

Planning Update



Planning and Economic Development Committee
December 11, 2012

Building Development



- Residential:
 - 2011 - 691 permits at \$52 million valuation
 - 2012 - 742 permits at \$56 million valuation

- New Homes:
 - 2011 - 145 permits at \$44 million valuation
 - 2012 - 170 permits at \$47 million valuation

Building Development



- **Commercial:**
 - 2011 - 83 permits at \$12.7 million valuation
 - 2012 - 135 permits at \$20 million valuation

Building Development



- **Major Projects:**
 - The Pier
 - AID expansion of shell building
 - Rue 21, Dollar General, Pet Smart, O'Reilly's
- **Summary:**
 - Trends are showing an increase in activity across the board and we expect this to continue into 2013.

Zoning (Open Requests)

- 2012-35 Lay Mill Rd. Request
 - small area method for TRD
 - 1st Reading (title only) on Dec. 18th, 2012
- 2012-36 Gladys Cir. Request
 - small area method for LRD
 - 1st Reading (title only) on Dec. 18th, 2012

Zoning

Amendments to Fair Play Village Sub-district of I-85 Overlay (Ordinance 2012-34)

- Effort Initiated by Area Citizens
- Concepts Consistent with Village Master Plan
- Permits Mix of Uses while Limiting Potential Negative Impacts of New Development on Existing
- 2nd Reading on Dec. 18th, 2012

Community Development

- Building Codes and Permitting
- Basic Planning functions:
 - Subdivisions, plats, etc...
 - Planning Commission, Board of Zoning Appeals, and Scenic Hwy Committee
 - Zoning

Air Quality

2012 Ozone Season Over

EPA Scheduled to Review Standards in 2013
State Participating in Ozone Advance Program
Similar to Early Action Compact Program

Upstate Air Quality Advisory Committee
Clean Air Upstate Initiative



Focused on Education and Public Awareness
Major Effort in Coming Year

Update of Transit Feasibility Study

Evaluates Need and Options for Expanding Mass Transit
Key Component in Justifying Federal/State Funding

URS Corporation Performing Work
Original Study Performed in 2008 City of Seneca

Project Began with Review and Update of Demographic
Information
Series of Meetings: Municipalities, Key Industries, Civic Groups,
Stakeholders
Distribution of Survey to Gauge Support for Mass Transit

Entering Final Phase- December 31st Deadline for Surveys
Results to be Analyzed and Report Developed
Scheduled Completion Late January/Early February

Keowee Toxaway Project Relicensing

Began June 18, 2009
Application Deadline August 2014
Current License Expires August 2016

More than 20 agencies and groups representing stakeholders

Resource Committees focused on various topics: Shoreline Mgt,
Water Quality, Water Quantity, Aquatics, Cultural Resources,
Recreation, Wildlife

Main focus in 2012 was on conducting studies- results coming in

Duke Energy staff to meet with County Council on Dec. 20th

Questions?



December 2012

2012 by the Numbers

Whew – thank goodness the end of the year is upon us! It certainly has been busy. Here's a brief recap of some of what's been going on in relicensing efforts by the numbers:

- \$4.2 million: The estimated cost of the relicensing studies Duke Energy began implementing this year.
- 1,330: Approximate number of public recreation site user surveys conducted as part of the Recreation Use and Needs Study.
- 520: The number of plant species identified by botanists during the Botanical Study.
- 183: The number of composite interest statements developed by Stakeholder Team members.
- 75: The number of pages in Duke Energy's Trial Balloon presented to the Stakeholder Team in September.
- 60: The combined number of Stakeholder Team, Resource Committee, and study team meetings in 2012 (but it feels like more!).
- 14: The number of studies Duke Energy scientists and engineers have been working on this year.
- 2066: The year through which the Water Supply Study water use projections extend.
- 5: The number of stages in the Interim Low Inflow Protocol (LIP) implemented in February.
- 3.75: The number of years until the New License for the Keowee-Toxaway Project is scheduled to be issued.

All these numbers represent a significant amount of effort on the part of those involved in Keowee-Toxaway relicensing and there are many, many other efforts I didn't even mention. Despite the tremendous amount of work we've already done, there is still much to be done to develop the license application and ultimately

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Timeline Overview



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receive a new license. In 2013, we'll be completing our relicensing studies, negotiating a relicensing agreement with the Stakeholder Team, and beginning work on the license application. As this effort progresses, we'll continue to issue updates like this one. If you want even more details, I encourage you to visit Duke Energy's Keowee-Toxaway Relicensing website for our relicensing filings.

Jen Huff

Keowee-Toxaway Relicensing Project Manager

Keowee-Toxaway Stakeholder Team Negotiations – Focus on Keowee Lake Levels

Duke Energy is working with stakeholders to prepare an application for a New License to the Federal Energy Regulatory Commission (FERC) to continue operating Jocassee and Keowee hydroelectric stations. As part of this work, and after more than two years of discussions with stakeholders about their interests plus preliminary computer modeling, Duke Energy proposed its first draft Agreement-in-Principle (AIP), or Trial Balloon, in September 2012 to the Stakeholder Team as a starting point to guide discussion and negotiations.

The draft AIP includes recommendations for how Duke Energy proposes to operate Jocassee Pumped-Storage Station, Keowee Hydro Station and their respective reservoirs in the future. It addresses topics such as hydro operations, public recreation, shoreline management, water quality, public water supply, aquatic, wildlife, and botanical species protection and lake levels.

Background

In the existing federal license for the Keowee-Toxaway Hydroelectric Project, the minimum allowable lake elevation for Lake Keowee is 775 feet above mean sea level (AMSL), or 25 feet below the full pond level of 800 feet. Duke Energy operated Lake Keowee with much more fluctuation in the 1970s and 1980s than today, with Lake Keowee recording its lowest level of 783.6 feet on November 28, 1981. Over time, Nuclear Regulatory Commission requirements for certain systems at Oconee Nuclear Station evolved, requiring Duke Energy to operate Lake Keowee within a much narrower range of 5.4 feet below full pond or higher since the mid-1990s.

Proposal for Lake Keowee in normal (non-drought) conditions

Duke Energy's initial draft AIP proposes that Lake Keowee be operated between 795 feet and 800 feet (i.e., no lower than 5 feet below full pond) during all times of normal water availability. This is consistent with what lake users are accustomed to today. If incorporated by the FERC into the New License, 795 feet would become the lowest level allowed during non-drought conditions.

Stakeholder Team Member Organizations

Eastern Band of Cherokee Indians
SC Department of Natural Resources
SC Department of Parks, Recreation and Tourism
SC Department of Archives and History
Oconee County
Pickens County
Seneca Light & Water
Greenville Water
Pickens County Water Authority
Friends of Lake Keowee Society
Advocates for Quality Development, Inc.
The Reserve at Lake Keowee
The Cliffs at Keowee Vineyards
Anderson Chamber of Commerce
Warpath Development, Inc.
Upstate Forever
SC Wildlife Federation
Duke Energy

Other Organizations Active in the Stakeholder Process

SC Department of Health and Environmental Control
US Army Corps of Engineers
US Fish & Wildlife Service

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Proposal for Lake Keowee during droughts

Rainfall and the resulting stream flow into the reservoirs are the primary drivers for lake levels and the amount that Duke Energy can operate its hydro stations. To manage through the inevitable periods of reduced rainfall, the draft AIP also includes a Low Inflow Protocol (LIP), a plan for coordinating a basin-wide response to droughts. The LIP's intent is to manage shared water resources wisely to protect human health and safety and ensure the stability of regional public water supplies and the electric grid. It includes Stage 0 (watch stage) through Stage 4 (most severe) and outlines how Duke Energy's hydro generation and downstream flow releases will decrease to conserve water as drought stages intensify.

To support this drought plan, Duke Energy plans to modify Oconee Nuclear Station to allow it to operate at lower levels in Lake Keowee during severe, extended droughts—down to 790 feet or 10 feet below full pond. This modification has several important benefits including:

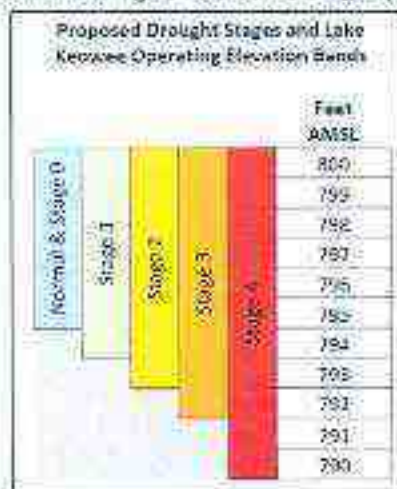
- **Protecting the Electricity Supply** – by providing greater drought resiliency for Oconee Nuclear Station—a 2,538 megawatt power plant that is vital to the regional economy and to Duke Energy's ability to provide electricity to our customers in the Upstate.
- **Supporting Economic Growth** – by providing more usable water storage to meet the water demand that will come with future economic growth.
- **Meeting Downstream Water Needs** – by extending the time that Duke Energy can make flow releases from Lake Keowee to support downstream water needs.

Under the current license, an extreme drought today could render Oconee Nuclear Station inoperable, with the possibility for Lake Keowee to go down to 25 feet below full pond. This is not desirable for public water suppliers, businesses, lake users or the community at large. This is particularly not desirable for Duke Energy as we want higher lake levels to: (1) get more efficiency

from our hydro units, (2) increase flexibility to use pumped storage, and (3) reduce risks of having to shut down Oconee Nuclear Station.

Certain conditions must be met before drought stages in the draft LIP could advance; therefore, Lake Keowee could go to 790 feet in Stage 4 only, the most severe drought stage. At 10 feet below full pond, public boat ramps at Duke Energy's recreation areas would still be available for most boats; however, we know many private residential docks would not be usable by most boats. The Stakeholder Team has been working on various ways to reduce that possible impact, including potentially allowing dock owners to move their floating structures to follow the water. A Stage 4 drought is quite severe and would lend itself to concerns about a host of regional water supply issues in addition to effects on public recreation.

An additional and very important aspect of the proposed LIP is that the maximum amount of water released from Keowee Hydro Station would decrease as the drought worsened. This would allow water levels in Lake Keowee to be maintained at higher levels for longer periods.



Lake level modeling results

Duke Energy has conducted computer modeling to help estimate how often various lake elevations could be experienced given certain modeling assumptions. The model incorporates the last 70 years of hydrology (i.e., stream flow into the reservoirs) and considers potential climate change scenarios. Key results of the modeling to

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date include:

If the last 70 years of hydrology repeated itself, and Duke Energy operated as proposed in the draft AIP, we'd expect to see:

- Higher Lake Keowee levels about 25% of the time as compared to levels if Duke Energy continues operating as is done currently.
- Lake Keowee between 795 feet and 800 feet (i.e., no more than 5 feet below full pond) about 96% of the time.
- Lake Keowee below 793 feet but above 790 feet (i.e., between 7 feet and 10 feet below full pond) less than 1% of the time.
- Lake Keowee would only reach 790 feet in the late fall – early winter during only the most severe drought period.

