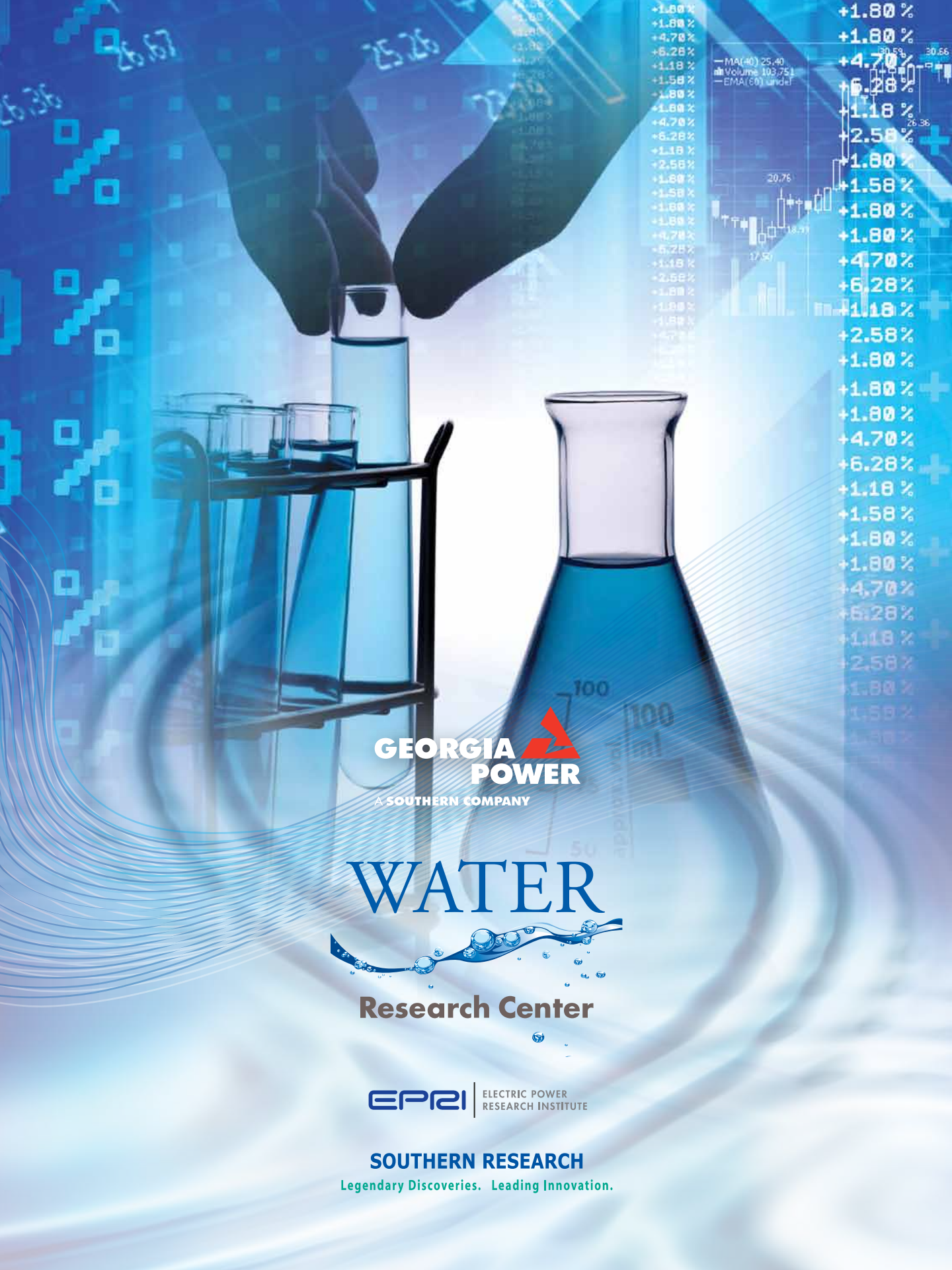

GEORGIA POWER

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# WATER

## Research Center

EPRI | ELECTRIC POWER RESEARCH INSTITUTE

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Georgia Power and the Electric Power Research Institute (EPRI), through a tailored collaboration, are opening a Water Research Center at Georgia Power's Plant Bowen, near Cartersville, Ga. to research water-dependent technologies associated with power generation.

Georgia Power's Water Research Center (WRC) will provide a site for testing technologies to address efficiencies of water use in generating electricity. Research may also result in lower water withdrawal and/or consumption, and improved overall water quality in power plant processes.

