Introductions and Agenda Review

1. At 10:03 AM, Ken Kearns, facilitator, opened the meeting by welcoming participants. Scott Willet gave a safety briefing. Kearns invited introductions and gave an overview of the agenda.

Overview of Keowee-Toxaway Hydro Project Relicensing

2. Jen Huff, Duke Energy’s Keowee-Toxaway Project Relicensing Manager, gave an overview of the Keowee-Toxaway relicensing process, which began more than five years ago. The Keowee-Toxaway Project includes the Keowee and Jocassee Hydro Developments. Duke Energy also operates the Bad Creek Pumped Storage Project under a separate license with the Federal Energy Regulatory Commission (FERC). Lake Keowee provides cooling water for the Oconee Nuclear Station (ONS), and the
Keowee Hydroelectric Station provides emergency backup power to ONS in case of loss of off-site power. The Keowee-Toxaway and Bad Creek Projects support 13 percent of Duke Energy’s generating capacity in the Carolinas.

3. Relicensing is a huge effort, resulting in a New License term between 30-50 years. There was a robust stakeholder process as part of the relicensing, and its primary goal was the Relicensing Agreement (RA), which defines the Stakeholder Team’s recommendations to the FERC about how the Project should be operated during the New License. The RA will be submitted to the FERC with the Final License Application. In addition to the RA, Duke Energy is working with the U.S. Army Corps of Engineers (USACE) and Southeastern Power Administration (SEPA) to replace the 1968 operating agreement (1968 Agreement, which determines water release requirements from the Keowee-Toxaway Project to Hartwell Lake) with a New Operating Agreement.

4. The current FERC Keowee-Toxaway license expires in August 2016. The New License is scheduled to be issued in 2016 and extend for 30 to 50 years. Therefore, water quantity related studies were modeled out to 2066. The license application will be filed with the FERC by August 2014, and the New License is expected to be issued in 2016.

5. The RA identifies new reservoir operating levels and the Keowee-Toxaway Project Low Inflow Protocol (LIP). During normal (non-drought) conditions, Duke Energy can operate within the top 14 feet at Lake Jocassee and the top 4 feet at Lake Keowee. But when operating under the LIP, Duke Energy can operate Lake Jocassee and Lake Keowee to lower lake levels. The LIP became effective in December 2013.

6. People interested in learning more about KT Relicensing can register to receive newsletter updates by emailing ktrelicensing@duke-energy.com. All past newsletters are posted online. The Duke Energy on-line library on the website includes all FERC filings and study reports (http://www.duke-energy.com/keowee-toxaway-relicensing/online-library.asp).

Water Supply Study

7. Jonathan Williams provided an overview of the Savannah River Basin Water Supply Study completed as part of the Keowee-Toxaway Project relicensing. He reviewed the goals, objectives, and methodology of the study and the resulting water use projections.

8. The study estimates a 144 percent increase in net withdrawals over the fifty-year horizon. It includes estimates for additional water use for power generation serving increases in population. Williams compared Water Supply Study projections to those in the current Georgia State Water Plan. Even allowing for the fact that the two projections had different goals and were completed at different times, they compared favorably except for the Keowee-Toxaway sub-basin. One factor contributing to this variance is that Georgia assumed no increase in power or municipal water demand from 2020 to 2050 in their water plan for the Keowee-Toxaway sub-basin.

9. Steve Jewsbury noted that the Water Supply Study is more conservative for the Keowee-Toxaway Project (i.e., estimates more water use) than the Georgia plan. Williams confirmed this. Nap Caldwell clarified that the Georgia State Water Plan is
updated every five years; so the longer-term projections need not be as detailed as for the Keowee-Toxaway Water Supply Study, which is only conducted during relicensing.

Savannah River Water Quantity Models

10. Chris Ey discussed the hydro operations modeling used for modeling reservoir operations for the upper Savannah River Basin, including the USACE reservoirs. Two models were developed, one using CHEOPS™ and the other using HEC-ResSim. He explained that the USACE’s HEC-ResSim model is used by USACE for modeling reservoir operations. CHEOPS™ is slightly more versatile for determining impacts to power generation from reservoir operations.

11. Both models use a 73-year set of unimpaired inflows as the inflow into the three Duke Energy reservoirs and the three USACE reservoirs. The models also simulate the flows released downstream from Thurmond Dam under a variety of scenarios.

12. Ey reviewed the model characteristics, hydrology, historic inflows, runoff statistics, model inputs and outputs, and output performance measures (based on stakeholder interests) used to evaluate and compare scenarios. Kearns used the historical inflows chart to show how droughts were anticipated in future modeling.

Keowee-Toxaway Hydro Project’s New Low Inflow Protocol

13. Ed Bruce welcomed everyone and explained that he would be coordinating the Keowee-Toxaway Drought Management Advisory Group (KT-DMAG) for Duke Energy. He then reviewed the LIP, which is Appendix D of the RA. He reviewed the reservoirs’ geographic locations and normal reservoir operating elevations expected in the New License.

