Air Quality Program Update

Environmental Review Commission

November 22, 2005



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Deputy Director

Division of Air Quality

North Carolina Clean Smokestacks Act (CSA)

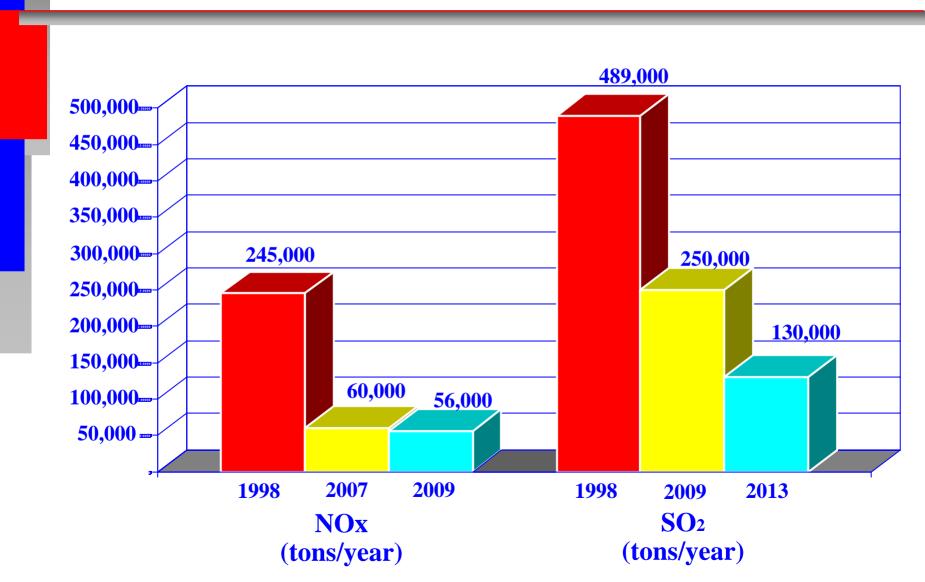
- CSA Passed and Signed in June 2002
- NOx & SO₂ Caps on Emissions-Tons/Year-Caps per Company

 They Decide on Controls
- Phased Compliance; 1 Jan. '07, '09, '13
- 22 SO₂ Scrubbers
- 36 SCR / SNCR Units
- NOx Controls in Place Starting in 2001
- SO₂ Scrubber Operation Scheduled to Start in November 2005
- Reduction Credits Held by the State
- SAMI: Greatest AQ Benefit for a State Comes from Reductions in that State; but, Controls in All States Needed to Fully Solve AQ Problems

CSA (cont.)

- Actual Reductions in N.C.
- Unique Cost Recovery Feature
- ■Recommendations on Hg & CO₂; September 2005
- Reduction Credits Held by the State

Emissions Reductions Under Clean Smokestacks Bill



Background – CSA CO₂ & Hg Reports

- Sections 12 & 13 required reports by DAQ on Sept. 1, 2003, 2004 and 2005 on CO₂ and Mercury
- ■2003 Reports were "State of Science"
- ■2004 Reports were "Range of Options"
- ■2005 Reports are "Recommendations"







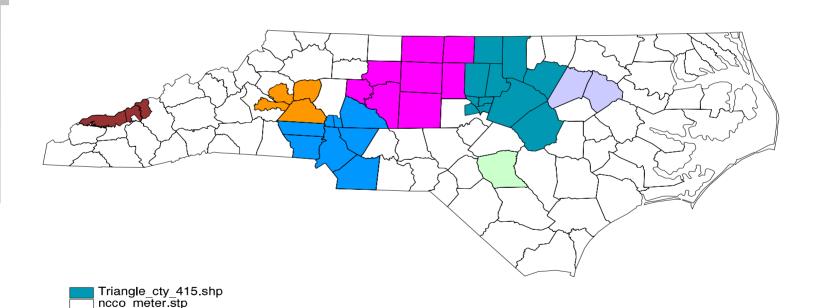




NC's First Operating Scrubber – Progress Energy – Asheville November 2005



EPA's Boundary Designations for 8-Hour Ozone Standards for North Carolina (4/15/04)