Based on assessments from the Intergovernmental Panel on Climate Change, an international body that compiles climate change technical expertise from all over the world, Duke Energy modeled a potential climate change scenario where the last 70 years of hydrology repeats itself but is altered by an assumed temperature increase of 6 degrees Fahrenheit and an assumed 10% decrease in stream flow. In this scenario, we'd expect to see:

- Lake Keowee at 795 feet and above (i.e., no more than 5 feet below full pond) about 92% of the time.
- Lake Keowee below 793 feet but above 790 feet (i.e., between 7 feet and 10 feet below full pond) less than 2% of the time.
- Lake Keowee would reach no lower than 790 feet in the late fall – early winter during only the most severe drought period.

If the last 70 years of hydrology repeated itself, Duke Energy made no modifications to Oconee Nuclear Station, and the expected growth in water withdrawals occurred, Lake Keowee's level would still fall below 794.6 feet during severe droughts. As the region grows, maintaining the status quo with regard to levels at Lake Keowee during droughts is really not a viable option.

Other components of the Trial Balloon

In addition to the proposals discussed above, Duke

Energy's proposal addresses all the issues associated with the continued operation of the Project. The Trial Balloon is 75 pages long, so it will not be repeated here, but here are some highlights:

- **New Operating Agreement (NOA)** – Duke Energy will pursue a NOA with US Army Corps of Engineers (USACE) and Southeastern Power Administration (SEPA) to replace the existing 1968 Operating Agreement (see the January 2012 Community Newsletter for more information). Duke Energy would enter into a NOA only if it is consistent with Relicensing Agreement, including the Low Inflow Protocol (LIP).
- **Shoreline Management** – Duke Energy will file a new Shoreline Management Plan (SMP) that will require existing residential pier owners to remove un-encapsulated foam from their docks and will allow pier owners to unpin docks to move them further into the reservoir (i.e., "follow the water") during LIP Stages 2-4.
- **Public Recreation:** This section proposes new leases of land offered to local and state agencies, additional recreation facilities based on the results of the Recreation Use and Needs study, and new partnerships to promote safe boating at the Project and litter prevention with a focus on islands.
- **Enhancement Funds:** Duke Energy proposes to establish new enhancement funds
 - **Habitat Enhancement Program (HEP)** to create, enhance, and maintain aquatic and terrestrial habitat in and around Project reservoirs. The HEP would be funded by Duke Energy and through a fee charged to applicants for lake use permits
 - **Savannah River Water Resource Fund** to support water quantity planning and management initiatives in the Savannah River Basin
 - **Water Quality Fund** to be used for water quality-related activities (potential examples include development of a watershed model, water quality monitoring, septic system repair, etc.) on areas within the Project watershed

Next steps

The goal of Duke Energy and the Stakeholder Team is to bring to FERC a New License agreement that provides the

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best regional solutions as we consider limited water resources for the next half-century: if the Team is successful, FERC will give considerable deference to the local agreement in the New License. Otherwise FERC will issue a more standard license that will likely not be as attuned to local interests. The Stakeholder Team has been meeting since 2009 and has been working diligently with this broad mission in mind.

From this point, the Stakeholder Team will continue to amend and improve the draft AIP. Since September 2012, the Team has already suggested a number of improvements. Members also will consider and integrate the findings of 14 studies that Duke Energy has undertaken, an investment of \$4.2 million, to equip resource committee and Stakeholder Team members with the best data available. Work on the draft AIP will continue until May 2013, with a plan to have Stakeholder Team members sign a non-binding AIP in July 2013 and sign the final binding Relicensing Agreement in November 2013. Duke Energy will file its application for New License in August 2014, two years before the current license expires in 2016. The FERC's application review process will take at least two years and will include significant opportunities for public input.

Study Assesses Eligibility for National Register of Historic Places Listing

Although relicensing involves significant planning for the future of water use and natural resources, honoring and protecting history is also a valuable aspect of this process.

The Federal Energy Regulatory Commission (FERC) is required to consider the effects of relicensing the Keowee-Toxaway Hydroelectric Project (Keowee-Toxaway Project) on significant archaeological and historic sites as defined by the National Historic Preservation Act (NHPA) of 1966.

Prior to relicensing, Duke Energy had already conducted archaeological surveys of the shoreline, access areas, and islands but had not assessed the Keowee-Toxaway Project structures themselves. Therefore, Duke Energy conducted an architectural survey of the Project structures in April 2012. The structures at the Keowee Development include Keowee Hydroelectric Station, the Little River Dam, the Keowee Dam, an intake structure, four saddle dikes, and the Oconee Nuclear Station intake dike. The facilities associated with the Jocassee Development include the pumped-storage station, Jocassee Dam, two intake structures, and two saddle dikes.

A Look Back

Duke Power (as it was then known) had identified the

hydropower potential of the Keowee-Toxaway area in the early 1900s. The company decided to abandon initial projects in the area in favor of additional hydroelectric plants along the Catawba River. This was short-lived, however. With the need for additional power in the mid-twentieth century, Duke Power again looked to the Oconee and Pickens county area. In the early 1960s, the company resumed its purchase of land in the region. The Federal Power Commission, the FERC's predecessor agency, granted Duke Power a license to operate the Keowee-Toxaway Hydroelectric Project in 1966. The impoundment of Lake Keowee began in April 1970, and the facility went into commercial operation in April 1971.



The official groundbreaking on April 11, 1967 for the Keowee-Toxaway Power Project included South Carolina Governor Robert McNair (left) and Duke Power President W.B. McGuire (right) detonating a dynamite blast.

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Construction began at Jocassee in January 1968, with the impoundment of the lake beginning in April 1971. More than 11 million cubic yards of earth and rock were required for construction of the rock and earthfill dam, which at the time of its construction, was the second highest in America. Commercial operation of the Jocassee Development began in 1973 when Units 1 and 2 were placed into service; Units 3 and 4 were placed into service in 1975.

The Keowee and Jocassee Hydroelectric Developments were planned and constructed as part of a comprehensive long-range multi-component power generation system called the Keowee-Toxaway Energy Project that included thermo-electric and pumped-storage projects. The only thermo-electric plant ultimately developed as part of the Keowee-Toxaway Energy Project was Oconee Nuclear Station. A number of additional pumped-storage facilities were also planned upstream of Lake Jocassee, but the only one constructed has been the Bad Creek Project.

The Keowee-Toxaway Energy Project met with critical acclaim from the engineering community. Duke Power received the prestigious Edison Award in 1972 and the Outstanding Civil Engineering Achievement Award bestowed by the American Society of Civil Engineers (ASCE) in 1975.

The Study's Assessment

The study concludes the Keowee-Toxaway Hydroelectric Project possesses historical significance for its associations with the Keowee-Toxaway Energy Project. However, the Keowee-Toxaway Hydroelectric Project is not yet 50 years of age and does not meet the threshold of "exceptional significance" required to be considered eligible for listing in the National Register of Historic Places. Collectively, the two hydroelectric developments will reach the 50-year milestone in 2022 and then will likely meet the criteria for listing. Duke Energy will assess the Keowee-Toxaway Project structures again at that time to confirm this determination and also to record any changes made in the interim.



Keowee Intake Structure, under construction in December 1968



Construction of Jocassee Powerhouse, October 1972, showing below-grade excavation

So What

(does this mean for relicensing)?

The results of this study will be incorporated into the Historic Properties Management Plan (HPMP) Duke Energy develops for the Keowee-Toxaway Project. The HPMP spells out the steps Duke Energy will take to address the management of both known and unknown significant archaeological and historic sites affected by operation of the Keowee-Toxaway Project, lake use permitting, recreation facility development, and other activities.

Water Supply Study

The Water Supply Study Team recently received the Keowee-Toxaway Water Supply Study Final Report, representing the culmination of several years' worth of effort in gathering and analyzing water use data for the Savannah River Basin. This allows us to make projections for water needs in the region for the next 50 years and better informs relicensing decisions. This study focused heavily on water use projections in the Upper Savannah River Basin (Basin), evaluating water supply within Duke Energy and US Army Corps of Engineers' (USACE) operated reservoirs.

Water Withdrawal and Return Projections

Methodology

The initial step in the study involved developing reliable water withdrawal and return projections for the entire Savannah River Basin to the year 2066. In compiling the list of current water users, the Water Supply Study Team elected to focus on those users that currently withdraw or return from a surface water source an average daily rate of 100,000 GPD (or 0.1 mgd) or more from the Basin. While numerous users may withdraw or return water at rates less than 100,000 GPD, the net withdrawal produced by these users would be very small relative to the overall net withdrawal resulting from the users documented in this Study.

For the purpose of this study, the Savannah River Basin was delineated into 16 incremental watersheds, which are listed from the most upstream to downstream reservoir in Table 1.

This study addresses water use within all 16 watersheds. However, the primary focus of this study is water yield evaluation and drought response for the most upstream six watersheds.

While it was important to perform a detailed evaluation of each water withdrawal and return, the water use analysis focused on total net water usage within geographical watershed areas. Net withdrawal is the sum of all the water withdrawals in each watershed minus the water returns back to that particular watershed.

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Water Supply Study Scope

1. Compile a list of individual water withdrawals and returns within the Basin \geq 100,000 gallons per day (GPD)
2. Develop future projections for water withdrawals and returns within the Basin to the year 2066
3. Develop a Geographic Information System (GIS) database of withdrawals and returns in the Upper Savannah Basin including ownership information, physical descriptions, historical water use, and future projections
4. Determine water yields under current operating conditions for water supplies using the Duke Energy and USACE-operated reservoirs
5. Develop and evaluate data and information for use in refining the Keowee-Toxaway Interim Low Inflow Protocol (LIP)
6. Determine water yields based on the operating conditions being proposed as part of relicensing