14. He then reviewed the details of the LIP. Each stage is determined in part by the corresponding level in the USACE’s Drought Plan, except for LIP Stage 0 and Stage 4. The USACE’s Level 4 occurs when there is no remaining usable storage in the USACE reservoirs, and the LIP goes to Stage 4 when there is still a small amount of remaining usable storage in both the USACE and Duke Energy reservoir systems. He reviewed the responsibilities and actions of Duke Energy and the public water suppliers with Large Intake Owners (≥ 1 Million Gallons per Day (MGD) capacity) on Lake Keowee.

15. Bruce further explained the proposed New Operating Agreement between Duke Energy, the USACE, and SEPA. He reviewed what has changed physically in the Savannah River Basin since 1968. He also reviewed the Comprehensive Report Duke Energy recently submitted to the USACE and SEPA that documents the impacts of replacing the 1968 Agreement. As part of the New Operating Agreement, ONS will be modified to be capable of operating at a lower level in Lake Keowee than is currently the case.

16. Bruce explained that, in the modeling simulations using the 73-year inflow data set, LIP Stage 4 was reached only once. Even so the projections showed that the Keowee-Toxaway Project never ran out of usable water storage.
Georgia Water Planning and Drought Response

17. Nap Caldwell provided an overview of the Georgia Drought Plan. He reviewed the Georgia Water Quality Control Act, which allows for restrictions on withdrawal permit holders. The act states two priorities for its drought plan: human needs and agricultural use.

18. Caldwell reviewed the history of emergency water shortages in Georgia. There were three recent periods of emergency water shortage: 1986 to 1988, 1998 to 2001, and 2007 to 2009. Since 1980 Georgia’s population has almost doubled, irrigation increased, and lessons learned from previous drought situations were implemented during the most recent drought. There was no state drought management plan in 1988. From 1998 to 2001, there still was no state drought plan, but one was beginning to be created and some steps – that were eventually included in the adopted drought management plan – were implemented in 2000. In 2007, there was a drought management plan in place, and the Governor took steps beyond what was outlined in that plan to further reduce water use in some areas. A 2008 statute requires local governments to get permission from the Georgia Environmental Protection Division (EPD) before employing outdoor water use restrictions that are different from those imposed by the State.

19. Caldwell reviewed pre-drought strategies, which included implementing drought preparedness, conservation, monitoring, and mitigation. Development of regional water supply needs are a part of pre-drought preparedness strategies, and State financial assistance is currently being provided to assist local governments in developing new and expanded water supply reservoirs.

20. Caldwell reviewed drought indicators, which are specific to each of Georgia’s nine climate divisions and include precipitation, lake elevations, river and stream flows, and groundwater levels. He also reviewed drought triggers. Drought stages are based on values assigned to each indicator.

21. Caldwell reviewed responses to drought, which mainly involves restricting outdoor water use depending on the stage of drought. Enforcement is imposed through water withdrawal permits. Georgia EPD expects to have a new drought rule by the end of 2014, which might require actual percentage reductions in water use during some subsequent droughts. Scott Willet, Anderson Regional Joint Water System, asked about industrial and power generation water use reductions as part of Georgia’s Drought Plan. Caldwell explained EPD’s statutory mandate require that drought management actions be first directed at preservation of water supplies for human consumption, then for farm uses, but does not preclude them from actions that address industry and power generation considerations in the future.

22. Jewsbury asked if there are plans for new reservoirs. Caldwell explained that building new reservoirs is one the Governor’s priorities, but other water supply projects might also get funding.

South Carolina Drought Response

23. Hope Mizzell, South Carolina’s Climatologist for the South Carolina Department of Natural Resources (SCDNR), provided an overview of the South Carolina drought response plan. The plan was first established in 1985 and revised in 2000. Even
though there is a state drought program, the first level of response comes at the local level.

24. Mizzell described the Drought Response Committee as defined in the Drought Response Act. There is a state-level committee and also regional committees. The regional committee members are nominated by the Governor, a process that has made it procedurally difficult to fill the committee vacancies. There can be up to a 30-35 percent vacancy for some regions. Many regional committee members represent water systems.

25. The drought plan specifies seven drought indicators, including Palmer Drought Index, precipitation, U.S. Drought Monitor, etc. that are compiled county by county. There are four drought levels. At “severe” (level 3), mandatory water use restrictions can be imposed, but the committee has not done that to date.

26. Mizzell also addressed water use restriction enforcement. Water suppliers can be fined $50 to $1000 for each violation. However, the logistics of enforcement are still being worked out. The appeal process might take some time if someone violated a mandatory use restriction, and that could delay further state-level response.

27. There is a tracking system for water use restrictions on SCDNR’s website. Model local drought response ordinances can also be viewed online. Mizzell reviewed an example of a local drought ordinance.

28. Mizzell explained that the drought plan might be revisited soon in light of South Carolina’s new Surface Water Withdrawal legislation.

29. Jewsbury asked about interbasin transfers. Michael Bishop explained that existing interbasin transfers were renewed as part of Surface Water Withdrawal permitting for existing users. However, some interbasin transfers that existed under the old law went away when the new law reduced the total number of defined basins down to eight.

