



So now we know...

I don't know how the end of the year was for you, but it was an incredibly busy time for Duke Energy's Keowee-Toxaway relicensing team. Even though we've been working on the identification and scoping of the studies for Keowee-Toxaway relicensing for more than two years, it's all come together in a rush!

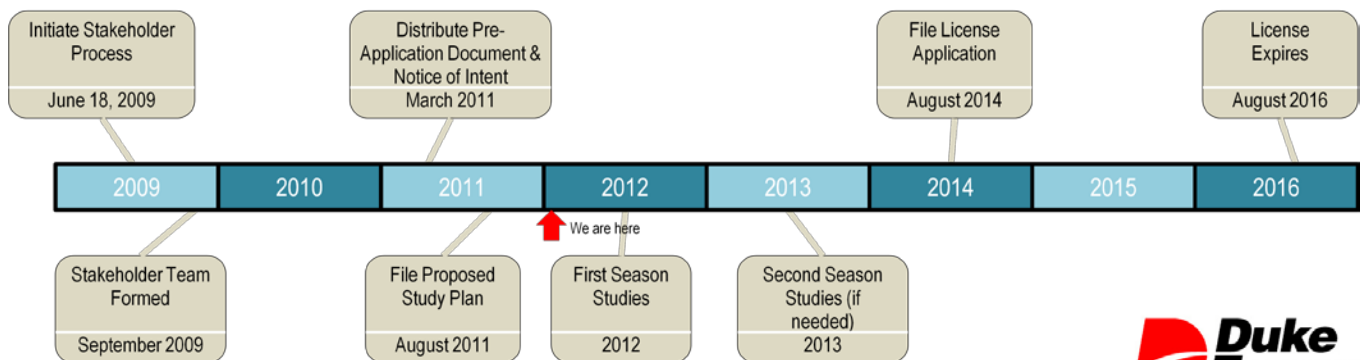
I'm going to take a moment to remind you of how we got to where we are now with respect to the studies Duke Energy will implement during relicensing. It all started wayyyyyy back in 2009 when we first formed our Stakeholder Team and Resource Committees (RC). One of the very first things the groups did was review Duke Energy's proposed studies. These proposed studies were then included in both a draft Pre-Application Document (PAD) shared with the Stakeholder Team and the PAD distributed to 160-some individuals and groups in March 2011. We then participated in the FERC scoping meetings, held a two-day meeting to gather even more input, and had more Stakeholder Team and RC meetings. Based on the information presented in the PAD and stakeholder input, Duke Energy developed the Proposed Study Plan (PSP) and distributed it in August 2011. Ninety days later, we had comments from stakeholders about the PSP. Thirty days after that (notice how the turn-around times are getting shorter!), we distributed the Revised Study Plan (RSP). Just fifteen days later, stakeholders submitted their comments on the RSP to the FERC. And finally, fifteen days after that, the FERC issued their ruling. Whew! While it took us some time to get this relicensing train rolling, it was definitely moving quickly by the end of 2011.

You may be asking, "So what's next?" Well, we are now in a different phase of relicensing. Most of the discussion and debate about what and how to study has been settled by the FERC in their study plan determination. Now is the time when Duke Energy's scientists, engineers, and consultants really get to work implementing the studies. The Stakeholder Team will also step up their efforts to develop the Relicensing Agreement. So, 2012 promises to be an exciting (and busy!) year for those of us involved in relicensing!

Jen Huff

KT Relicensing Project Manager

Timeline Overview



Stakeholder Team Begins Considering Future Agreement



One of the goals of the Keowee-Toxaway Stakeholder Team is to develop a Relicensing Agreement outlining how the Keowee-Toxaway Project should be operated during the next license term. The Federal Energy Regulatory Commission (FERC) has for some time encouraged and given considerable deference to such locally developed agreements (FERC calls them “settlements”). But over the years the FERC has received many agreements with measures it could not accept so it issued guidance for stakeholders: *Policy Statement on Hydropower Licensing Settlements* (September 21, 2006) (available on www.ferc.gov). The Statement discusses principles for acceptable agreement measures and refers to real examples of measures that failed to meet the principles. Mark Pawlowski, Chief, South Branch in FERC’s Office of Energy Projects, gave an excellent presentation on the FERC’s settlement policy at the December 2011 Stakeholder Team meeting.

