



GreenvilleWater

Transforming South Carolina's Energy Grid

November 28, 2017

Presented by E4 Carolinas and Duke Energy

Welcoming Remarks by Phillip Kilgore, Chair, Greenville Water

WELCOME

On behalf of the Greenville Water, the Greenville Water Commission, our management team and its 240 employees, I want to welcome you to Greenville Water and to our new Operations Building.

This facility was dedicated in December last year, fulfilling a decades-long dream of consolidating our field operations, field services and garage services on the same campus with our administrative services next door.

This facility was built in close collaboration with the City of Greenville to make sure it is compatible with the overall vision for our community. The land this is on was the site of rundown buildings and crumbling parking lots. It is now a modern, energy-efficient operations center, with green space to buffer our operations and this community room to host neighborhood meetings and conferences for our friends and partners. We are particularly proud to be hosting this event, which is of such importance to you in the energy sector, but also our business and the entire community.

THE WATER ENERGY NEXUS

Water and energy are critical, mutually dependent resources—the production of energy requires large volumes of water and operating a water utility infrastructure requires large amounts of energy. This interdependence calls for a better understanding of the water-energy nexus and mutually beneficial and supportive policies.

As you all are aware, it takes a significant amount of water to create energy. Water is used to cool electric power plants – fueled by coal, oil, natural gas and nuclear fuel. Interestingly, freshwater consumption for thermoelectric purposes is low when compared to other use categories such as irrigation, which was responsible for 81 percent of water consumed.

Likewise, producing safe, affordable tap water depends heavily on the availability of an ample supply of raw water and affordable energy resources. We are blessed to have both through our partnership with Duke Energy. Duke's need for cooling water for its Oconee Nuclear Station led to the construction of Lake Keowee, one of our three water sources. And, of course, this power plant helps supply the energy necessary to extract, convey, and treat raw water, and deliver finished water to customers throughout the Upstate. Additionally, energy is required to collect, treat, and dispose of wastewater.

In 2010, the U.S. water system consumed over 600 billion kWh, or approximately 12.6 percent of the nation's energy, according to a study by researchers at the University of

Texas at Austin. The study found water systems use about 25 percent more energy than is used for residential or commercial lighting in the U.S.

In 2016 alone, Greenville Water spent \$2.5 million on power. That's 8% of our operating budget. According to AWWA, energy costs can be up to 35% of the operational budget for utilities. Thanks to long term planning by my predecessors on the Greenville Water Commission and our exceptional management and staff, our energy costs remain manageable and allow us to keep rates among the lowest in the nation.

MUTUAL CHALLENGES

We applaud Duke Energy for its strategic planning and forward thinking. Water and energy utilities face many of the same challenges impacting supply, demand, and management. A number of these variables include:

Growing population and consumer demand. This speaks for itself

Agricultural demand: Feeding a growing population may require greater percentage for agricultural water use in the future. Agriculture accounts for approximately 37 percent of total freshwater withdrawals in the U.S., and 81 percent of water consumption.

Shifting geographical water demand: Water supply and demand are not geographically linked. Areas with the highest population growth in the United States may be in the most water deficient regions.

Climate Change: Climate change could affect water supply and electricity use.

Accordingly, we understand the need to study these issues. Greenville Water recently completed a Water Resources and Facilities Master Plan with the assistance of (1) Goodwyn Mills and Cawood, (2) Greeley and Hansen, and (3) Clemson University. The planning process began with growth and population projections. We were able understand steps we should take now, in the mid term and in the long term to assure that our water resources and our treatment and transmission facilities will be adequate to meet the needs of our customers for the next 100 years. Guiding us throughout this process was our vision – Quality Water and Sustainable Future.

PARTERSHIP WITH DUKE

So we are bound with Duke by our mutual interests, our mutual challenges, our interdependence and our shared desire to serve the community. We put this mutually beneficial and supportive relationship into action in a number of ways.

A concrete example of this is our shared approach to resource management. Greenville Water was actively involved with the Keowee-Toxaway Drought Management Advisory Group, which developed the Low Inflow Protocol for Duke's FERC relicensing process. This protocol defines how drought conditions on Lake Keowee will be monitored and managed to allow for power production while minimizing impacts to the Savannah River Basin.

We applaud Duke Energy's sizeable donation to a 501c3 created to manage source water protection efforts on Lake Keowee. The mission of this group is to protect the quality of water in Lake Keowee for all users through educational programs and

awareness campaigns. These efforts will be very beneficial to Greenville Water and its customers.

A BIT OF HISTORY

We here at Greenville Water have yet another basis for our strong relationship with Duke Energy. We actually are sister utilities.

Greenville Water will be celebrating its 100th year in 2018. It was founded when it acquired the assets of the Paris Mountain Water Company in 1918.

Paris Mountain Water was formed in the 1880s by the American Pipe Manufacturing Company of Philadelphia. American Pipe and its affiliates also helped organize other Greenville utilities, including the Greenville Traction Company and the Greenville Gas and Electric Light and Power Company. Greenville Gas and Electric was later sold to Southern Power Company which eventually evolved into Duke Power Company.

CLOSING

Again, we welcome you to Greenville Water. We are appreciative of our partnership with Duke Energy and are honored you have chosen this facility for this important conference.