

## **Technical and Economic Studies for 100% Biomass Repowering at Southern Company Plants**

EPRI is conducting technical and economic studies for Southern Company on the conversion of several of the utility's coal- and gas-fired units to 100% repowering with renewable wood biomass. Results of the studies, together with Southern's own financial analysis, are providing the analytical basis necessary for the company to proceed with plant conversions.

The studies are compiling and analyzing data for plants at Georgia Power, Gulf Power, Alabama Power, and Mississippi Power, and include pulverized coal-fired boilers and gas-fired units. The studies are investigating the full range of issues involved in power conversion, including unit operational changes, expected operational costs, new environmental controls, emissions, new fuel storage and handling equipment, required fuel supply, and local and regional fuel suppliers.

### **Plant Mitchell**

Of the EPRI studies under way, the furthest along is that for Georgia Power's Plant Mitchell, near Albany, Georgia, which is currently a 164-MW pulverized-coal-fired (PC) boiler. EPRI has completed its study for Plant Mitchell and expects to publish the results in early 2009. Results will also be available to members of EPRI's Biomass Interest Group (BIG) and Program 84 (Renewable Generation).

In August, Georgia Power asked the Georgia Public Service Commission (PSC) for approval to convert Plant Mitchell to renewable wood biomass. Upon conversion, the plant will have a net capacity of 96 MW and would be one of the largest wood biomass plants in the United States. The plant would have lower emissions and would also have lower fuel and operating costs when compared to continued operation using coal, thereby making the plant more cost-effective for customers. Surplus wood fuel for Plant Mitchell would come from suppliers operating within an approximately 100-mile radius of the plant.

The PSC is expected to rule on the proposal to convert Plant Mitchell to biomass by March 17, 2009. Retrofit construction would begin by spring of 2011, and the biomass plant would likely begin operations in June 2012.

### **Other Studies**

The other EPRI studies are for Gulf Power's Plant Scholz, which has two 40-MW pulverized coal-fired boilers, and Mississippi Power's Plant Sweatt, which has two 40-MW gas-fired boilers. For Alabama Power, the EPRI team is, first, taking a high-level view of regional biomass supply in the state, which will then help them focus on the most cost-effective plants for conversion.

### **Biomass Interest Group**

EPRI's Biomass Interest Group (BIG) explores future plans, findings from site visits, and discussions of biomass research topics, deployment issues, and project developments.

Projects in 2008 include:

- **Biomass Cofiring Handbook.** This effort will capture information from various U.S. demonstrations and international experiences, and provide a “one-stop shop” for information on co-firing biomass with coal.
- **Role of Biomass Gasification in Power Generation.** This project is analytically examining some of the key variables and issues that may be still restraining deployment of biomass gasification-based energy projects. The end result will offer some clarity regarding the boundary conditions for developing these projects, and offer EPRI members guidance in deciding where and if to emphasize their own project development efforts.
- **Biomass Carbon Life-Cycle Perspectives.** This work will summarize current research on the carbon footprint of biomass-based power generation.
- **Fluid-Bed Boilers for Biomass.** This study will summarize world experience in using fluid-bed boilers for biomass combustion and identify key issues in handling, materials, and environmental performance.

**For more information contact Dave O'Connor, 650-855-8970, doconnor@epri.com.**