Charlotte area: Moderate, Max. attainment date: June 2010

Triad area (EAC): Moderate, Max. attainment date: Dec. 2007

Triangle area: Basic, Max. attainment date: June 2009 Unifour area(EAC): Basic, Max. attainment date: Dec 2007 Haywood & Swain cos: Basic, Max. attainment date: June 2009

Fayetteville area(EAC): Basic, Max. attainment date: Dec 2007 Rocky Mount area: Basic, Max. attainment date: June 2009

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Triad cty 415 shp

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Triangle twn.shp

North Carolina's Recommendation on 8-hr Ozone Nonattainment Boundaries

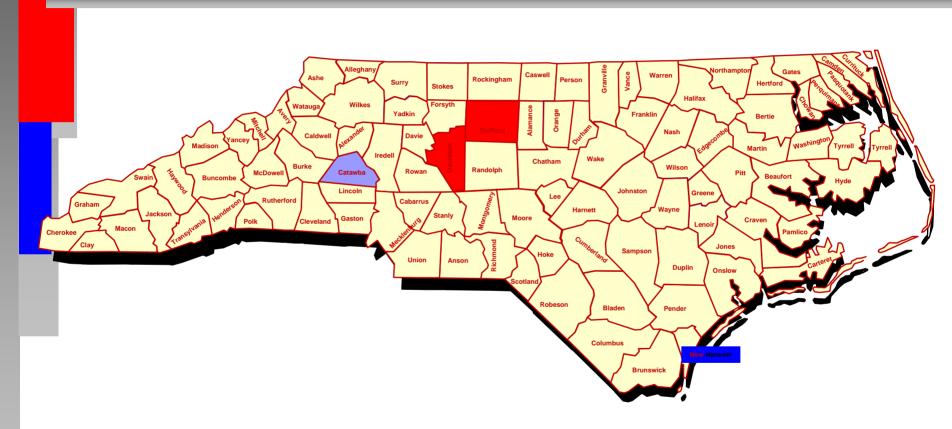




Represents 4,000 feet elevation boundary

Reductions in emissions will be required in areas as needed, even in areas not designated nonattainment.

North Carolina Areas Designated Non-Attainment for PM2.5 (EPA 12/17/04)





What are the Effects of Designation of Non-Attainment?

- Starts "Clock" when State Implementation Plan (SIP)
 Revision is Due Three years from Designation
 - Early Action Compact (EAC) Areas for Ozone are Due Earlier -December 31, 3004
- Transportation Conformity Starts One Year After Designation April 2005 for Ozone; December 2005 for PM
- General Conformity Effective Upon Designation
- Non-Attainment New Source Review (NSR) Effective Upon Designation
 - Lowest Achievable Emission Rate (LAER) Controls Required
 - Offsets of New Emissions
- Impacts Economic Development

State Implementation Plan (SIP)

- Must be Submitted to EPA Within Three Years
 - Details the State's Plan to Bring the Area into Attainment of the Federal Standard
- Most Significant Features are Already Underway
 - Clean Smokestacks Act
 - Vehicle Emissions Testing
 - Low Sulfur Fuels
 - Cleaner Fuels

SIP Development Completed

- Early Action Compact Areas
 - Fayetteville
 - Hickory/Morganton/Lenoir
 - Triad
 - Mountain

- Ozone SIP Submitted December 2004
- Demonstrates Attainment of Standard by December 2007, Maintenance Through 2017