For those interested in the relicensing process, the 19-page document is a good read. I’ve summarized several points from both the Policy and Mr. Pawlowski’s talk I believe are relevant as context for the discussions the Stakeholder Team will have in 2012. Please be aware this is not even close to a summary of the complete document.

1. ***It’s not a problem unless the FERC agrees it’s a problem.***

Substantial Evidence in the Record – Measures must be based on substantial evidence (e.g., the results of a study) which must appear in the formal record of the licensing proceeding. Even if all the parties agree there’s a problem and support a measure addressing it, the FERC will not include the measure in the license unless there’s substantial evidence of the problem and the evidence demonstrates the problem is associated with the operation of the hydro project.

2. ***Project effects aren’t the same as effects on the Project.***

Nexus to the Project – A relationship must be established between a proposed measure and project effects or purpose. In his presentation, Mr. Pawlowski noted an important difference between project effects (things affected by project operations) and things affecting the project. If appropriate, project effects will be addressed in FERC’s Environmental Assessment. If called for, FERC could include a license article requiring mitigation. Things affecting the project which are not caused by project operations will not be addressed in license articles. For example, if activities outside the project boundary affect water quality in the Project reservoirs, the FERC is unlikely to require the licensee to address the source of the water quality impairment.

3. ***Stakeholders can’t add or subtract from the FERC’s responsibilities.***

Law and Enforceability – The FERC can only enforce a license provision on the licensee (Duke Energy in this proceeding); it cannot enforce agreement requirements on any other party and will not include measures calling for that. For example, a measure calling for a state agency to manage a recreation area or a wildlife refuge would not be accepted because the FERC cannot compel a state agency to do this. If the area or refuge were required for project purposes, the FERC would require the licensee to be responsible for the management. The licensee could then contract with the state agency.

4. ***If it’s needed for the Project, it’ll be in there.***

Project Boundary – According to the FERC, “Project boundaries are used to designate the geographic extent of the lands, waters, works, and facilities that the license identifies as comprising the licensed project and for

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Duke Energy Submits Final Draft Comprehensive Report

Duke Energy submitted a final draft *Comprehensive Environmental, Engineering, and Economic Analysis Impact Report for Revising the 1968 Operating Agreement for the Keowee-Toxaway Project*, or Comp Report for short, to the United States Army Corps of Engineers (USACE) and the Southeastern Power Administration (SEPA) in December. This report represents a collaborative effort between Duke Energy, the USACE, and the SEPA to evaluate the potential effects of modifying an agreement dating back to 1968 about water releases from Keowee Hydro Station.

Background

When the Keowee-Toxaway Hydroelectric Project was originally licensed in 1966, the USACE's Hartwell and J. Strom Thurmond (at that time, Clark Hill) hydroelectric projects had already been developed. In order to ensure the Keowee-Toxaway Project would not impair the ability of the USACE to operate these downstream projects, the Federal Power Commission (predecessor agency to the Federal Energy Regulatory Commission (FERC)) required Duke Power, now Duke Energy, to enter into an operating agreement with the USACE and SEPA. This agreement, the 1968 Operating Agreement, was designed to ensure the Hartwell and J. Strom Thurmond Projects could meet their power generating and other functions as if the Keowee-Toxaway Project was not there.

The 1968 Operating Agreement

The 1968 Operating Agreement's objective is to equalize the percentage of remaining usable water storage between the combined Hartwell and Thurmond Lakes and the Keowee-Toxaway reservoirs. (The Russell and Bad Creek Projects are not included because they were constructed after 1968.)

When the combined remaining usable storage in Thurmond and Hartwell is less than 90 percent of full, the USACE may request up to 25,000 ac-ft of water be released on a weekly basis from Lake Keowee. The specific amount to be released each week is calculated so projected percentages of remaining usable storage in each system are equal.

When the 1968 Operating Agreement was executed, Oconee Nuclear Station (ONS) had not yet been constructed. When it began operation in 1973, ONS could operate when Lake Keowee was drawn down as much as 22 feet below full pond elevation, the level identified in the 1968 Operating Agreement. However, as years passed and Nuclear Regulatory Commission requirements for certain ONS systems evolved, ONS can no longer operate at the Lake Keowee reservoir levels the 1968 Operating Agreement contemplated during extended drought periods. The current normal operating lake level constraint for ONS is now 794.6 ft above mean sea level (AMSL) (i.e., a 5.4-ft drawdown below full pond elevation of 800 feet AMSL).

