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NEW REPORT FINDS POWER PLANTS STRESSING WATER BODIES
North Carolina Home To Two Stressed Rivers

Washington, D.C. (November 15, 2011) – Power plants are stressing freshwater resources around the country, according to a new report by the Energy and Water in a Warming World Initiative, a three-year research collaboration between the Union of Concerned Scientists (UCS) and a team of more than a dozen scientists. The report, "Freshwater Use by U.S. Power Plants: Electricity's Thirst for a Precious Resource," is the first systematic assessment of how power-plant cooling affects freshwater resources across the United States and the quality of the data available on power plant water usage.

"Our analysis revealed that coal-fired and nuclear power plants are contributing to stress in watersheds in the Southeast -- including two in North Carolina, the Catawba and Upper Dan rivers--by using vast amounts of local water for cooling purposes," said lead researcher Kristen Averyt, who is deputy director of the Western Water Assessment at the University of Colorado Boulder. "Most people are familiar with the Southwest's water shortage problem. Our research found that parts of the Southeast – a region commonly viewed as having plenty of water -- is also experiencing water-supply stress. But unlike the Southwest, where the majority of power plants have minimized their water use, a large share of water stress in the Southeast is being caused by power plants.

"It's important for the public to know that because many power plants depend so heavily on water, there's a real risk that they'll have to cut back electricity production at times when they can't get enough cooling water," noted Averyt. "Just ask power companies in Texas." The record-breaking 2011 Texas drought has put so much pressure on the water supply that operators have warned that if it continues into next year, power cuts on the scale of thousands of megawatts are possible.

To gauge water-supply stress, the analysis examined the balance of local water supply and demand in each major watershed or "sub-basin" in the United States, then factored in the amount of water that power plants are using. The analysis then focused on areas where power plant demands were the largest contributor to water body stress based on the methodology.

The study showed that water supply in the Upper Catawba and South Fork Catawba is stressed by power plants that together withdraw 1 to 3 trillion gallons of water per year, and consume between 5 and 19 billion gallons. Drought years only make matters worse: in 2007 a triple-digit heat wave compounded months of drought, resulting in water levels so low that Duke Energy had to modify a water intake on its McGuire Nuclear Plant so it could reach the dropping water level.

A study by Duke Energy found the Catawba water supply would not meet demand by 2048. “But we know the Catawba River’s energy-water collision is here today, and we must act swiftly,” said Catawba Riverkeeper David Merryman. “Water-guzzling power plants need to reduce withdrawals and thermal discharges, which place stress on the Catawba River and its users, humans and wildlife alike.”

The plants on the Catawba also are stressing the river by discharging their cooling water at temperatures far too high – in 2008, discharge temperatures as hot as 107 degrees Fahrenheit were reported. This causes problems for fish and wildlife and for the power plants themselves. In 2007, when cooling water discharge temperatures exceeded safe limits, Duke had to cut generation at the G.G. Allen and Riverbend coal plants, causing blackouts throughout the area.

"The Dan River Basin Association is focused on keeping our region’s local drinking water supplies and rivers clean and has been the area's leading non-profit watershed organization for the past decade," says Tiffany Haworth, Executive Director of the Dan River Basin Association (DRBA). “This report analyses how energy sources can affect our natural environment. We need power *and* clean water. DRBA is promoting this report in hope of starting a dialogue about how our community can work together to provide both in a safe and sustainable way."

“It's unsafe for people to sit in a Jacuzzi at 105 degrees, let alone live in it,” said Rob Jackson, director of the Center on Global Environmental Change at the Nicholas School of the Environment at Duke University and a member of the report’s scientific advisory committee. “Fish and other species can't climb out of the hot tub. If we start saving water today, we'll avoid blackouts and water shortages tomorrow,” said Jackson.

The study also assessed the U.S. Department of Energy’s reporting system used to track power plant water usage. The analysis looked at what power plants reported as their water usage in 2008 – the most recent data then available.

“Uncovering power plants’ water use was not an easy task because the data reported by plant operators and compiled by the U.S. Energy Information Administration—the most comprehensive set of information on power plant water use and cooling technologies—was full of holes and errors,” said John Rogers, the report’s co-author and senior analyst at UCS. “We had to piece together a lot of information to get a better handle on how much water power plants were really using.”

“If we had used the Energy Department data, we would have gotten a different picture of water stress from what we see in our results,” added Rogers. “Of the watersheds for where our analysis found water-supply stress to be driven mainly by power plants, several did not show up when we used the available data from the Energy Department.”

The water stress problem is likely to get worse, according to the researchers, as the population, and the corresponding demand for energy and residential water, grows.

“Every day in the U.S in 2008, water-cooled power plants withdrew about 100 billion gallons of freshwater from rivers, lakes, streams and aquifers,” said George Hornberger, director of the Institute for Energy and the Environment at Vanderbilt University and another member of

the report's scientific advisory committee. "That's equivalent to about 15,000 Olympic-sized swimming pools a day."

"Even though we think of the East as having plentiful water, the stresses on water supplies will only increase," he said. "And as climate change increases water temperatures and the frequency of drought, it's becoming even more important to shift to low-water power plants." Water-smart technologies include wind and solar photovoltaics, which use essentially no water, and produce no carbon emissions, according to the report.

"Every time we build a power plant, we're making decisions that last for decades," said Peter Frumhoff, director of science and policy at UCS and head of the scientific advisory committee for the report. "By investing in power plants that are efficient, use low-water cooling and produce little or no carbon emissions, utilities and plant owners can help protect the water resources our kids and grandkids will depend on, and public utility commissions can encourage or require them to do so, especially where research indicates that power plants place water resources at risk."

The leading national experts on this report and its Scientific Advisory Committee also included scientists from the National Renewable Energy Laboratory, Vanderbilt University, the University of Texas, Tufts University, and the University of Arizona.

To find out more about upcoming events occurring in North Carolina and the Southeast and additional information regarding this report, visit http://www.cleanenergy.org/index.php?/Learn-About-Details.html?form_id=52&item_id=117.

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The Union of Concerned Scientists is the leading U.S. science-based nonprofit organization working for a healthy environment and a safer world. Founded in 1969, UCS is headquartered in Cambridge, Massachusetts, and also has offices in Berkeley, Chicago and Washington, D.C. For more information, go to www.ucsusa.org.

Southern Alliance for Clean Energy is a nonprofit organization that promotes responsible energy choices that create global warming solutions and ensure clean, safe, and healthy communities throughout the Southeast, www.cleanenergy.org.

Catawba Riverkeeper Foundation, Inc. is a nonprofit organization that advocates for the health, protection and enjoyment of the entire Catawba River watershed. For more information, go to www.catawbariverkeeper.org