**GEORGIA POWER COMPANY**

**LOAD AND ENERGY FORECAST**

Georgia Power Company prepared a twenty-year load and energy forecast during 2018 to determine system planning requirements. A comprehensive description of the forecast is contained in Volume 1, Budget 2019 Load and Energy Forecast, of the technical appendices of the 2019 Integrated Resource Plan filed in Docket No. 42310. The Budget 2019 Forecast includes the retail classes of residential, commercial, industrial, MARTA, and governmental lighting. The load and energy forecasts are used to (1) develop the retail revenue forecast, (2) quantify our expected peak demand, (3) prepare a cost-of-service study as necessary, and (4) budget resources required to provide reliable service to our customers on a continuing basis. The forecast includes the test period for this regulatory filing, the twelve months ending July 31, 2020.

The Budget 2019 load and energy forecasts were developed through a joint effort of Georgia Power and Southern Company Services (SCS). The forecasts were developed through careful consideration and methodical examination of key demographic and economic variables that historically have been significant indicators of energy consumption. Major assumptions include the economic outlook for the United States and Georgia, energy prices, and market profiles for class end-uses.

The economic forecast gives a description of the economy for the next 20 years and includes many elements of the economy such as gross product, population, employment, commercial building square footage, and industrial production. The economic and demographic forecasts for Budget 2019 were obtained from IHS Markit, a national provider of economic data and forecasts.

Both the U.S. and Georgia experienced solid economic growth from 2013-2017. Over this period, U.S. Gross Domestic Product (GDP) growth averaged 2.3% per year, while Georgia’s economy experienced growth of 3.1% per year. During this period, U.S. employment grew by an average rate of 1.8% per year and the unemployment rate fell from 8.0% to 4.1%. In Georgia, employment growth averaged 2.5% per year and the state’s unemployment rate fell from 8.7% to 4.5%. In 2018, the unemployment rate fell below 4% for both the U.S. and Georgia.

Despite solid economic growth in Georgia, Georgia Power’s total retail energy sales have flattened since 2007. Over the 2007-2017 period, weather normalized total energy sales fell at an average annual rate of -0.2% and remain below 2007 levels. The commercial and industrial classes declined over this same period, down an average of -0.2% and -0.8% per year, respectively. The residential class is the only one that experienced modest growth, up an average of 0.2% per year over the past ten years. In more recent years, total retail sales began to grow due to the strength of the economy in Georgia, as evidenced by strong growth in the number of total customers. Between 2013 and 2018, total retail energy sales grew at an average annual rate of 0.5%.

Georgia’s economic growth is expected to continue over the next few years. One factor contributing to growth is that the state is an attractive place to do business. Georgia’s low cost of doing business and low cost of living, the deep pool of knowledge and technical workers coming from its university system, its globally connected airport and transportation infrastructure (e.g. ports, highways), and its business-friendly government policies will continue to attract businesses. Positive demographic trends are another factor driving growth in the state. As businesses continue to relocate and expand in Georgia, the state will experience solid employment growth, which will attract new residents. As a result, population growth will remain above the U.S. average.

Additional businesses and a growing population are expected to provide a boost to energy sales. From 2019-2029, total energy sales are projected to grow at an average annual rate of 0.7%. Residential sales are expected to grow by an average of 1.2% per year over this period as the increase in the number of customers outpaces the reduction in use per customer resulting from energy efficiency. Industrial sales are expected to increase at an average annual rate of 1.0% primarily due to the addition of a very large customer. Sales to the commercial class are expected to remain nearly flat, declining by an average of −0.1% per year due in part to increased energy efficiency. Peak demand is expected to increase at an average rate of 0.5% per year.

The models used to produce both the short- and long-term energy forecasts include a variety of economic and demographic variables as drivers of energy use. Weather, income, employment, historical load data, and industry standards for electrical equipment are among the variables used in the forecasting models. “Normal” weather is defined as the average of Cooling Degree Hours (CDH) and Heating Degree Hours (HDH) from 1980-2017.

Short-term energy projections, with the exception of governmental lighting, are based on linear regression models developed for the various energy classes. The governmental lighting forecast is developed using information from Georgia Power field personnel.

The long-term forecast models are end-use models. Budget 2019 uses the Load Management Analysis and Planning (LoadMAP) model to produce the long-term residential, commercial, and industrial forecasts through 2038.

The long-term MARTA and governmental lighting forecasts are not based on end-use models. The MARTA forecast uses the linear regression model developed for the short-term forecast, while the governmental lighting forecast is based on information from Georgia Power field personnel.

The results of the short-term and long-term models are integrated into a unified forecast. In Budget 2019, the short-term forecast results were used for the years 2019 through 2021. The long-term models were used to project customer and energy use through 2038 and were calibrated to both historical data and short-term forecasts. This regulatory filing uses the twelve (12) months ending July 31, 2020 as the test period, so the forecast results are from the short-term models.

The integrated energy forecasts were used by the Peak Demand Model (PDM) to produce the forecasts of peak demand and total energy supply (energy at the generator). PDM uses historical hourly load research data for each customer class to derive functions that describe the relationship of load, selected seasons and day-types, and corresponding weather profiles, for weather-sensitive classes. The class monthly energy sales were fitted to those historical load profiles using a description of normal (typical) weather and the derived relationship functions. The normal (typical) weather profile consists of a ranked and sorted monthly weather series over a 38-year period, exhibiting weather characteristics associated with peaking conditions. PDM is used to determine each of the following at the class level: coincident peak demands, non-coincident peak demands, energy requirements at the supply level. Supply level energy requirements are derived by class from the monthly energy sales forecast, using factors that describe the percentage of losses between generator level the and meter level.

The final peak demand forecast includes adjustments for price sensitive rates (RTP), demand side management programs (DSM), and new cogeneration. A more comprehensive description of the load and energy forecast process and the results are included in the previously mentioned documentation.