



Statement regarding Union of Concerned Scientists' report on freshwater use by U.S. power plants

November 2011

The report *Freshwater Use by U.S. Power Plants: Electricity's Thirst for a Precious Resource* examines the impact of electricity generation on water supply in the U.S., and in particular, in the Southeast. Produced by the Energy and Water in a Warming World (EW3) initiative, a collaborative effort of the Union of Concerned Scientists (UCS) and independent experts, the report argues that water use planning must be a priority in the development of energy facilities because population growth will increase demand for both water and energy.

Plant Washington, an 850 MW supercritical clean coal energy facility being developed by POWER4Georgians, is named in the report as an example of a power plant being developed on an already-stressed watershed. However, as detailed below, this is not accurate.

The following details of Plant Washington's water use and other relevant information puts its water use in a broader perspective.

Watershed stress

- The report identified 25 watersheds experiencing elevated water supply stress. The only watershed in Georgia identified in the UCS report is the Upper Oconee river basin, the portion of the Oconee River basin north of Lake Sinclair. Plant Washington will draw water from the Lower Oconee River basin, south of Lake Sinclair, an area identified in the report as low stress.

Plant Washington's water use

- Plant Washington is expected to use an average of 13.6 million gallons per day (MGD) of water and up to 16.1 MGD during peak usage. Plant Washington will obtain its water primarily from the Oconee River, and the water will be carried to the plant through a 27-mile pipeline.
- According to US Geological Survey (USGS) records, the average flow of the Oconee River is approximately 1.4 billion gallons per day. On an average day, Plant Washington will use less than one percent of the flow of the river; on a peak day, just above one percent. Studies show the Oconee River can meet the annual needs of Plant Washington approximately 86 percent of the time.
- When the flow of the river is below minimum withdrawal standards, the plant will draw water from a groundwater aquifer using a series of wells. When water is being withdrawn from the aquifer, no water will be withdrawn from the river. In addition, when water from the aquifer is used, Plant Washington will continue to return 1.5 MGD to the Oconee River, thus helping to enhance its downstream flow during "dry" periods.
- Drawing water from the aquifer will not affect any existing rivers, ponds, streams or wells. The number of wells Plant Washington will use and their spacing along the 27-mile pipeline will help ensure that draw-down from any one location in the aquifer will be minimized.
- Studies of river flow and weather patterns over the last 20 years suggest it will only be necessary to withdraw groundwater from the aquifer for about four months every five years. This rate of groundwater withdrawal is expected to have a minimal impact on the aquifer and allow more than adequate time for the aquifer to "recharge" before it is necessary to draw from it again.

- Discharge water will be monitored continually to ensure compliance with EPD requirements for composition and temperature. In addition to onsite cooling at Plant Washington, it is expected that discharge water will cool further to during transport through the 27-mile pipeline to the outflow facility on the Oconee River. POWER4Georgians will monitor water temperatures at the edge of the mixing zone in the river at all times.

Comparative water use

- Plant Washington is designed to be a low water use plant. Unlike most conventional power plants, Plant Washington will have an eight times through cooling system.
- Plant Washington will use about one-third the amount of water per kilowatt hour (kWh) of energy produced than other power plants in Georgia. According to a 2003 National Renewable Energy Laboratory report *Consumptive Water Use for U.S. Power Production*, in Georgia, each kWh of electricity production consumes 1.65 gallons of water. By contrast, Plant Washington will use a little more than a half-gallon (0.59) of water per kWh, or a little more than one-third (35 percent) the state average.
- The amount of water Plant Washington will use to meet the annual electricity needs of a typical Georgia Home (15,000 kWh) will be less than 15 percent of the direct water usage of that home. According to proceedings of the 2009 Georgia Water Resources Conference at the University of Georgia, the average per capita daily water use in Georgia is 75 gallons from surface and ground water sources. Based on this estimate and 2.3 persons per household, residential use of water is about 63,000 gallons per year. Plant Washington will use about 8800 gallons of fresh water per year to supply the electricity to that home for a year.

POWER4Georgians is committed to developing Plant Washington to be an environmentally responsible energy facility. The plant's water supply plan includes both surface and groundwater sources to protect the availability of natural water supplies, while its water discharge plan includes constant monitoring of discharge water. In developing this plan, POWER4Georgians worked closely with state environmental regulators at the Georgia Environmental Protection Division (EPD) to conduct a comprehensive study of water resources, historical weather patterns and related factors. EPD issued permits for both Plant Washington's water withdrawal and discharge earlier this year.