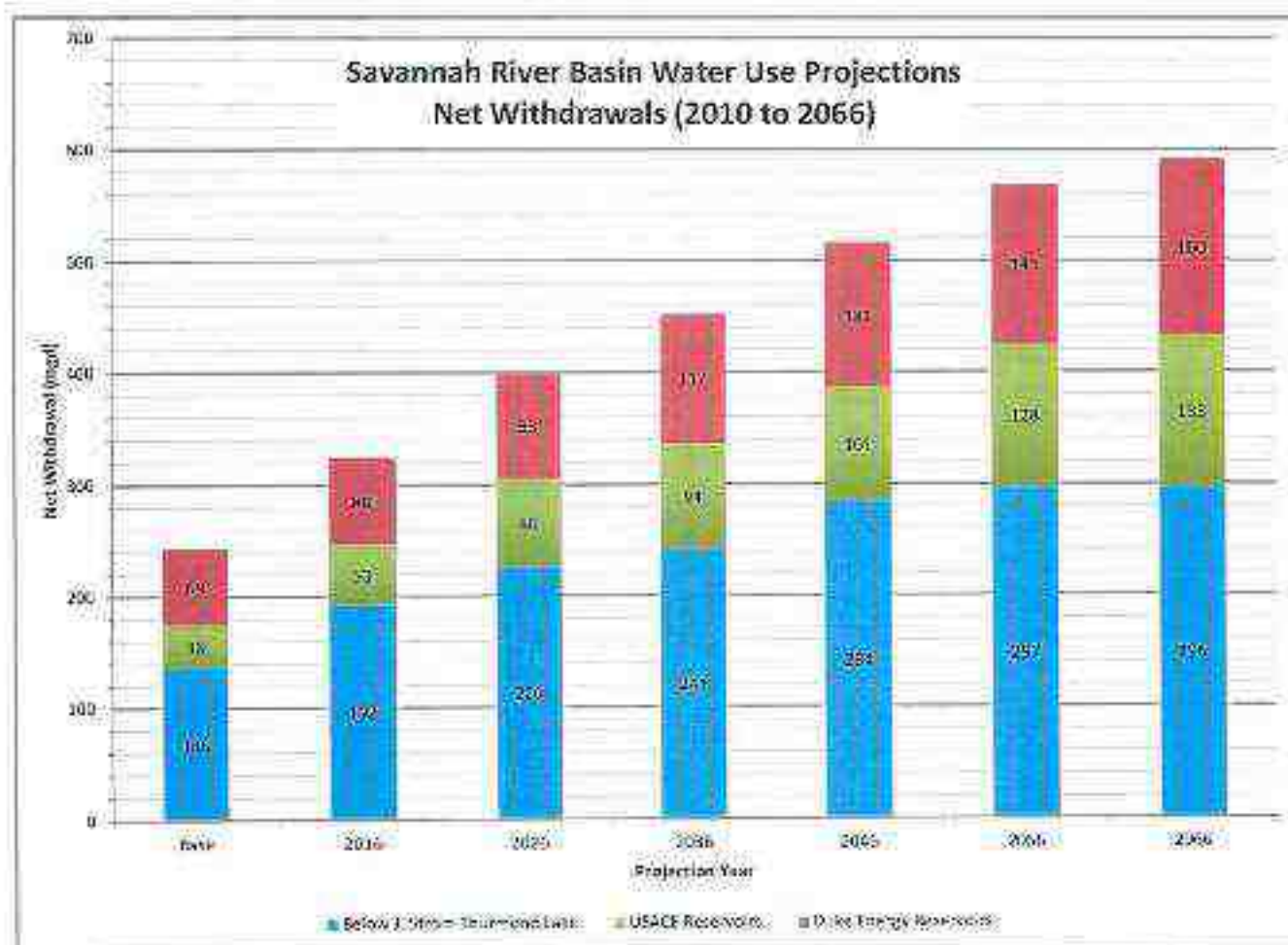
Table 1: Water Supply Study Watersheds

	Reservoir
Duke Energy Operated Reservoirs	Bad Creek
	Jocassee
	Keowee
USACE Operated Reservoirs	Hartwell
	Richard B. Russell
	J. Strom Thurmond
Reservoirs downstream of Thurmond Dam	Woodlawn
	Stevens Creek
	North Augusta
	Augusta Canal Diversion
	Augusta Canal Diversion Return
	Augusta
	Girard
	Millhaven
	Clyo
Below Clyo	

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Water Use Projection Results

The annual average net system withdrawals are shown in the following figure. Future net system withdrawals are shown for the base year (typically 2010) and 2016, 2025, 2036, 2046, 2056, and 2066. As illustrated in the figure below, the overall net withdrawal for the entire Basin is expected to increase from approximately 243 million gallons per day (mgd) to 592 mgd by the year 2066. This net withdrawal represents a more than doubling of the current net withdrawal rate.



Water Yield Analysis

Using the water use projections developed for the study, "water yield" evaluations are being performed for Duke Energy and USACE-operated reservoirs. Water yield is a term used to describe the amount of water theoretically available at a given location in a watershed. It is a commonly used measure of the dependability of a water supply source during critical drought periods.

Water yield analyses are included in the study for the following operating scenarios below.

- **Baseline Conditions (Baseline) Water Yield** – This analysis calculates water yields for the Keowee-Toxaway Project's reservoirs (combined Bad Creek, Jocassee, and Keowee Reservoirs) and USACE reservoirs (Hartwell, Russell, and Thurmond) using baseline, or current, operating conditions.

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- **Proposed Operating Scenario Water Yield** – This analysis will calculate water yields for the Keowee-Toxaway Project reservoirs and USACE reservoirs using the Proposed Operating Scenario negotiated during the relicensing process. This water yield analysis will be completed after the Stakeholder Team has completed its negotiations and will be documented as an addendum to the Water Supply Study Final Report issued to the Study Team in October 2012. The results of each analysis will be compared with one another to determine the effects of the Proposed Operating Scenario on water yield in the Upper Savannah River Basin as compared to the Baseline.

Interim Low Inflow Protocol

Duke Energy, Greenville Water, and Seneca Light and Water previously developed and implemented an Interim Low Inflow Protocol (LIP) for the Keowee-Toxaway Project. The purpose of the Interim LIP is to establish procedures for conservation of water during periods of significant drought in the Upper Savannah River Basin. This agreement is in effect until November 2013.

The Interim LIP was developed on the basis that all parties with interests in water quantity will share the responsibility to establish priorities and conserve the limited water supply. In mid-2012, the Water Supply Study Team reviewed the existing Interim LIP and evaluated data related to past droughts to identify possible improvements to the Interim LIP. The Study Team members, as well as other stakeholders for the Keowee-Toxaway Project, have provided valuable input into the evaluation of the Interim LIP with a goal of developing an improved LIP to be included in Duke Energy's application for new license.

Summary

As you can see, much effort has gone into the development of this Water Supply Study, including a great deal of teamwork on the part of the Study Team members. While there is still some work to be done in 2013 with this study, the majority of the work has been completed. The results of this study provide valuable information as Duke Energy and the stakeholders move through the process of negotiating a new License Agreement and will be beneficial in helping determine how to manage water in the Savannah River Basin in the future.

So What (Does this mean for relicensing)?

The data generated by the Water Supply Study regarding projected changes in water use were incorporated into the CHEOPSTM model used to model the effects of different Keowee-Toxaway Project operating scenarios. Given we know consumptive water use will increase during the term of the next license, knowing this information is vital for evaluating the effects of operational changes.

The work the Water Supply Study Team did to evaluate potential improvements to the Interim LIP is being used by the relicensing stakeholders as they revise the LIP proposed by Duke Energy in September.

Reservoir Level and Project Flow Releases Study

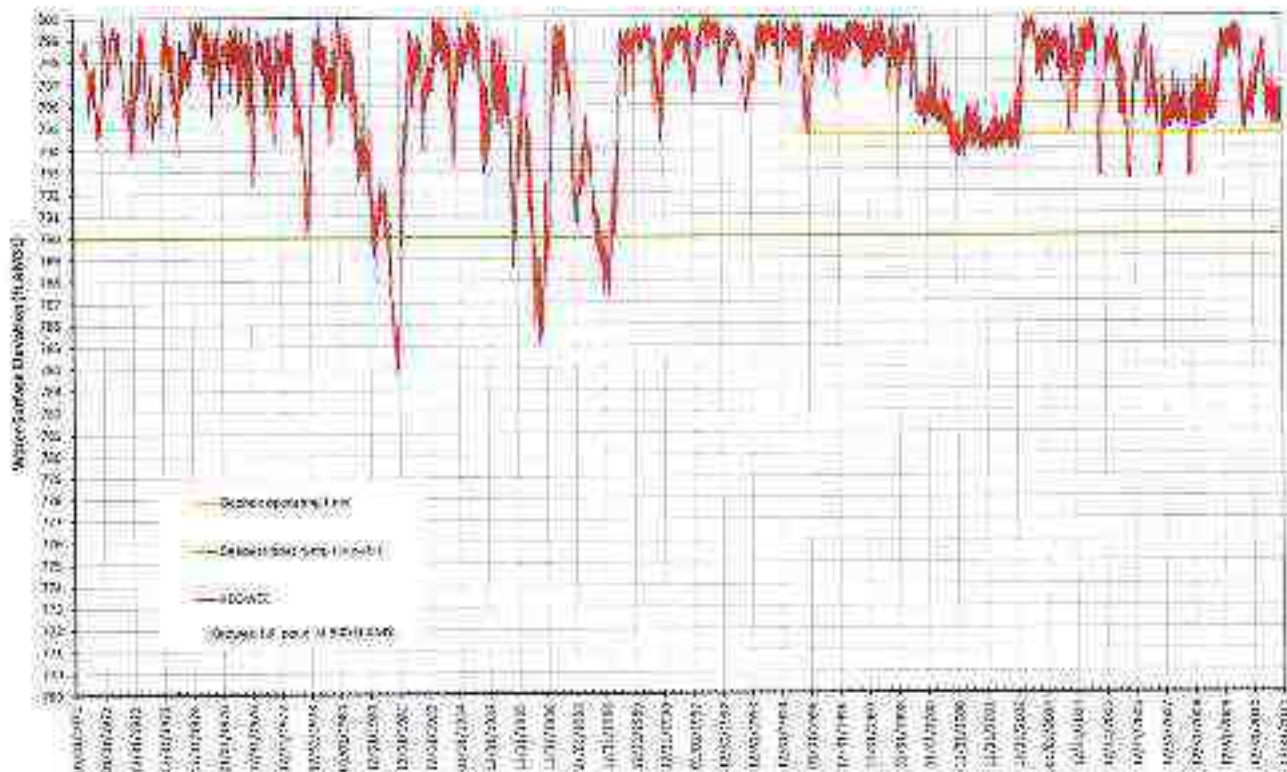
Many times, history can teach us quite a lot about what to expect going forward. Another one of our 14 studies was the Reservoir Level and Project Flow Releases Study that collected historic lake level and flow release data. This gives the Stakeholder Team a big-picture look at reservoir levels and flow releases since the beginning of commercial operations in the early 1970s.

After organizing the historic data into a computer database, the Study Team looked at the data in different ways and identified potential operating reservoir level bands for the New License term for the two reservoirs under non-drought conditions. The study team also evaluated possible drought drawdown ratios for each reservoir.