Conditions have changed in other ways as well. Since execution of the 1968 Operating Agreement, the USACE has constructed an additional reservoir, the Richard B. Russell Project, which has affected how the USACE operates the J. Strom Thurmond and Hartwell Projects. Duke constructed the Bad Creek Project which is also not addressed in the 1968 Operating Agreement. Also since 1968, the region has witnessed new droughts-of-record with the latest occurring in 2007 through 2008. Thus, the circumstances surrounding the 1968 Operating Agreement have changed substantially. Despite these changes, all parties have been able to work through the severe droughts in recent years in a manner allowing the continued, albeit limited, operation of all these electrical generating facilities.

How much water is 25,000 ac-ft?
25,000 ac ft
=
1.5 ft of water from Lake Keowee
=
3 ft of water from Lake Jocassee

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Interim Joint Drought Management Plan Established for Area Lakes

Duke Energy, Greenville Water, and Seneca Light & Water have agreed on an interim plan to manage the use of water in Lakes Keowee and Jocassee and the Bad Creek reservoir during drought conditions.

Duke Energy manages the lakes for electricity production. Seneca Light & Water and Greenville Water withdraw water from Lake Keowee for drinking water and other public water system uses.

“This is an interim plan. It gives us a starting point for developing a longer term low inflow protocol as part of renewing the license for the Keowee-Toxaway Hydroelectric Project,” said Jeff Lineberger, director, hydro strategy & licensing for Duke Energy.

The operating license for the Keowee-Toxaway Project, which includes the Jocassee Pumped Storage Station and the Keowee Hydroelectric Station, expires in 2016. Duke Energy has been working with more than 30 organizations to renew the operating license and plans to submit the relicensing application to the Federal Energy Regulatory Commission (FERC) in 2014.

Seneca Light & Water Utilities Director Bob Faires says, “We’ve experienced drought conditions in four of the last five years. During these drought periods, our customers have been very responsive in conserving their water resources.

“The low inflow protocol basically mirrors what our customers have been, and are doing -- conserving their water usage. We were pleased to be able to work side-by-side with Duke Energy and Greenville Water to document a sensible solution for conserving our natural resources into the future.”

According to Greenville Water CEO David Bereskin, “We want to lead by example as part of this collective effort. We recognize the stress that is placed on the region’s water resources during drought conditions, and Greenville Water changed its procedures to support neighboring community’s needs.

“We are constantly monitoring the lake levels and making adjustments to ensure an adequate water supply,” he added. “We have reduced our use of Lake Keowee by 25 percent through effective management of our reservoirs.”

Bereskin noted that Greenville Water will also increase communications to educate residents about ways to reduce water use. “We all have the responsibility to conserve when our neighbors are negatively impacted by drought conditions,” he emphasized.

Five stages or levels of drought, stages 0-4, are defined in the interim water management plan. Triggers determine the drought stages and are based on lake levels, precipitation, stream flows and the U.S. Drought Monitor designations in the basin.



Each party agrees to take specific actions in response to each drought stage including:

- Coordinated regular phone calls and data sharing
- Reduced water withdrawals for public water supply from Lake Keowee by 3-30 percent, depending on the severity of the drought conditions
- Urging water conservation throughout the basin
- Requiring watering restrictions for lake residents

Given the reduced rainfall in recent months, the Keowee-Toxaway basin currently is in drought Stage 2 as defined by the plan.

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Triggers for the Keowee-Toxaway (KT) Project Interim Low Inflow Protocol (ILIP)							
KT ILIP Stage	Lake Storage % Usable Storage Remaining (based on Elev. 778 ft. AMSL as minimum elevation for Keowee)		U.S. Drought Monitor for Upper Savannah Basin (Thurmond Dam upstream, area-weighted)		Stream Flow Composite average of USGS gages at Twelvemile Creek near Liberty, SC; Chattooga River near Clayton, GA; French Broad River near Rosman, NC		Rainfall Composite average of Duke Energy rainfall gages in the KT Basin
0 (Watch)	< 90% for USACE and Duke lakes	and	≥ 0	or	< 85% of long-term average for previous 3 months	or	< 85% of long-term average for previous 3 months
1	USACE lakes implement Drought Contingency Plan (DCP) Level 1	and	≥ 1	or	< 75% of long-term average for previous 3 months	or	< 75% of long-term average for previous 3 months
2	USACE lakes implement DCP Level 2	and	≥ 2	or	< 65% of long-term average for previous 3 months	or	< 65% of long-term average for previous 3 months
3	USACE lakes implement DCP Level 3 and < 50% for Duke lakes	and	≥ 3	or	< 55% of long-term average for previous 3 months	or	< 55% of long-term average for previous 3 months
4	< 42% for Duke lakes	and	= 4	or	< 40% of long-term average for previous 3 months	or	< 40% of long-term average for previous 3 months

