power industry.

Closed-Cycle Cooling Is Standard and Extremely Effective

Industry often suggests that closed-cycle cooling is a drastic measure that is not necessary. In fact, since 2001 EPA has required all new power plants built in the United States to use closed-cycle cooling in order to minimize the destruction of fish stocks and damage to aquatic ecosystems. Over 70 percent of

the nation's power is provided by plants with closed-cycle cooling. Meanwhile, 25 large power plants in New York rely on once-through cooling — an outdated technology that needlessly kills 17 billion fish eggs and larvae every year, and injures or kills 171 million juvenile and adult fish. These numbers are staggering, especially given the large investment of public tax dollars over the past several decades to protect and restore the very waterbodies that these facilities are harming. Retrofitting these old plants with closed-cycle cooling would reduce their impacts on fish and other water-borne organisms by 93 to 98%. Retrofits have already occurred at over half a dozen nuclear plants and fossil-fuel plants outside of New York, and more are underway.

Closed-Cycle Cooling Has No Significant Adverse Environmental Impacts

Industry often alleges that installing the cooling cells that are necessary for closed-cycle cooling would cause major visual and air quality impacts. In fact, modern cooling cells are normally of modular design, approximately 75 ft high, and take up approximately 1 acre of land for every 500 MW of plant capacity. Although cooling cells reduce the net energy output of plants by one to three percent, this is insignificant relative to the efficiency improvements that could be obtained by replacing a few of these old plants with either modern efficient plants or renewable energy. Two-thirds of the electricity generating units in New York that need to be retrofitted are over 40 years old. In addition, modern cooling cells do not emit visible plumes and the air impacts are minor, even when salt water is used.

Closed-Cycle Cooling Does Not Take Decades to Build and Is Not Unreasonably Expensive

Although some power companies have suggested it could take 15 years to build cooling cells, in fact the planning normally takes approximately one to two years and the actual construction another two to three years. The plants only need to close for a few weeks while the constructed cooling cells are con-

nected. Although cooling cells are not cheap, they are affordable because the power plants make enormous profits. For example, the Indian Point nuclear plant is expected to make \$17 billion in profit over the next 25 years and the cost of installing cooling cells is less than \$1 billion.

There Is No Other Practicable Standard Technology That Is As Effective As Closed-Cycle Cooling

Power companies have long sought to convince the public that cheaper technologies, such as booms to exclude organisms, special types of intake screens, or different pumping methods, are as effective as closed-cycle cooling. This is simply false. The booms and special screens have not been shown to work at full-scale and, even if they did, they are not nearly as effective as closed-cycle cooling at reducing impacts. Screens and booms also do nothing to address the impacts of thermal pollution on aquatic life. Alternative pumping technologies, such as variable speed pumps, can reduce impacts at plants that do not operate at full capacity for much of the time, but do nothing to reduce impacts when those plants are running at full capacity. Alternative pumping technologies achieve very little at baseload plants, which operate a full capacity most of the time.

Key Statistics

Number of large power plants in New York that use once-through cooling: 25

Number of fish eggs and larvae entrained by those 25 plants: 17 billion annually

Number of juvenile and adult fish impinged by those 25 plants: 171 million annually

Amount of water withdrawn by those 25 plants: 16 billion gallons per day

Expected reduction in the amount of water withdrawn, and aquatic organisms injured or killed by each plant after switching to closed-cycle cooling: 93 to 98 percent

Number of electricity generating units that make up the 25 New York power plants: 53

Age of those 53 electricity generating units: two-thirds are at least 40 years old

Conclusion

The DEC policy is a good step toward the long-term goal of requiring that all steam-electric power plants in New York use closed-cycle cooling. However, the DEC could go further and make it clear that all 25 plants that currently rely on once-through cooling should have closed-cycle cooling installed and operational as soon as possible. This would ensure that power companies do not simply run out the clock using endless litigation to delay decisions until these old plants wear out.

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