Catawba-Wateree Hydro Project –

Changes Ahead from Relicensing

Presented to the Catawba-Wateree River Advisory Commission - 2/08/2008

Presented by:
Jeff Lineberger, Director, Hydro Strategy & Licensing, Duke Energy
Topics

- Relicensing Stakeholder Process
- Comprehensive Relicensing Agreement
- What will be different under the New License? *(water quantity focused)*
- 13 Hydroelectric Stations
- 11 Interconnected Reservoirs
- 831 MW Hydropower
- 8,167 MW Nuclear and Fossil
- Drinking water for 1.5 million people
- FERC License Expires August 2008
3-Yr Regional Collaboration on the New License Proposal

NC Foothills
NC Metro
SC Piedmont
SC Lower Catawba

NC State Relicensing Team (SRT)
SC State Relicensing Team (SRT)
Federal Resource Agencies
Non-Agency Stakeholders

State Resource Agencies

Duke Energy
Comprehensive Relicensing Agreement
Presented to FERC

- Signed by 70 of 85 eligible parties in Summer of 2006
  - 6 Catawba-Wateree Commission organizations are CRA signatories

- Filed with FERC August 29, 2006

- FERC review ongoing

- New License could be received in 3rd Quarter of 2009

- Will shape lake system operation for next 40 to 50 years

- Balanced, inter-dependent package.

Primary CRA Resource Requirements

• **Rebalancing of Water Quantity-related Interests**
  – Lake Levels
  – Aquatic Habitat Flows
  – Recreation Flows
  – Flood Management at Lake Wateree
  – Drought Management
  – Water Supply Needs

• **Major Recreation and Land Management Improvements**
  – Recreation Facilities
  – Shoreline Management
  – Land Conservation
  – Habitat Enhancement Program

• **Additional Resource Improvements**
  – Cultural Resource Protection
  – Rare, Threatened and Endangered Species Management
  – Water Quality Enhancements
  – Public Information Enhancements
Changing Lake Level Management

Existing and Proposed Lake Norman Elevations

- Existing Guide Curve (ft.)
- Normal Minimum (ft.)
- Normal Target (ft.)
- Normal Maximum (ft.)

Month

Elevation (ft.)
Continuous Flow Releases will Improve Aquatic Habitat

- Flow rates are science-based
- New facilities needed to deliver flows

<table>
<thead>
<tr>
<th>Downstream of.....</th>
<th>Seasonal Continuous Flow Range (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>James</td>
<td>125 - 220</td>
</tr>
<tr>
<td>Hickory</td>
<td>150</td>
</tr>
<tr>
<td>Lookout Shoals</td>
<td>80</td>
</tr>
<tr>
<td>Wylie</td>
<td>1100</td>
</tr>
<tr>
<td>Great Falls</td>
<td>550 - 950</td>
</tr>
<tr>
<td>Wateree</td>
<td>930 - 2700</td>
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</tbody>
</table>
Reliable Recreation Flow Schedules Bring New Opportunities

- Flow rates, schedules on web and phone line
- New facilities to access river reaches

<table>
<thead>
<tr>
<th>Downstream of.....</th>
<th>Scheduled Rec Flow Days / Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>James</td>
<td>85</td>
</tr>
<tr>
<td>Hickory</td>
<td>49</td>
</tr>
<tr>
<td>Wylie</td>
<td>69</td>
</tr>
<tr>
<td>Great Falls</td>
<td>22 (long), 28 (short)</td>
</tr>
<tr>
<td>Wateree</td>
<td>47</td>
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</tbody>
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Improved Flood Management at Lake Wateree

Tempe Town Lake Dam
16 ft Bladder Installed in 1999
4 – Sections approx. 1000 ft
Each Section Individually Controlled
Drought Coordination on the Catawba

- **Drought Management Advisory Group (DMAG)**
  - **What** - Take coordinated, basin-wide action to conserve water in response to drought
  - **When** - Triggers are storage, streamflow, US Drought Monitor and groundwater
  - **How** - Low Inflow Protocol (LIP) (5-stage procedure)

<table>
<thead>
<tr>
<th>LIP Stage (date of declaration)</th>
<th>Public Water Supplier Actions</th>
<th>Duke Actions</th>
<th>Other Intake Owners’ Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (Aug 2006) 90% to 100% of Target Storage</td>
<td>Preparation</td>
<td>Declare stages, coordinate DMAG communications</td>
<td>Preparation</td>
</tr>
<tr>
<td>1 (Jul 2007) 75% to 90% of Target Storage</td>
<td>Voluntary Water Use Restrictions</td>
<td>Reduce hydro generation, ask customers and employees to conserve water and electricity</td>
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</tr>
<tr>
<td>2 (Aug 2007) 57% to 75% of Target Storage</td>
<td>Mandatory Water Use Restrictions</td>
<td>Further reduce hydro generation, customer / employee conservation</td>
<td>Customer / employee conservation</td>
</tr>
<tr>
<td>3 (Oct 2007) 42% to 57% of Target Storage</td>
<td>Increased Mandatory Water Use Restrictions</td>
<td>Further reduce hydro generation, customer / employee conservation</td>
<td>Customer / employee conservation</td>
</tr>
<tr>
<td>4 ≤ 42% of Target Storage</td>
<td>Emergency Water Use Restrictions</td>
<td>Further reduce hydro generation, customer / employee conservation</td>
<td>Customer / employee conservation</td>
</tr>
</tbody>
</table>
Protecting Water Intakes

Shallowest Water Intake defines Critical Reservoir Elevation

Normal Maximum Elevation (typically full pond)

Normal Target Elevation

Normal Minimum Elevation

Extra Usable Storage in Drought

Shallowest Water Intake defines Critical Reservoir Elevation

Water Intakes
New Water Management Group Will Help Drive Change

• **Who** — Duke and Public Water Suppliers

• **What** — Non-profit corporation that will invest its membership dues ($550,000 / yr) in initiatives to improve water quantity and water quality

• **When** — Official organizational meeting was held December 6, 2007

• **How** — 5-yr rolling projects list

• **17 Participants (Intakes that use Catawba lake system storage)**

  Morganton               Mount Holly
  Valdese                 Gastonia
  Lenoir                  Belmont
  Granite Falls           Rock Hill
  Hickory                 Union-Lancaster Water Plant
  Longview                Chester Metropolitan District
  Camden                  Lugoff-Elgin Water Authority
  Lincoln County          Duke Energy Carolinas, LLC
  Charlotte

• **Officers & Directors**
  Chair – Barry Gullet (Charlotte)   Vice-Chair – Jeff Morse (Valdese)
  Sec/Treas – Jeff Lineberger (Duke)  NC At-Large Director – Kevin Greer (Hickory)
  SC At-Large Director – Mike Bailes (Union-Lancaster)
Questions?

Dearborn Hydro Station under Construction – 1923