Stage 2 is based on lower than normal stream flows and the U.S. Army Corps of Engineers implementation of Level 2 of its Drought Contingency Plan for the downstream Hartwell and J. Strom Thurmond hydroelectric projects.

Actions at Stage 2 call for increased sharing of information and operating data, notifying water customers about the drought level and emphasizing the need to conserve water, with a goal to reduce water withdrawals from Lake Keowee by 5-10 percent or more.

The interim drought management plan can be viewed on the Duke Energy web site at www.duke-energy.com/lakes/catawba-lakes.asp.

Duke Energy will also limit lake neighbors’ water withdrawal from Lakes Keowee and Jocassee for irrigating lakeside properties to no more than two days of watering per week. Tuesdays and Saturdays are the two designated days. This watering restriction will begin on February 1 and will be monitored by Duke Energy lake services.



Withdrawals from Lake Keowee by adjoining homeowners for irrigation purposes will be restricted beginning February 1

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Comp Report

Beginning in 2009, Duke Energy, the USACE, and the SEPA established a team to review the impact of potential revisions to the 1968 Operating Agreement on the operation of ONS, the Keowee-Toxaway Project, the USACE hydroelectric projects, and downstream resources. The results of this review are documented in the Comp Report.

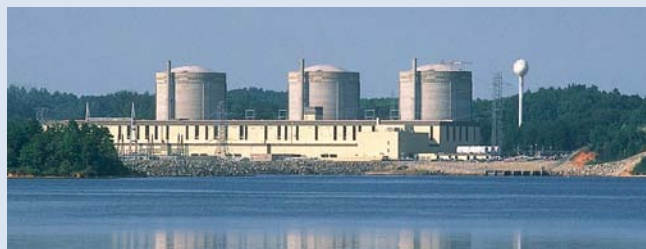
The effort to develop the Comp Report was truly comprehensive in nature and involved a number of evaluations and study efforts. The first step in the process was to identify the potential new operating scenarios to compare to the current 1968 Operating Agreement requirements. The effects of each of these scenarios or alternatives were then compared to the effects of operating in accordance with the 1968 Operating Agreement.

Operations Model: In order to assess the potential engineering, environmental, and economic effects of the alternatives, it was necessary to develop an operations model, the HEC-ResSim model. The HEC-ResSim model was originally developed by the USACE and allows modelers to determine how hydroelectric generation, reservoir elevations, and flow releases from each hydroelectric project would vary based upon different operating scenarios. This information was used to assess potential effects associated with fluctuations in reservoir levels and flows in the Savannah River downstream of the J. Strom Thurmond Dam under the identified alternative scenarios. Based on the HEC-ResSim model runs, all the alternatives are comparable to one another with respect to reservoir levels and flow releases into the Savannah River. There were some differences in the amount of electricity generated at the facilities with the largest differences affecting the Duke Energy projects.

Economic Assessment: Duke Energy retained the Strom Thurmond Institute at Clemson University to assess the effect of different reservoir levels (identified through the use of the operations model discussed above) on the economic activity of the

counties surrounding Lake Keowee, Hartwell Lake, and J. Strom Thurmond Lake. This effort was an expansion of work previously funded by the USACE at Hartwell Lake. As with the operations model findings regarding reservoir levels and downstream flow releases, there were no significant differences between the economic impacts of the alternatives.

