

SMART GRID

WHAT'S SMART ABOUT SOUTHERN COMPANY?

**We're ensuring a smarter, more robust grid by investing in technology to optimize our performance, reliability, and security.**

Southern Company has invested billions of dollars to build and maintain a smarter, more robust transmission and distribution system. Long before the term "smart grid" evolved, we were using smart grid technologies to remotely monitor the grid, gather data regarding grid conditions, and isolate problems on the grid, enabling faster restoration of power. Over the next few years, we plan to invest billions more to expand and maintain our grid and to ensure that it continues to become even smarter and more robust through the application of intelligent electronic devices. The stimulus funds we expect to receive for smart grid investments will enable us to accelerate our deployment of these technologies. A smart grid provides fast, two-way communication, enhancing our ability to monitor and control our entire electric infrastructure in real time and respond quickly to existing and potential problems.

Smart grid technologies referred to as "self-healing" can automatically isolate potential problems and restore power to unaffected areas. Our substations are getting smarter as well, with enhanced monitoring, protection, and control devices. We're also installing advanced metering, or smart meters, throughout our service territory. This smart meter infrastructure will serve as the last link of a communications connection with our customers. The benefits of a smarter grid are numerous for Southern Company and for our customers. A smarter grid helps us better manage demand, lower operating costs, and improve reliability and efficiency. It will also better integrate intermittent renewable energy and energy storage options into the system. As for our customers, they will have more control over their energy usage and more smart choices for efficiencies in their own homes or businesses.

**Advanced Communications** – Our network of advanced meters will allow us to provide our customers with detailed usage information in the future. To ensure that our advanced metering deployment is successful, we check installed meters to make sure they're working properly. Alabama Power employee Kirk Smith (pictured top right) is one of many metering employees checking smart meters around our system. Intelligent devices we've installed on our grid send vast amounts of data around the clock to our system control centers, providing valuable information that operators use to quickly make decisions and avert problems. Jerry West (pictured right) is a supervisor in our Georgia Power Transmission Control Center.





## Southern Company is a leader in realizing the benefits of a future smart grid today.

**Customer Interaction** – As our grid becomes interactive through the use of smart meters and other advanced technologies, our customers will have access to detailed usage and pricing information that will help them make informed energy-usage decisions. As customers modify their usage, saving money and reducing their environmental impact, Southern Company will see greater reductions in demand, mitigating the need for new generation.

**Reliability** – The list of smart grid technologies and applications being used on Southern Company's grid is long. We've invested in smart grid technologies over the years to help maintain our strong reliability. Some of these technologies enable the grid to communicate potential problems and minimize many disturbances. Others have the ability to take corrective action, restoring service quickly to customers who are not directly affected. We also have technologies that provide system operators with the real-time information and diagnostic tools needed for rapid decision-making, allowing us to avoid outages or minimize their impact. As new technologies become available, we continue to expand the use of intelligent electronic devices on our system for monitoring, improved reliability, and optimum performance.

**Efficiency** – We continue to invest millions of dollars in efficiency measures designed to reduce peak energy loads and minimize the loss of energy as it travels across the grid, thereby reducing fuel requirements. Our future plans call for a host of technologies that will

monitor and optimize power flow, as well as customer programs designed to promote voluntary usage reductions.

**Environmental Initiatives** – Our deployment of smart meters is eliminating the need for in-person meter reading and other service orders, thereby reducing vehicle emissions. So far, we've taken more than 7 million miles of vehicle travel off the road. And, we're installing space-saving substation equipment in some of our newer substations, thus reducing the visual impact on the community. As technology advances, we expect to discover more ways to reduce our environmental impact through initiatives in generation, transmission, distribution, energy storage, and energy usage.

**Systems Integration** – We're a year into developing the next generation of systems integration technology. The Integrated Distribution Management System is an application that integrates incoming information from multiple smart grid technologies and presents it to system operators in a single interface, enabling faster and better-informed decisions.

**Security** – Maintaining the reliability and security of our computers, control systems, and other cyber assets used to operate the electric grid is a top priority for Southern Company. We are constantly working to strengthen and improve the operation and security of those systems.

**Smart Substations** – As new substations are built or equipment is added to existing substations, we're using the smartest technology available to enhance our monitoring and control capabilities while maintaining our proven reliability. James Suttles, Jr., a Georgia Power transmission team leader, is one of many transmission and distribution employees who upgrade our substation equipment.