The study team identified the following potential non-drought lake levels bands as consistent with historical operations:

- Lake Keowee: 795 ft – 800 ft (5-foot operating band)
- Lake Jocassee: 1080 ft – 1110 ft (30-foot operating band)

LAKE KEOWEE WATER SURFACE ELEVATIONS
APRIL 17, 1971, THROUGH DECEMBER 31, 2011

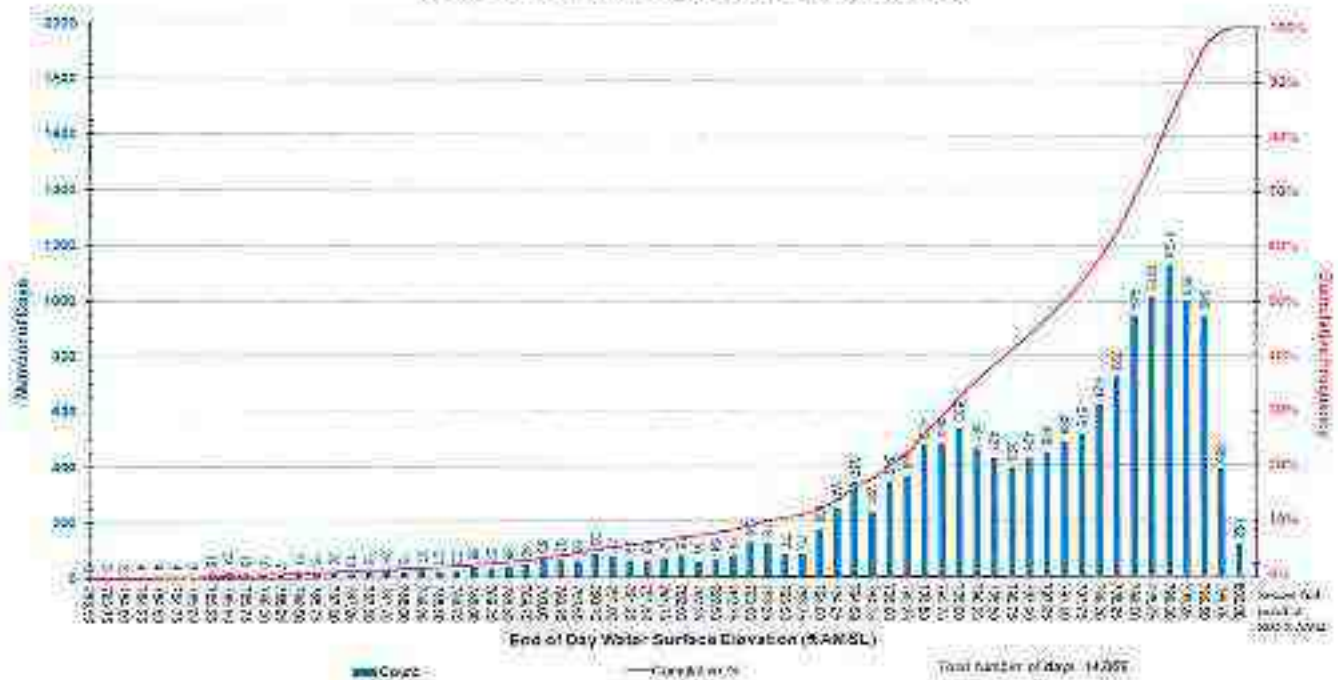


The figure above depicts historic reservoir elevations at Lake Keowee for the period 1971 – 2011. As you can see, the reservoir was operated over a much wider range prior to the 1990s when the Oconee Nuclear Station operating constraint came into effect to maintain the lake at 794.6 feet AMSL or above.

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LAKE KEOWEE LEVELS HISTOGRAM AND CUMULATIVE FREQUENCY CURVE APRIL 17, 1971, THROUGH DECEMBER 31, 2011



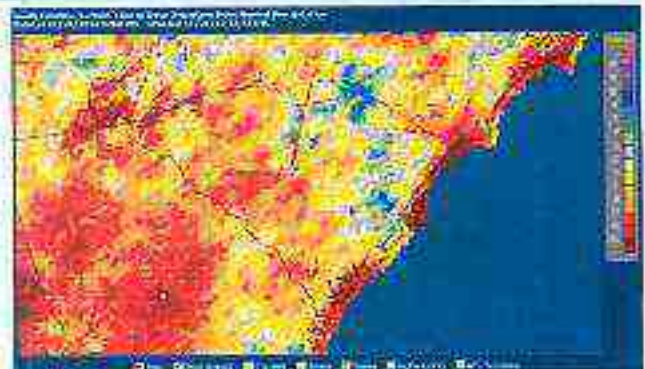
This figure above represents a cumulative frequency curve and can be used to determine the percentage of time reservoir elevations were above and below specific elevations. For example, Lake Keowee has been below 793.25 ft AMSL approximately 10% of the time during the period 1971 – 2011.

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Keowee-Toxaway River Basin Water Resources Update Fall/Winter 2012

It has been dry this fall – even more so than I had expected. As of this writing, we have received at Bad Creek, Jocassee and Keowee Hydro Stations 0.44, 0.33, and 0.54 inches of rainfall, respectively. The US Army Corps of Engineers has been keeping Hartwell Lake rainfall records since 1948. Thus far, they have received 0.89 inches of rain this month, which is lower than any previous November in their records (next lowest was 0.99 inches in 1950).

The National Ocean and Atmospheric Administration (NOAA) graphic below details the precipitation decline from the long-term average since January 1. If you can visualize where the Keowee-Toxaway River Basin is located, then you'll see areas showing a deficit of 2-12 inches since January 1. This is further substantiated by NOAA data for Greenville, SC, showing it is 9.3 inches below normal for the same period.

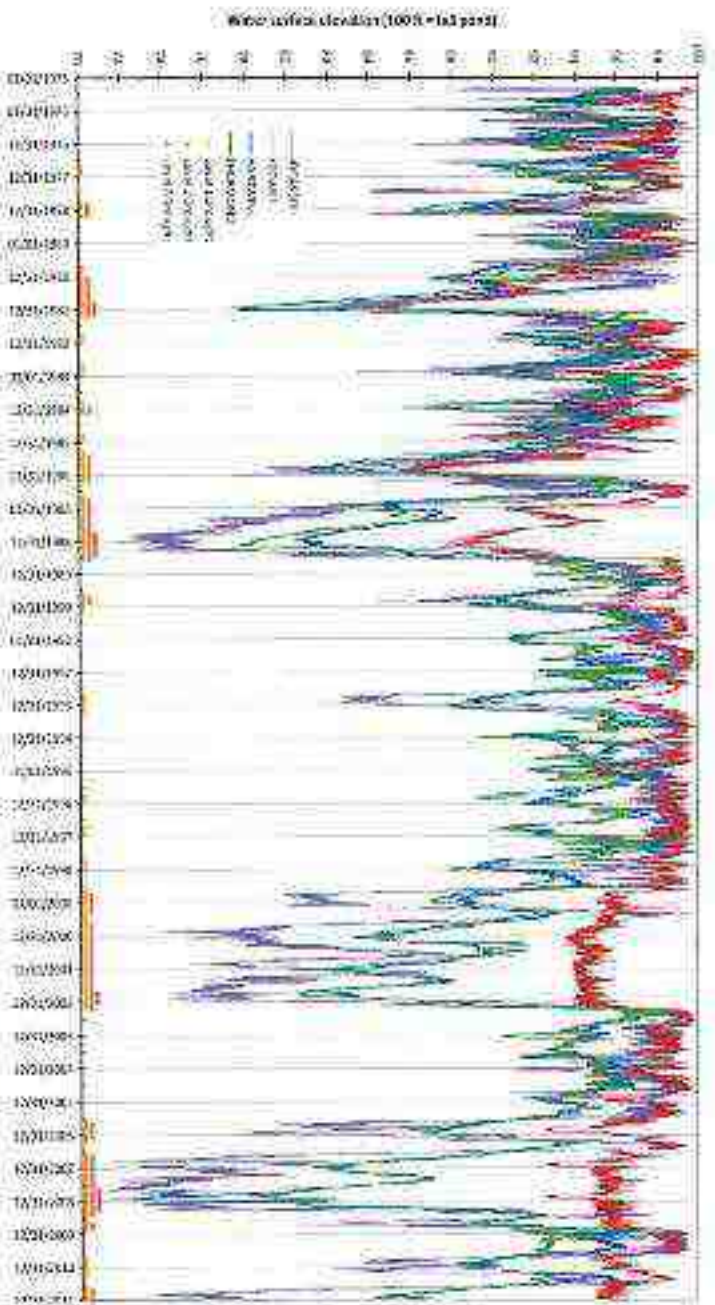


Source: National Ocean and Atmospheric Administration

While we are thinking about precipitation, we also have to think about evaporation, particularly from the lake surfaces, such as Lake Keowee. The Clemson-Seneca Airport has recorded 38.3 inches of precipitation through November 25, 2012, but also shows

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USACE AND DUKE ENERGY RESERVOIR SURFACE ELEVATIONS MAY 1, 1975 THROUGH DECEMBER 31, 2011



This figure above demonstrates how the reservoirs included in the 1968 Operating Agreement (Hartwell, Keowee, Harwell, and Taura) operated during the time period 1975 – 2011. All four reservoirs aligned in their reservoir elevations during the 1970s and into the 1980s. However, since the early 1990s when the Oconee Nuclear Station constraint was identified, Lake Lanier has typically fallen much lower than the other reservoirs with Lake Keowee generally at or above 95 feet.

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evaporation from an open water surface equivalent to 54.2 inches for the same period. We are fortunate to be having these dry conditions in November and not July. When, in 2012, the open water evaporation from Lake Keowee was estimated at 8.09 inches for the month, that evaporation equates to a stream flow of 200 cubic feet per second (cfs). Last week, I estimated the inflow to Lake Keowee at approximately 130 cfs, so at a different time of year, we would most certainly be evaporating substantially more than we're receiving.

So What:
(does this mean for relicensing)?

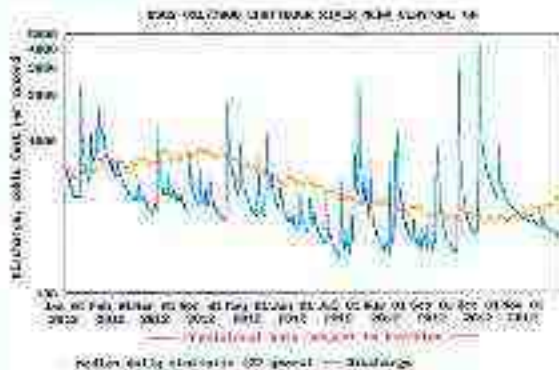
These data are being used to understand how the Keowee-Toxaway Project has been operated to date and how those operations have changed over time. This information will be used to assess potential effects associated with operations in the future.

The Chattooga River USGS gage near Clayton, Georgia has a 72-year record. Currently, the river has a flow of 233 cubic feet per sec (cfs), which for November 25 is at about the 17th percentile. That means that if we look back over the previous 72 years of data, 83 percent of the time stream flow was greater than 233 cfs. If we look at the graph below, it shows the Chattooga River since January 1 (blue line) as compared to the daily long-term average (gold line).