Transmission System Stability: Under the No Action Alternative, there is the possibility ONS would be required to shut down due to reservoir levels. Since ONS provides a significant amount of electricity into the regional electric grid to support electricity demand, the team wanted to understand what would happen to the regional transmission system if all three units at ONS shut down. This analysis evaluated where the replacement power would come from and how well the transmission system would perform without ONS being available. Based on the analysis, the transmission system would need some upgrades to ensure reliable operation, but would continue to function if ONS had to shut down due to low lake levels. The cost of the needed upgrades varies significantly depending on the time period ONS would be unavailable.



ONS Modification: One potential solution to the issues associated with the 1968 Operating Agreement is to modify ONS to allow it to operate at lower lake levels. Duke Energy retained a nuclear engineering company to evaluate potential options to allow this. The engineers identified a number of potential options to allow ONS to operate at Lake Keowee levels from 778 ft AMSL up to 787.9 ft AMSL. The costs and technical challenges associated with implementation of the potential modifications vary significantly. Duke Energy is evaluating one of the modifications further to

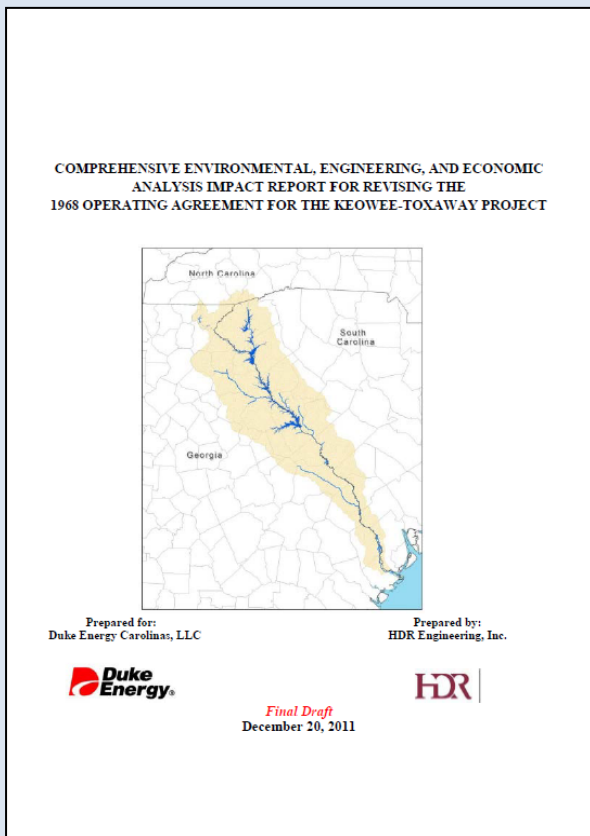
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determine its feasibility. If found feasible, the modification may allow ONS to continue operation with Lake Keowee levels as low as 787.9 ft AMSL under certain circumstances like extended droughts.

Next Steps

The final draft Comp Report did not recommend any of the alternatives at this point. Rather, Duke Energy recommends the USACE delay action on revising the 1968 Operating Agreement until the Keowee-Toxaway relicensing process has identified a preferred drawdown limit for Lake Keowee and staff at ONS have further evaluated the potential modification of ONS to allow it to operate at lower lake levels. Based on the current relicensing schedule, Duke Energy anticipates requesting revision of the 1968 Operating Agreement in early 2014. If needed, the Comp Report may be updated at that time to assess such a preferred alternative.



The Comp Report is available in the Online Library on the Keowee-Toxaway Relicensing website.

Scenarios Evaluated in the Comp Report

- The No-Action Alternative (NAA) or baseline. Under this scenario, all operating conditions are identical to those in the 1968 Operating Agreement. Variations of this scenario assume either ONS is modified to operate with Lake Keowee at 778 ft AMSL per the 1968 Agreement or ONS is shut down when Lake Keowee falls below the current ONS operating constraint.
- Alternative A1: The calculation for identifying the amount of water to be released from Lake Keowee remains as is in the 1968 Operating Agreement, but no flow release is required that would cause Lake Keowee to fall below 794.6 ft AMSL.
- Alternative A2: The calculation for identifying the amount of water to be released from Lake Keowee is based on a maximum drawdown of 794.6 ft AMSL and no flow release is required that would cause Lake Keowee to fall below 794.6 ft AMSL. This change decreases the usable water storage for the Keowee-Toxaway reservoirs.
- Alternative A3: The calculation for identifying the amount of water to be released from Lake Keowee is based on a maximum drawdown of 787.9 ft AMSL and no flow release is required that would cause Lake Keowee to fall below 787.9 ft AMSL. This elevation was chosen because there is an additional set of ONS system restrictions below this elevation.