SIP Development Ongoing

■8-hour Ozone Areas

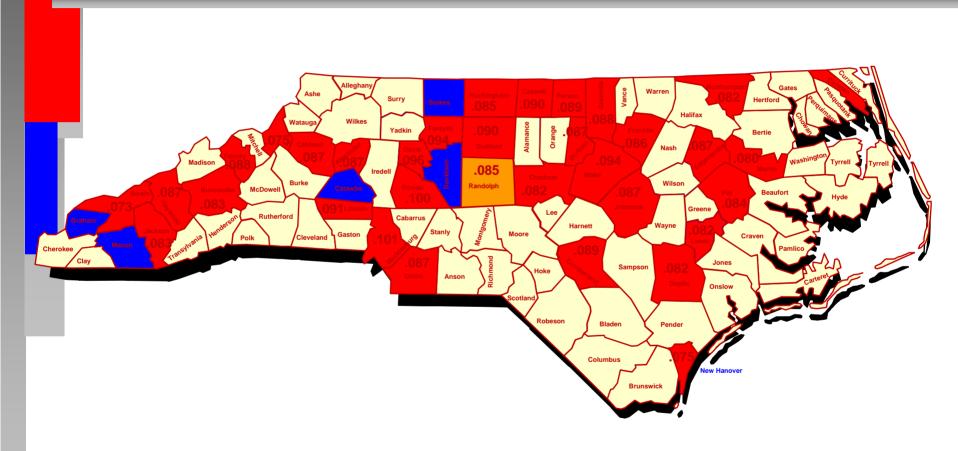
- Metrolina
- Triangle
- Rocky Mount
- Great Smoky Mountains National Park
- PM2.5 Areas
 - Triad
 - Hickory
- Regional Haze

SIPs Submittal Schedule

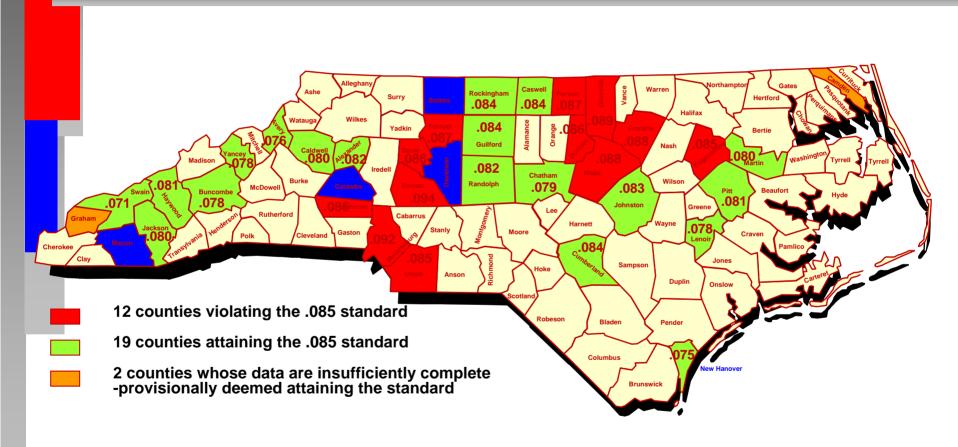
- **■Ozone** June 6, 2007
- **■PM2.5** April 8, 2008
- ■Haze December 17, 2007

So, How Good is Our Air Quality?

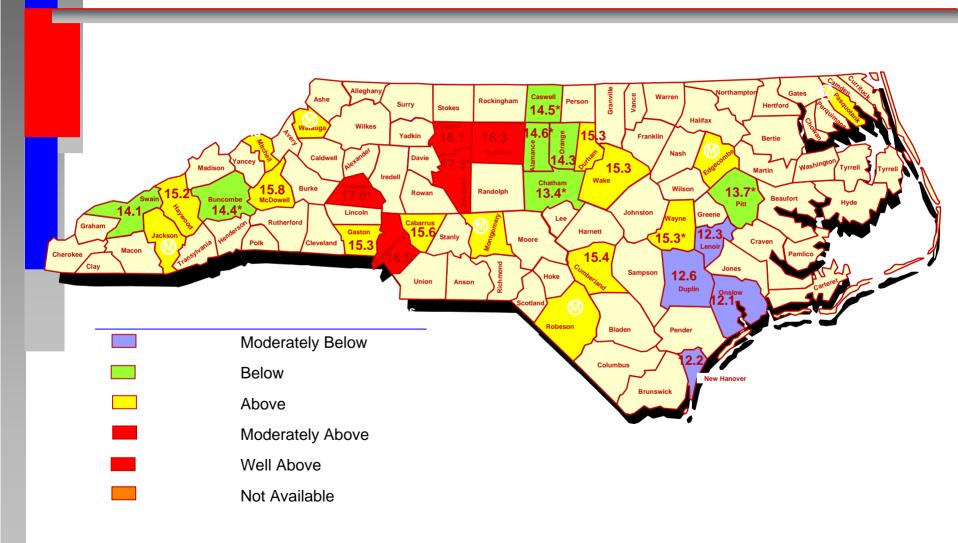
North Carolina Counties with 8-Hour Ozone Violations 1999-2001