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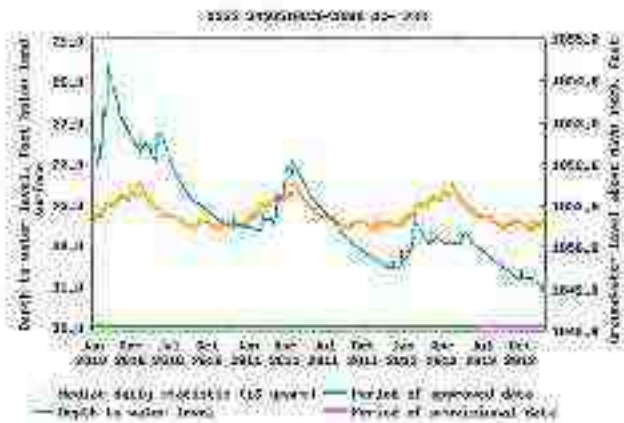
Despite good rainfall in early October, stream flow has fallen to a point significantly lower than the long-term average. The current stream flow and associated runoff has not been sufficient to build any appreciable storage and higher lake levels at Keowee-Toxaway.



Source: USGS

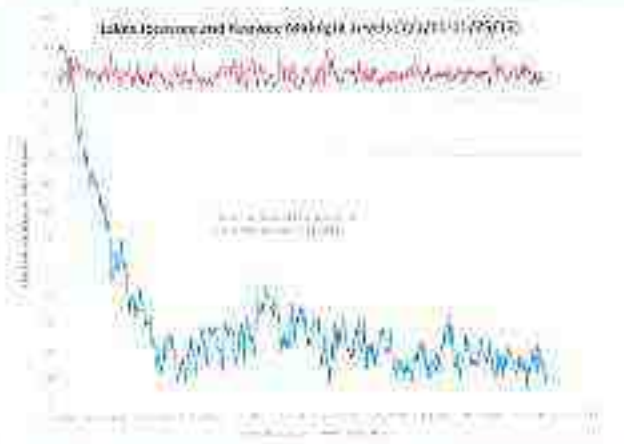
I think of lake level recovery in terms of significant rainfall, which I don't see likely in the near-term based on the weather forecast for late fall/winter (December - February). The tropical storm season is coming to an end, so the opportunities for a tropical storm to refill the reservoirs have diminished. Duke Energy's consulting meteorologist suggests December will be drier than normal, January will bring a normal probability for precipitation, and February will be drier than normal. The NOAA says the Keowee-Toxaway Basin has an equal chance of above, below or normal rainfall for the three-month period. In other words, they don't really provide much guidance.

Very simplistically, we have a look at the hydrologic cycle. Stream flows are lower than normal, and though the hot weather has passed (and with it, significant evaporation), the current trend is still for rainfall to run a deficit against open water evaporation rates. We are also seeing declining groundwater levels (see USGS graph below). The pattern we see suggests the annual groundwater recharge period that typically starts in late fall has not begun this year.



Source: USGS

Further, having had a summer with very warm temperatures, dry conditions and high customer demands, Duke Energy began making required flow releases to the US Army Corps of Engineers (USACE) the week beginning July 13, 2011. Without significant rainfall, dry conditions will likely continue to require weekly releases downstream to address Duke Energy's storage balance contract with the USACE. Without significant rainfall to help refill both Duke Energy's reservoirs as well as the downstream USACE reservoirs, Lake Jocassee will remain approximately 25 feet below full pond levels throughout the winter. Below is a graph of Keowee and Jocassee lake levels for the period July 1, 2011, to the present, which shows the daily cyclical pattern within our operating guidelines.



I will conclude this update by noting a recent woolly bear caterpillar forecast from the North Carolina

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mountains. Based on the caterpillar's reddish-brown bands, we should see snow and below average temperatures for the first five weeks of winter. The next six weeks will bring average to below average temperatures, with unusual cold in the twelfth week and more snow predicted for the final week of winter. What makes this interesting is that NOAA has made a forecast that suggests in the near-term we could see a negative phase in the North Atlantic Oscillation (NAO). Strong negative phases of the NAO are associated with below average temperatures. So what do the caterpillar and a negative phase NAO suggest for the Keowee-Toxaway Basin forecast? I will go out on a limb and suggest this may mean that we can expect a cooler and less snowy winter than Asheville, and, I am hopeful, a wetter year than last.

*George Galleher, P.E.
Duke Energy Carolinas Hydro Fleet Operations
(Prepared November 27, 2012)*

*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.



Economic Development

Oconee County Council
Planning & Economic Development Committee
December 11, 2012

EDC Mission Statement

The Economic Development Commission
will improve the Quality of Life
for the citizens of Oconee County
by encouraging a Diversified Economy
that attracts Industrial and Commercial
investment and fosters retention
of Existing Business and Industry

Agenda

- *EDC Activity Overview & Recap*
- *Continued Emphasis Areas*

12/12/2012 8:52 AM 3

PROFESSIONAL DEVELOPMENT

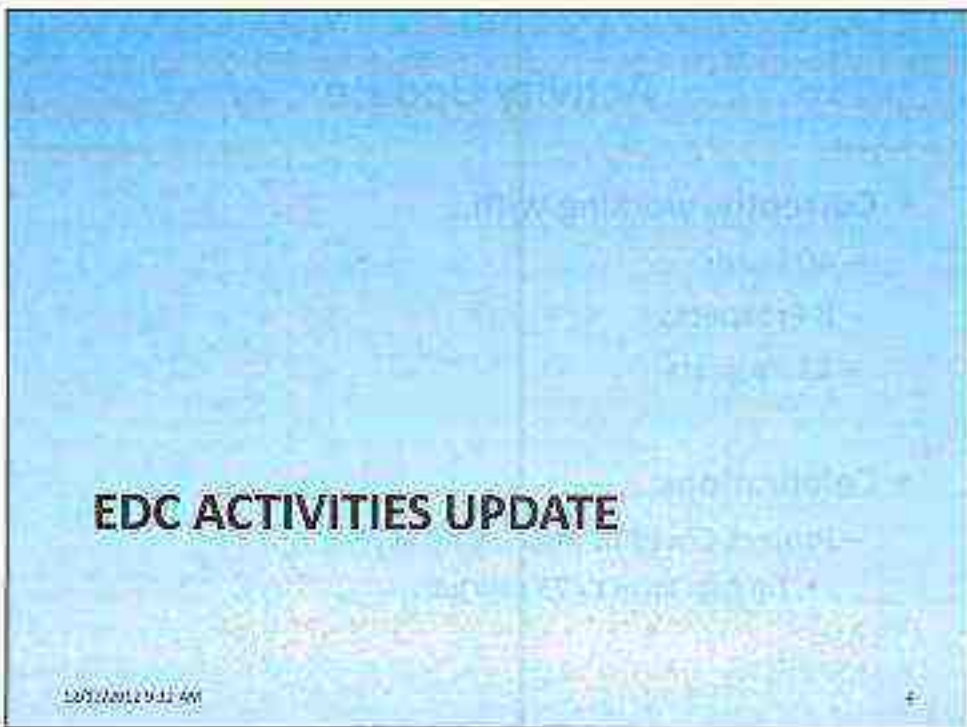
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Staff Accomplishments

- **Russell Johnson**, *Project and Marketing Manager*
 - Completed the 2012 SCEDA Institute
 - Completed the 2012 BEDC at Georgia Tech

- **Richard Blackwell**, *Executive Director*
 - Completed the 2012 SCEDA Advanced Symposium
 - SCCED Designation (South Carolina Certified Economic Developer)



EDC ACTIVITIES UPDATE

12/12/2012 9:41 AM

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Activity Update

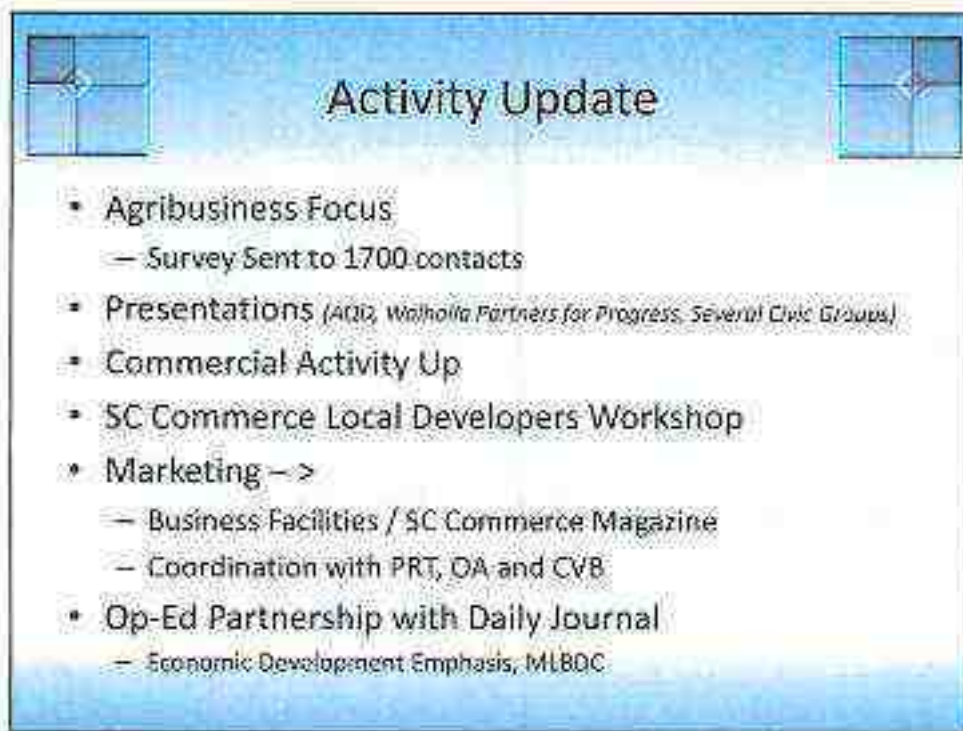
- Retention Activities:
 - BASF, BorgWarner, ITRON, Covidien, Schneider Electric, Altera Polymers, Johnson Controls, ITECH South, Koyo, Greenfield, Sandvik

- OCEDC Recruitment:
 - Atlanta Mission & Charlotte Mission, NAI Brokers Presentation, Cushman & Wakefield Broker Visit