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which the licensee must hold rights necessary to carry out project purposes.” What this means is, if the parties put a measure in the agreement requiring more than just a one-time activity by Duke Energy, it is highly likely the FERC will require Duke Energy to acquire the property rights to any property necessary for that measure, which would then be included in an expanded project boundary. It’s unlikely to be the case at Keowee-Toxaway, but the opposite is also true: if property inside the project boundary is not needed for project purposes, the FERC could remove it from the project boundary.

5. ***It doesn’t have to be all about FERC.***

Off-License Agreement – FERC recognizes the parties to an agreement may include measures not falling under FERC jurisdiction. These measures would not be in the license, would not be enforceable by FERC and, as such, the cost of such measures would probably not “count” in FERC’s determination of the cost of implementing a new license. The “off-license” measures would typically be enforceable among the parties under state contract law.

FERC’s policy statement has lots more information the Stakeholder Team will need to review as it gets closer to potential measures proposed for the Relicensing Agreement. One other important point: Mr. Pawlowski said the FERC can make decisions in the future which are different from those summarized in the settlement policy, but it’s not likely.

Ken Kearns

Keowee-Toxaway Stakeholder Team Facilitator

World of Energy Celebrates Nuclear Science Week and Hosts Student/Teacher Art Show

During the month of January, the World of Energy partnered with local schools to celebrate Nuclear Science Week and to host the Student/Teacher Art Show for Oconee and Pickens Counties’ school systems.

National Nuclear Science Week: Designed to introduce the public to the work of nuclear professionals and raise awareness of nuclear science’s key benefits to the community, the National Museum of Nuclear Science and History invites the nation to “get to know nuclear” during National Nuclear Science Week.

This year during the week of January 23 through 27, over 350 local middle school students visited the World of Energy, Oconee Nuclear Station’s visitor center, to help celebrate this event.

Visitors enjoyed a special presentation on how nuclear power plants operate and potential career opportunities in nuclear science, toured the Story of Energy exhibits, and picnicked by the lake before heading back to school.

“The students really enjoyed the World of Energy,” said Melissa Rosier, Career Specialist at Walhalla Middle School. “We were so pleased to be included in the celebration.”

Oconee and Pickens Counties’ Student Teacher Art Show: The Blue Ridge Arts Council and the World of Energy partnered with the School Districts of Oconee and Pickens Counties to showcase the artwork of students and teachers, kicking off the event with almost 250 attendees on January 12 with an opening night reception.

The show consists of three student works of art selected by each school’s art teacher as well as a piece of art created by the teacher. The art on display is 2D and 3D, and encompasses a wide variety of styles and mediums. The show gives students a unique opportunity to see artwork created by their teachers.

“This show is a wonderful way to showcase many of the talented students we have in our area,” said Duke Energy spokesperson Ann Duckett



The show is on display until February 12 (Monday – Friday from 9 a.m. to 4 p.m. and Saturdays from noon to 5 p.m.). Admission is free.

Is Recreation in Your Future?

Does your New Year's resolution challenge you to get outside more often? Whether it does or not, you'll want to go check out recent facelifts made at several lakeside recreation areas. Duke Energy is finished making upgrades to public recreation area amenities at Fall Creek main site, Cane Creek, and Keowee-Toxaway State Park as part of its Recreation Management Plan (RMP). Improvements have also made the areas accessible for people with physical challenges.

Changes include new paving, additional lighting and parking, courtesy docks for loading boats, picnic areas, and new restroom facilities. For paddlers, a kayak and canoe area was created at the Keowee-Toxaway State Park.

"We have completed work at Cane Creek, Keowee-Toxaway State Park, and at the main Fall Creek access area. The work will finish up at Fall Creek seasonal area in mid-March just in time for the boating season," said Scott Jolley, project manager for Duke Energy. "I believe the public is going to enjoy these new additions."

It's not too early to start planning your next family outing so pack a picnic and beat the summer crowds by visiting them soon.



Picnic area at Cane Creek

*For more information about KT Relicensing, check out the relicensing website at www.duke-energy.com/lakes/keowee-toxaway-relicensing.asp
To subscribe electronically to this newsletter, send an email to ktrelicensing@duke-energy.com.*