WRC outcomes will be shared with Georgia Power, EPRI members and, ultimately, the broader electric utility industry. This will allow utilities to evaluate new technology research and, where appropriate, improve water efficiency.

The WRC, which will be operated by the Southern Research Institute, will serve to educate industry, academia and community leaders about the importance of smart water use and water conservation.

When completed in late 2012, the Water Research Center will have seven distinct focus areas:

**Moisture Recovery**

The Moisture Recovery focus area will research innovative technologies and methods to recover moisture that would otherwise be consumed or lost into the atmosphere through such processes as scrubber and cooling tower plumes and flue gas.

**Cooling Tower & Advanced Cooling Systems**

The Cooling Tower & Advanced Cooling Systems focus area will explore ideas like increasing cooling tower cycles of concentration, diversion/reduction of cooling tower heat loads, the feasibility and applicability of hybrid/dry cooling systems, wet surface air coolers, reducing parasitic load and the utilization of non-traditional water sources.

**Zero Liquid Discharge**

The Zero Liquid Discharge focus area will explore various technologies that separate pollutants into a solid material and a high quality distillate. This area will investigate the use of these technologies for treating flue gas desulfurization blowdown and other low-volume waste streams. The distillate waters created from these processes could be reused within the plant boundaries for purposes such as flue gas scrubber pre-quench, boiler feed water, service water and ash wetting.

**Low Volume Wastewater Treatment**

The Low Volume Wastewater Treatment focus area will explore technologies to treat water from various waste streams throughout the power plant such as floor drains and storm water runoff that will allow the use of these waters in various processes within the plant.

**Solid Landfill Water Management**

The Solid Landfill Management focus area will explore water issues related to managing onsite landfills with the addition of new solids such as zero liquid discharge salts and sludges to existing landfills containing bottom ash, fly ash and gypsum.

**Carbon Technology Water Issues**

The Carbon Technology Water Issues focus area will explore models to determine the impacts of retrofitting various post combustion carbon capture technologies to the use of water at the plant site. This center will develop strategies to reduce the impact of $CO_2$ capture on plant water usage.

**Water Modeling, Monitoring & Best Management Practices**

The Water Modeling and Monitoring focus area will utilize results from each of the focus areas to model strategies for managing water balances and to explore tools for evaluating overall water use (baseline and real time), process and wastewater rerouting, reuse/recycling and conservation/recovery methods and impacts. The Best Practices focus area will develop a standard procedure for formulating, evaluating and selecting power plant water management options based on reliable technical and economic analyses. The end result will enable quick and accurate assessments of water uses throughout an electric power generation facility, identify conservation, recycle and/or reuse options and evaluate the impacts of such options on plant makeup water needs, process water chemistry and wastewater treatment requirements.

***"The Water Research Center will test technologies and address industry-wide water use efficiencies and power generation process water quality. The outcomes of this pioneering research will be highly analyzed to determine what works and what doesn't work to conserve water in very specific ways in the associated processes of generating electricity."***

***— Paul Bowers,*** *President and CEO, Georgia Power*

Keeping the lights on in Georgia requires significant water resources, so we have a long vested interest in using water wisely. While the company withdraws water from public waterways, on average we put back 90 percent of what we take out.

Like most other businesses, droughts like we've seen over the past few years impact our business. The company has conducted aggressive water research pilot projects to reduce water use in cooling and emission control processes.

To be more effficient in our water use, we are proud to partner with EPRI on a first-of-its-kind power generation water research project at Georgia Power's Plant Bowen.

The Water Research Center will test technologies and address industry-wide water use efficiencies and power generation process water quality. The outcomes of this pioneering research will be highly analyzed to determine what works and what doesn't work to conserve water in very specific ways in the associated processes of generating electricity.

With high demands on existing water supplies, smart water management and use will be even more important in the years ahead as Georgia's population continues to grow. It's up to all of us as businesses and citizens to explore innovative ways we all can help to preserve our water resources.

Paul Bowers
President and CEO
Georgia Power

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*Georgia Power is the largest subsidiary of Southern Company, one of the nation's largest generators of electricity. The company is an investor-owned, tax-paying utility with rates below the national average. Georgia Power serves 2.3 million customers in all but four of Georgia's 159 counties.*

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*The Electric Power Research Institute (EPRI) is an independent, non-profit company performing research, development and demonstration in the electricity sector for the benefit of the public.*

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*Southern Research, an independent not-for-profit scientific research organization, provides advanced research and development for partners in numerous business sectors, including the environmental, energy and utilities industries.*