Activity Update

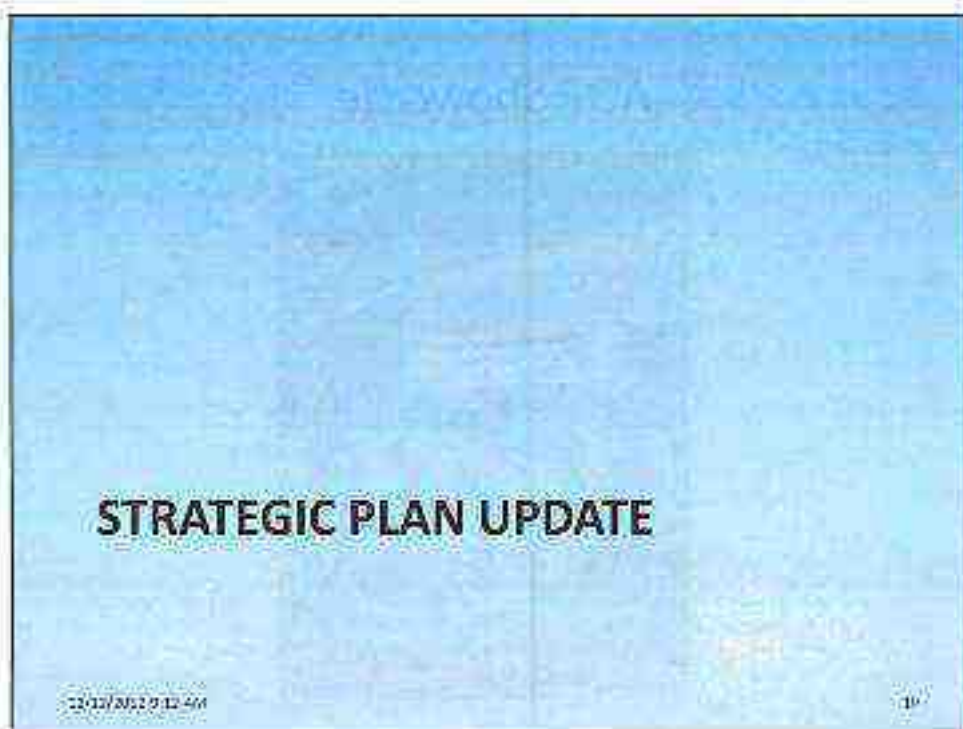
- Currently, working with...
 - 40 Leads
 - 8 Prospects
 - 13 Projects

- Celebrations....
 - Project Cover III (AID Company)
 - 7m Cap. Inv'm't / 75 new jobs



Activity Update

- **Agribusiness Focus**
 - Survey Sent to 1700 contacts
- **Presentations** (*AGC, Walhalla Partners for Progress, Several Civic Groups*)
- **Commercial Activity Up**
- **SC Commerce Local Developers Workshop**
- **Marketing – >**
 - Business Facilities / SC Commerce Magazine
 - Coordination with PRT, OA and CVB
- **Op-Ed Partnership with Daily Journal**
 - Economic Development Emphasis, MLBOC



STRATEGIC PLAN UPDATE

12/12/2012 9:12:46

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WORKFORCE DEVELOPMENT

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AOP Showcase





- ### Next Steps
- 2013 AOP Showcase Planning
 - Seneca STEM Initiative
 - Open House Concept with Industry
 - *WorkReady* Communities Initiative
 - Jan. 7 Job Fair at TCTC
 - Spring Job Fair conducted by OCIG

PRODUCT DEVELOPMENT

12/12/2012 9:13 AM


15

"The best way to predict the future is
to create it."


—Alan Drucker

Echo Hills Industrial Park

- Located on SC Highway 11
- 408.13 Total Acres
- 303.30 Buildable Acres
- Studies Completed:
 - Site Engineering Evaluation Report
 - Phase I Environmental Site Assessment
 - Wetlands Delineation
 - Federally-Protected Species Report
 - Cultural Resources Identification
 - Subsurface Exploration
- SC Certified Industrial Park (Pending)





Echo Hills Industrial Park




Echo Hills Industrial Park

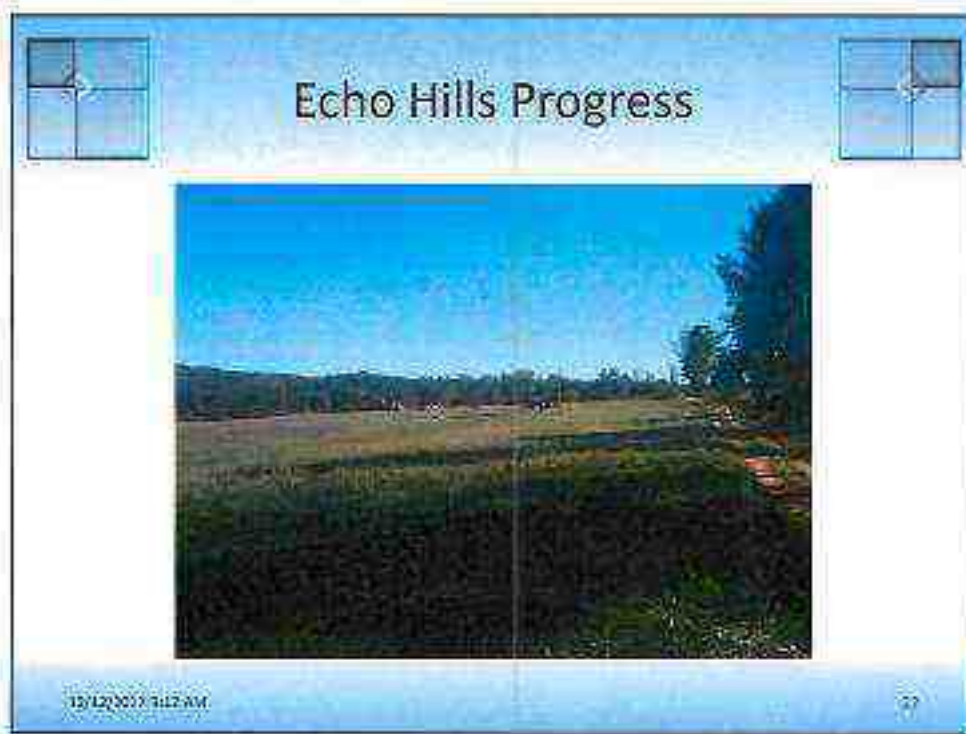
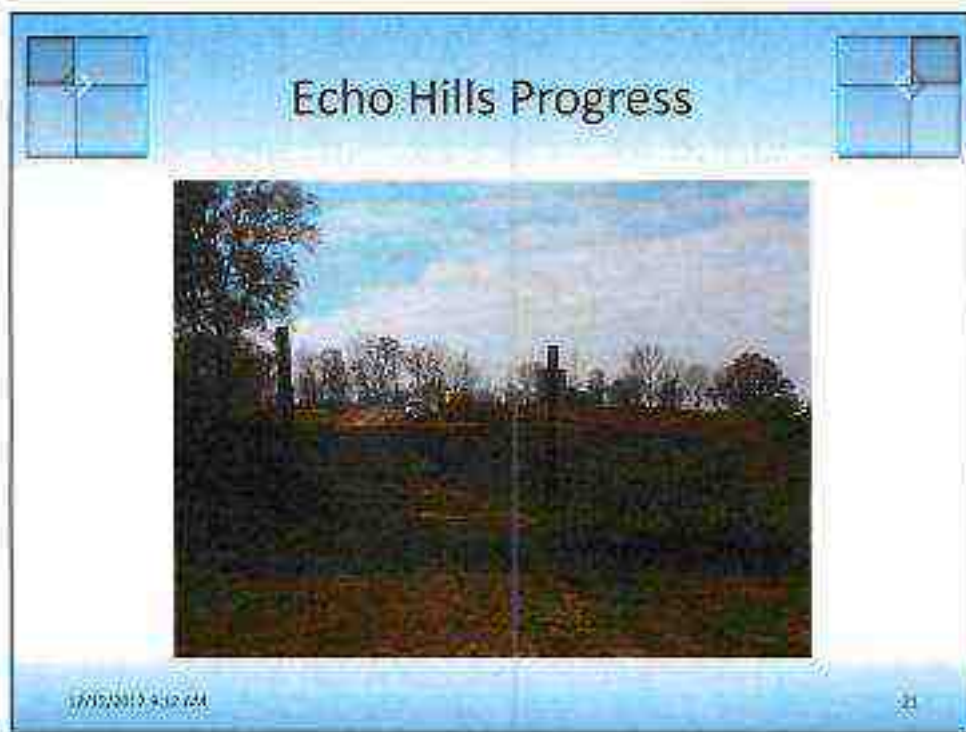
Highway 11 Entrance Road

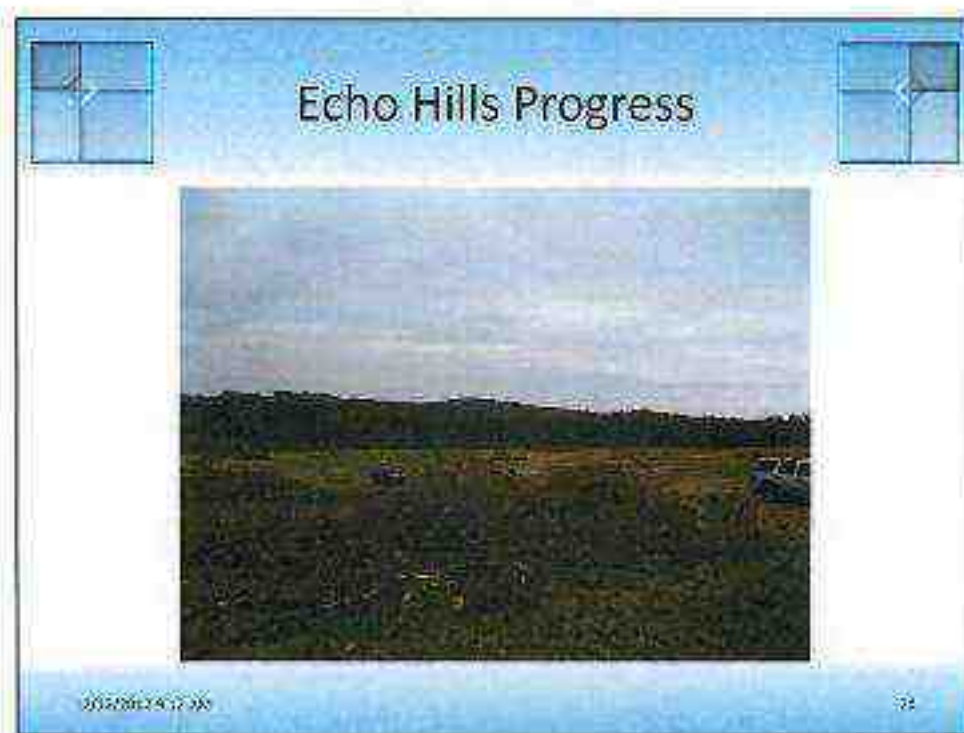
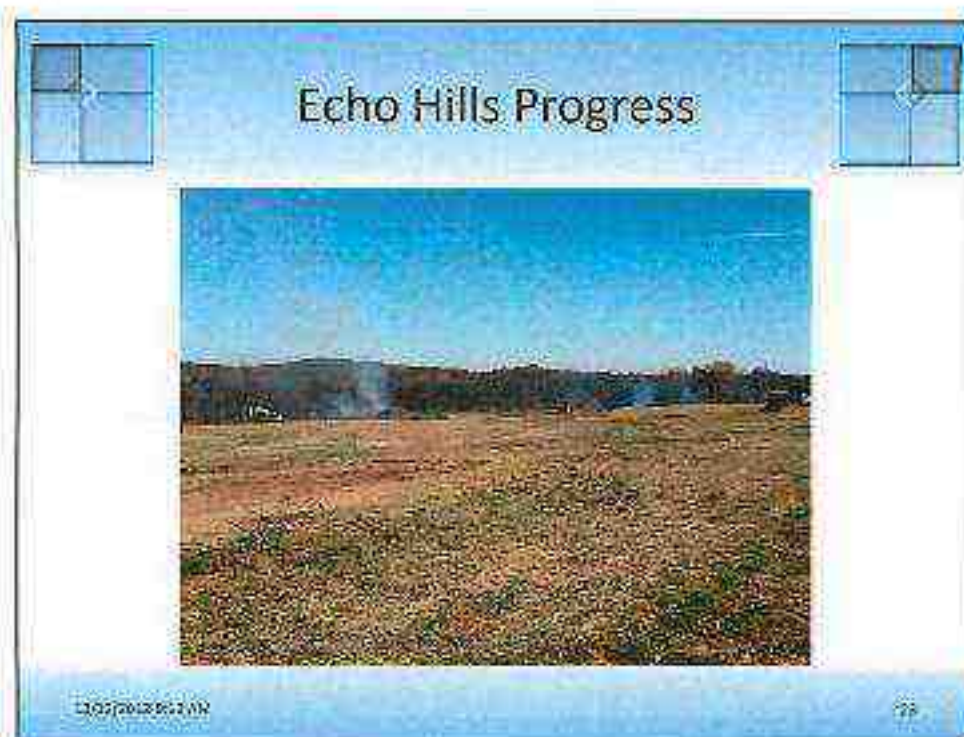