Status of USACE Savannah River Basin Comprehensive Study

30. Stan Simpson provided an overview of the Comprehensive Study for updating the USACE’s Drought Plan, which will include the operating parameters of the New Operating Agreement. The overall intent of the New Operating Agreement is to make remaining usable storage in the Duke Energy reservoirs consistent with the USACE reservoir remaining usable storage.

31. All energy produced by USACE projects and sold through SEPA goes back into funding the principal and operations and maintenance costs of the projects. When projects reduce flows, SEPA has to buy power from other sources which costs more than the costs to build and operate the hydro project.

32. Simpson reviewed the environmental analysis’s drought plan alternatives. There are saltwater intrusion concerns around Savannah when flow levels below Thurmond Dam drop; however, the option Duke Energy has proposed should not trigger those concerns. Mitigation is being identified for any new impacts identified as a result of replacing the 1968 Agreement with a New Operating Agreement.
33. The USACE anticipates a draft of the Environmental Assessment of the New Operating Agreement being available for public comment in the next month.

34. Bruce asked if the USACE will be looking at future water use projections in the update to the USACE drought plan. Simpson answered that they will probably be looking at 30-year projections.

Keowee-Toxaway Drought Management Advisory Group Purpose and Functions

35. Jeff Lineberger thanked everyone for participating in the group meeting today. He explained why Duke Energy is participating in this initiative. Duke Energy is very interested in continued economic development, which needs reliable and affordable sources of water and electricity. Communities have grown around reservoirs, which has resulted in many new public water intakes. Duke Energy has acquired a responsibility to manage the raw water supply, and wants to make sure that they don’t have to tell people they are going to run out of water without doing everything possible to avoid running out of water and communicating conditions. In droughts there is a need to extend the water supply for more essential uses, which is one of the goals of the KT-DMAG.

36. Kearns explained that droughts are like extended emergencies. It's important to be prepared and understand the impacts of a drought, to have good information, communication systems in place, to coordinate, and encourage speed of action. The KT-DMAG particularly addresses the need for information, communication, and coordination.

Catawba-Wateree (CW) DMAG Experiences during 2007-2009 Period-of-Record Drought

37. Mike Bailes reviewed how the Catawba-Wateree Drought Management Advisory Group (CW-DMAG) functioned during the drought of record in the Catawba-Wateree River Basin. A drought watch was announced in July 2006, and the region saw an immediate uptick in water use with that announcement. Then, as additional more severe stages were announced, Stages 1, 2 then 3, they saw water use drop significantly compared to historical use when mandatory water use restrictions were in place. Water use is still below normal because customers are conserving and being more efficient in their use.

38. The reductions did impact the suppliers financially, but each water supplier figured out how to deal with that with creative rate structures. Bailes admitted he was originally skeptical about the effectiveness of the CW-DMAG, but it did work, and the collective actions of the group resulted in avoiding LIP Stage 4.

39. He explained coordination is critical. Press communication outreach was coordinated through the CW-DMAG, which helped smaller water suppliers who don’t have communication resources of their own.

40. After the 2007-2009 drought, the CW-DMAG formed a committee to review what worked with the LIP and what didn’t during the drought. They learned that some drought triggers, like groundwater, needed more information, so a companion group invested in installing more groundwater monitors. They also determined it would be
beneficial to implement mandatory water use restrictions faster than required by the LIP.

41. Dyke Spencer noted that coordination may be more difficult for the Savannah River Basin because of the length of the basin. Bailes answered that it’s easier to coordinate when you’re frequently discussing the recommended actions throughout the basin. Being at the end of the system still means that you need to be aware of what others are doing in the basin.

42. Kearns explained how press releases were distributed by the CW-DMAG.

KT-DMAG Organizational Topics and Next Steps

43. Kearns reviewed the purpose of KT-DMAG: to advise and work with Duke Energy when the LIP is activated and to foster a basin-wide response to droughts. Some other groups are already addressing drought in Savannah River Basin as referenced above. He reviewed the LIP-defined voluntary membership of KT-DMAG, but noted that it is not limited to a certain group of people. Bruce added the group name is a little misleading because the entire basin can participate in this group.

44. Caldwell asked what Georgia operators are being asked to do. Kearns explained that the hope is that they would coordinate their drought action with other water suppliers throughout the basin, but “coordinate” is yet to be discussed and defined. Bailes added that participation is only going to cost a little bit of time. It doesn’t hurt to participate.

45. Kearns explained the only duties of the KT-DMAG defined in the RA are to create a charter and then to meet annually unless drought conditions are occurring. Bruce explained that he will provide drought trigger updates and other operational information to the KT-DMAG once the group organization is completed. The KT-DMAG will operate in an information and data sharing environment, but the group will also try to achieve consensus on actions as needed.

46. Ed Saxon asked what an organization would have to agree to for joining the group. Kearns explained that they would coordinate their drought response actions with others on the KT-DMAG. “Coordination” will need to be further defined by the KT-DMAG.

47. Kearns reviewed the elements of a typical charter. Bruce explained that Kearns and Bruce will develop a draft charter and send the draft out for review. The group will plan to meet again in a few months to review and edit the draft charter and discuss other organizational issues.

48. The meeting was adjourned at 2:45 PM.