

Reinhold Environmental Ltd.



2008 APC Round Table
& Expo Presentation

July 13-15, 2008, in Savannah, GA



Retrofit Projects Caused by Changing Environmental Regulations- Duke Carolinas

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Subject Matter Expert
Duke Energy

SCRs

- ◆ Belews Creek 1 and 2
- ◆ Cliffside 5
- ◆ Marshall 3- Under construction

SCR- Belews Creek





 **Duke
Energy**®



Other NOx upgrades

- ◆ Low NOx Burners- 32 units
- ◆ SNCRs
 - Allen 1,2,3,4,5
 - Lee 1,2,3
 - Buck 3,4,5,6
 - Marshall 1,2,3,4
 - Riverbend 4,5,6,7

Wet Scrubbers

- ◆ Marshall 1,2,3,4
- ◆ Belews Creek 1,2
- ◆ Cliffside 5-Planned
- ◆ Allen 1,2,3,4,5- Under Construction



Scrubber-Marshall







5/1/2006 Duke Marshall Steam





Replaced or Rebuilt Precipitators

- ◆ Marshall 1,2,3,4 Replacement
- ◆ Belews Creek 1,2 Rebuild
- ◆ Allen 3,4,5- Hot to Cold Conversions
- ◆ Dan River 3 Replacement
- ◆ Cliffside 5 Rebuild and Enlargement



New Generation-Cliffside 6

- ◆ Baghouse
- ◆ Wet FGD
- ◆ Dry FGD
- ◆ SCR
- ◆ SO₃ removal injection
- ◆ Retire approximately 1000 mW of old smaller Generation starting 2010-
Unscrubbed units

Renewables

- ◆ Must install “renewable generation” that will equal 12 ½% of total generation by State Regulation
 - Solar
 - Biomass
 - Wind



Thank-you