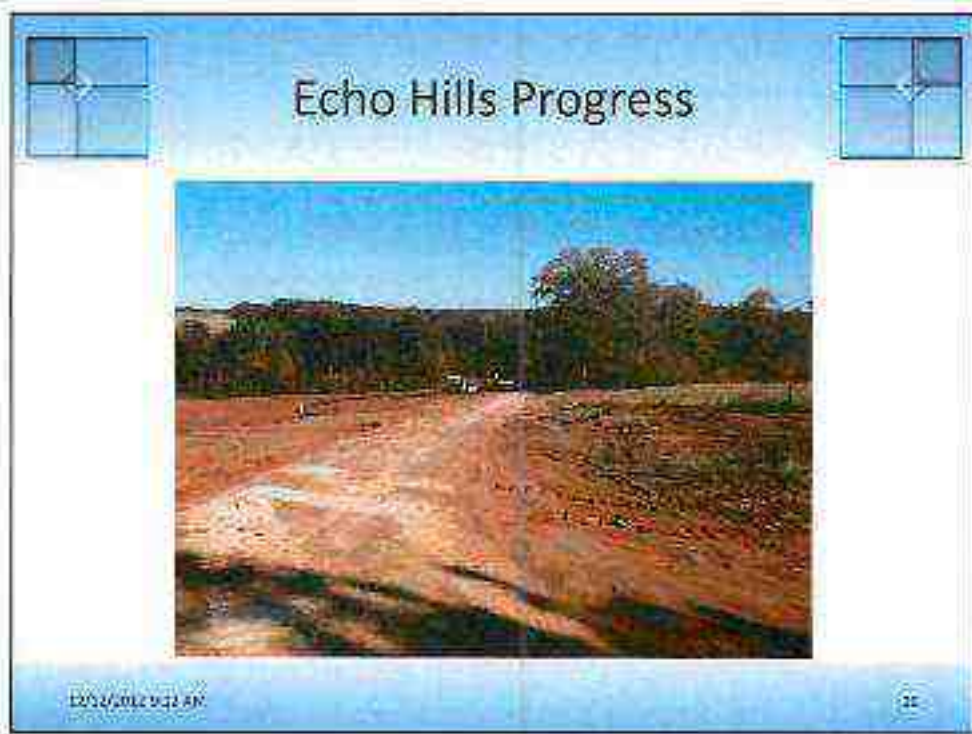
Echo Hills Progress

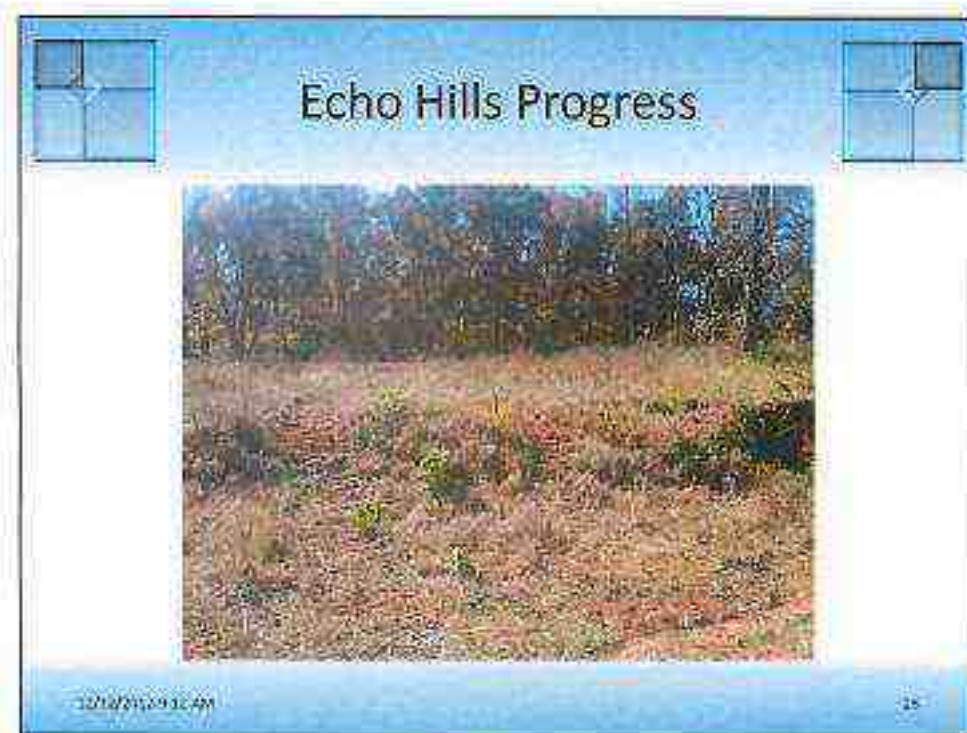


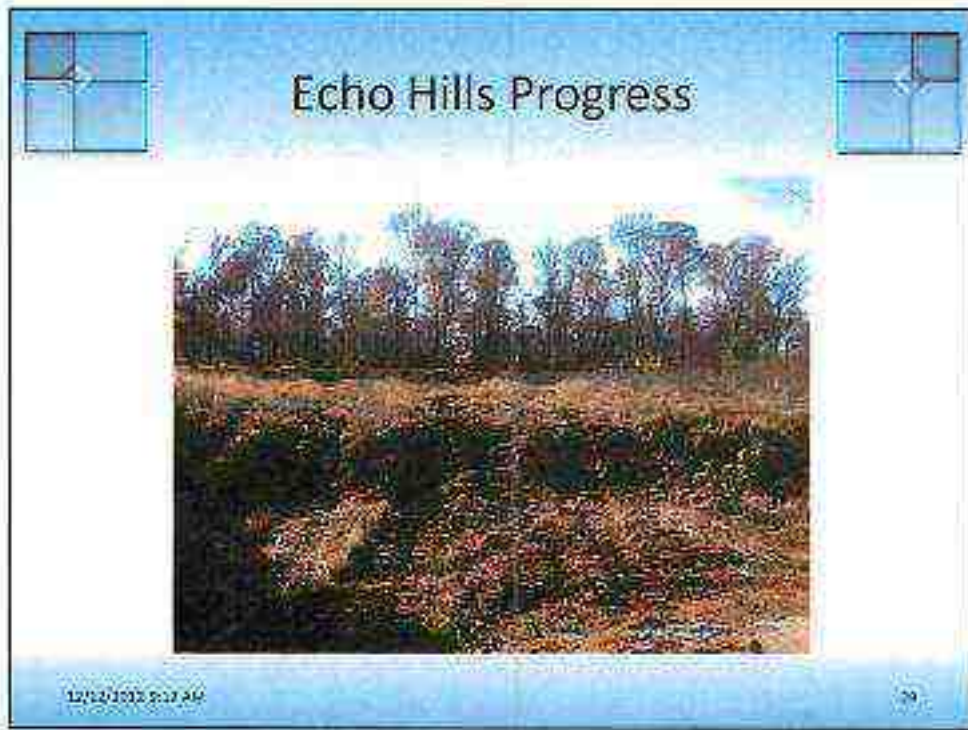
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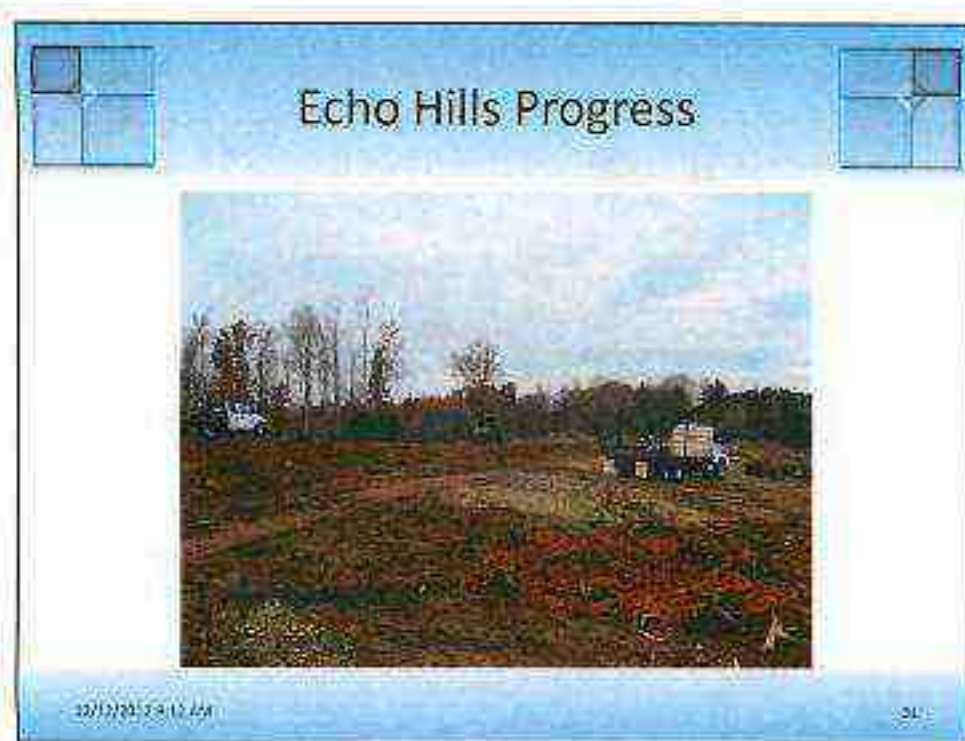


