Southern Company

August 2026

Water Research and Conservation Center

Plant McDonough-Atkinson



VISION

To operate as a world-class research and development test center dedicated to addressing mid- to long-term needs and challenges in power plant cooling applications

MISSION

To support advancements in water technologies leading to reduced freshwater withdrawal and consumption and improved plant efficiency while optimizing total costs and energy generation

What is the Water Research and Conservation Center?

The Water Research and Conservation Center (WRCC) is a state-of-the-art research facility located at Georgia Power's Plant McDonough-Atkinson in Atlanta, Georgia. The WRCC provides the testing infrastructure needed to identify the most promising water technologies to better manage and conserve water across our thermoelectric power generation sites. The WRCC promotes advancements in power plant cooling systems leading to reduced freshwater withdrawal and consumption as well as improved plant efficiency while optimizing total cost and energy generation. The WRCC is a collaborative project with EPRI and several utility companies across the U.S. More information can be found here.

Why was the WRCC developed?

As the communities across Southern Company's service territory grow, competing demands for water are rising. Developed in 2012 through collaboration with EPRI and Southern Company, the original Water Research Center at Georgia Power's Plant Bowen provided a venue for technology evaluations throughout the power generation process. The project generated new information regarding current and future regulatory compliance considerations related to water withdrawal, use and discharge restrictions. Testing at the Water Research Center successfully informed technology strategies for achieving cost-effective environmental compliance. More than 50 technologies were tested at the Plant Bowen facility and several of those technologies have been implemented throughout the energy industry and across the Southern Company generating fleet.

Due to the success of the Water Research Center, Southern Company and EPRI developed the WRCC to expand our focus on water conservation toward identifying, testing and implementing innovative technologies to reduce our dependence on freshwater resources.

What types of technologies can be tested at the WRCC?

The WRCC is positioned as a resource for the entire energy industry, as well as other industries with cooling and heat transfer needs. The research center provides infrastructure for testing and evaluating technologies related to the following research areas:

- Advanced and alternative cooling systems
- Heat transfer improvements
- Cooling water chemistry control and discharge treatment
- Water and moisture recovery
- Condenser maintenance, cleanliness and corrosion
- Supporting activities related to materials sensors and controls

The WRCC's infrastructure includes a pilot-scale cooling loop called the Heat Transfer Loop that can be utilized for testing, as well as utilities such as water, power and compressed air so that stand-alone pilot systems can be brought in for testing. The facility is equipped to use plant service water from the Chattahoochee River, but also has storage capacity for testing alternative water sources such as municipal wastewater and source water from other power plants or industrial facilities.

How many technologies have been tested at the WRCC?

Since the WRCC at Plant McDonough-Atkinson was commissioned in October 2020, nearly 20 technologies have been tested, including tube coatings for condenser tubes aimed to improve heat transfer and maintain cleanliness in heat exchangers. Others tested include alternative cooling water treatment technologies as well as sensors and monitors to enable better control, operations and maintenance of cooling systems.

What are the benefits of the technologies that are being tested at the WRCC?

The studies and technology evaluations conducted at the WRCC provide innovative solutions to help us reduce withdrawal and consumption of freshwater for generation.

- Heat transfer improvements enhance the efficiency of our power plants resulting in reduced greenhouse gas emissions and water intensity.
- Cooling water chemistry research allows us to optimize chemical use in our cooling and water treatment systems as well as look for alternative and chemical-free treatment technologies.
- Water recovery and reuse technologies allow for reduced withdrawal and consumption from freshwater sources.

As new technologies emerge, the WRCC plays a vital role in assessing the water intensity of these technologies and providing thought leadership in how to best manage water as a shared, finite resource.



WRCC Heat Transfer Loop