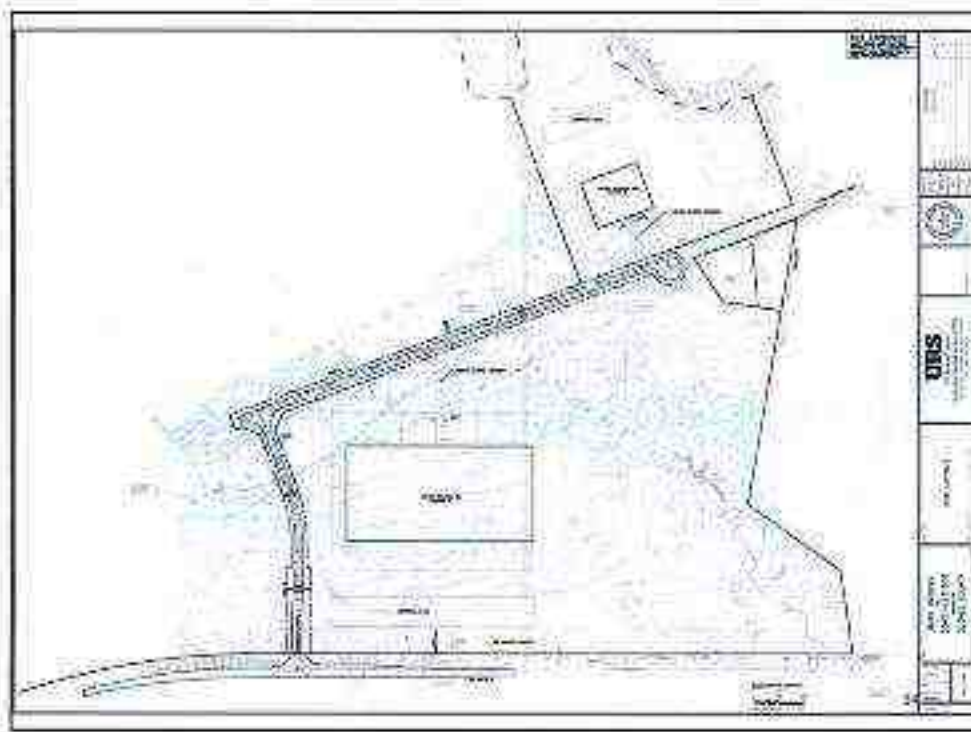
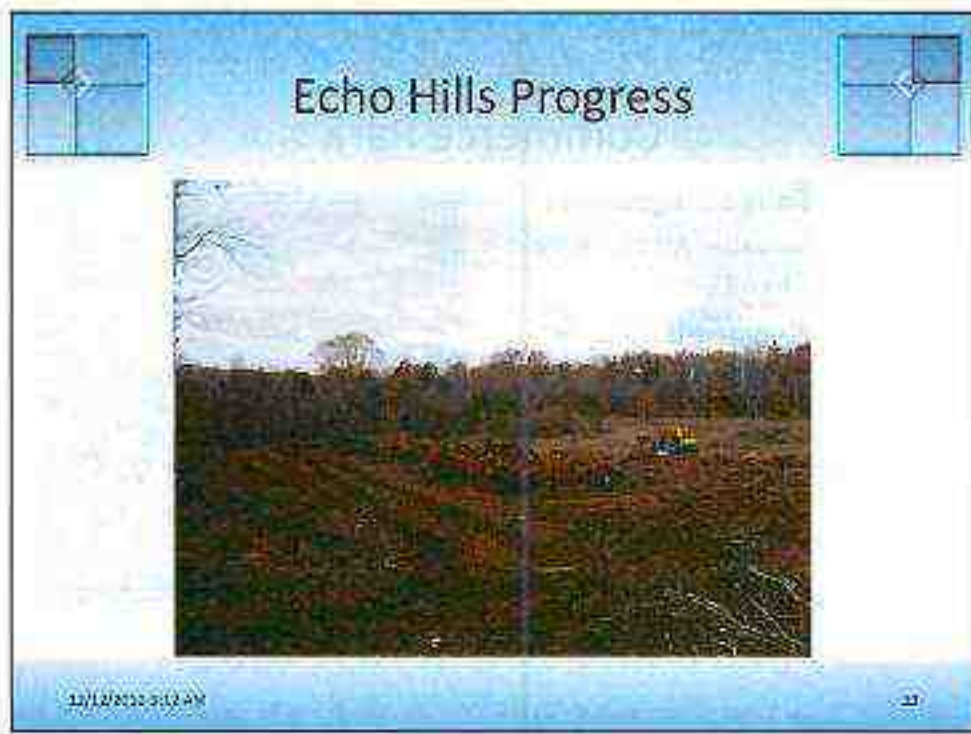








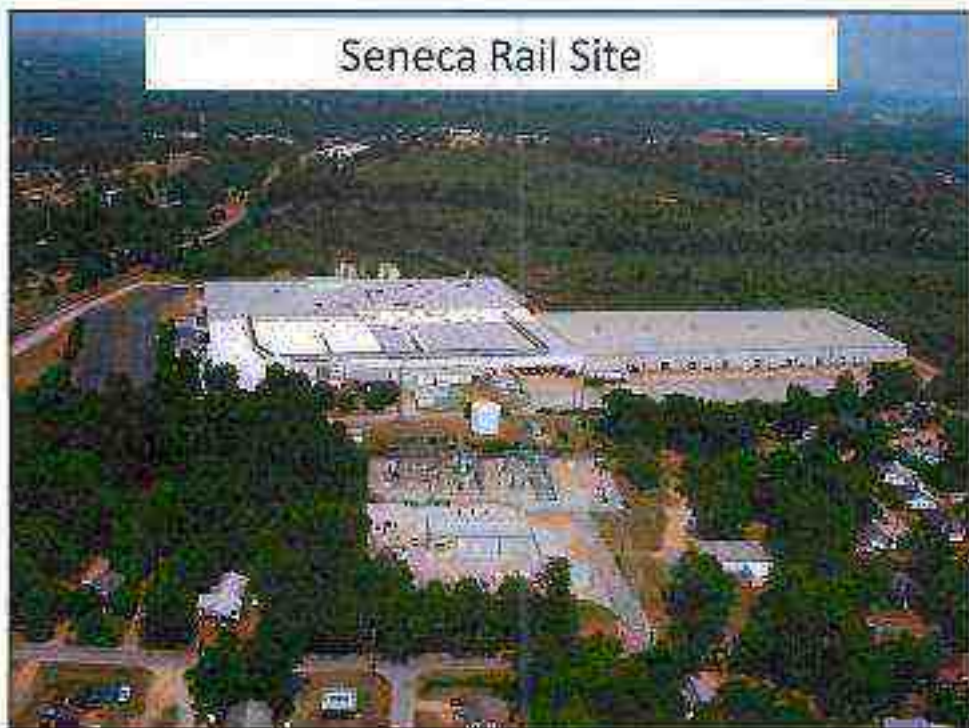




Golden Corner Commerce Park

- Located along SC Highway 59
- 270 +/- Buildable Acres
- 2.1 miles to I-85
- Studies Completed:
 - Site Engineering Evaluation Report
 - Phase I Environmental Site Assessment
 - Wetlands Delineation
 - Federally Protected Species Report
 - Cultural Resources Identification
 - Subsurface Exploration
- SC Certified Industrial Park (*expiring*)





Seneca Rail Site

- Access to SC Highway 59 & 123
- 100 +/- Acres
- Served by NFS
- Within a New Market Tax Credit Zone
- Direct Access to Planned Upstate Inland Port & Access to Atlanta's Intermodal Facility
- Studies Completed on site:
 - Phase I Environmental Site Assessment
 - DHEC VCC
 - Both "Clean"



Other Site Characteristics

- County Owned
- 15.5 miles to I-85
- 2.7m to Airport
- Zoning -> Control Free
- Soil -> Clay Loam
- Fire ISO Rating -> 4 (2.7m)

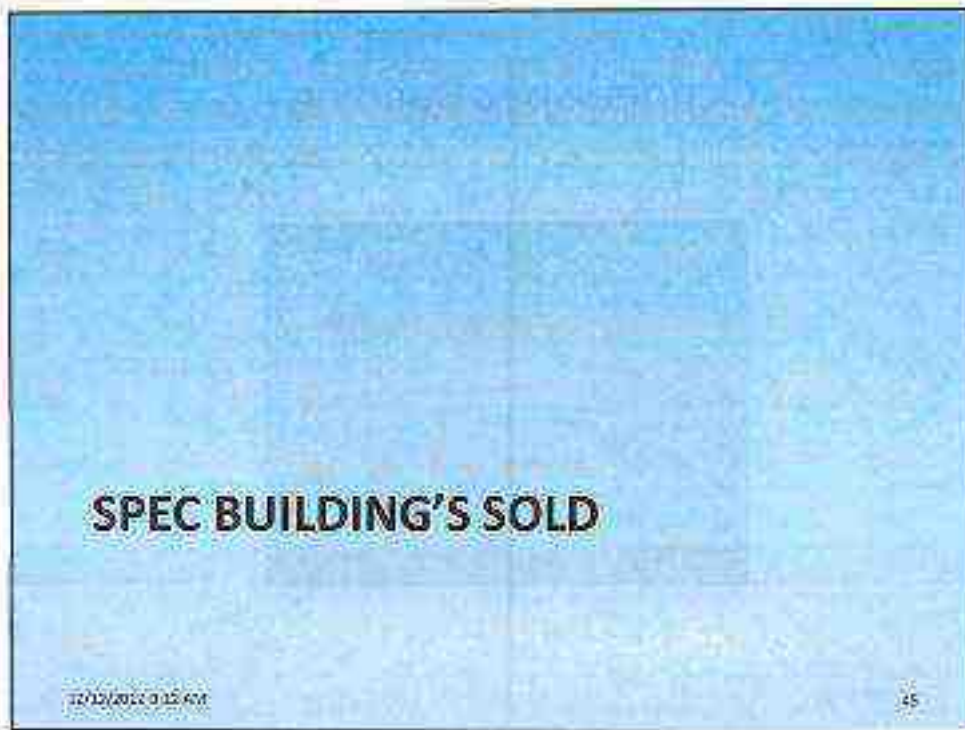


Utilities

- **Water:**
 - Seneca L&W / 12in line
- **Sewer:**
 - Seneca L&W / 8in line
- **Natural Gas:**
 - Fort Hill / 3in line
- **Electricity:**
 - Seneca L&W / 20MVA substation on-site







Oconee Spec Building #2



Oconee Spec Building Successes

- *Lift Technologies, Inc.*
 - Bought Spec #1 in 2007
 - 23 months on the market
 - \$5 million dollar investment & 50 new jobs
 - Doubled the size of the facility to 80,000 sq ft.
- *A.I.D. Company*
 - Bought Spec #2 in 2012
 - 12 months on the market
 - \$7 million dollar investment & 75 new jobs
 - Will add 15,000 sq ft, plans to double

QUESTIONS

12/12/2012 9:08 AM

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OCCONEE
COUNTY
ECONOMIC
DEVELOPMENT
COMMISSION

Richard K. Blackwell, SCCED

Executive Director

Oconee County Economic Development Commission

502 E. Main St., Walhalla, S.C. 29691

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www.oconeeSCede.com