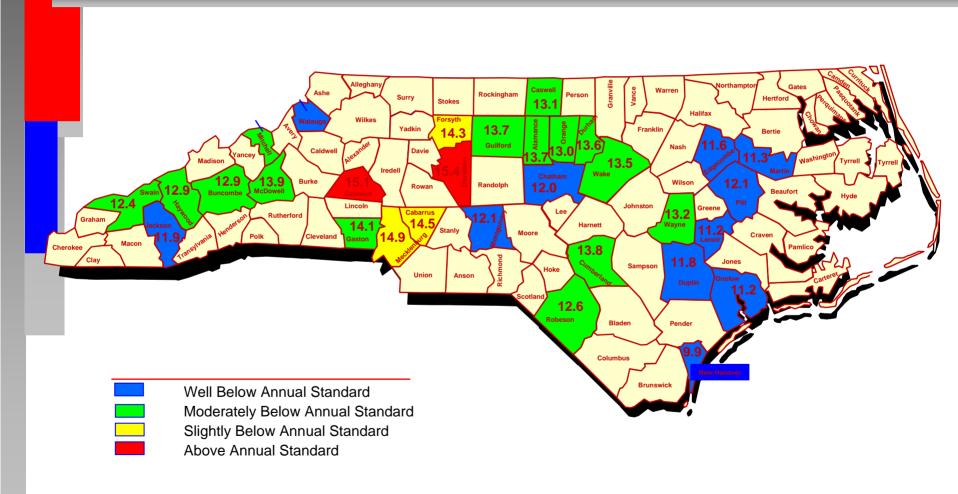
North Carolina Counties with 8-Hour Ozone Violations 2002-2004



Estimated Annual Mean PM 2.5 24-Hour Concentrations for January 1999 thru December 2001

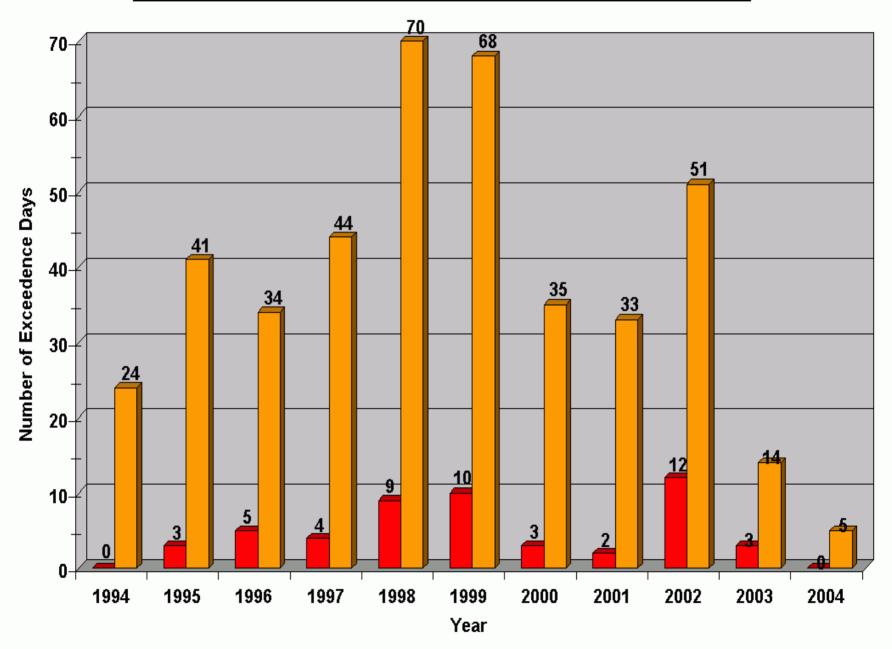


North Carolina PM 2.5 Design Values 2002-2004

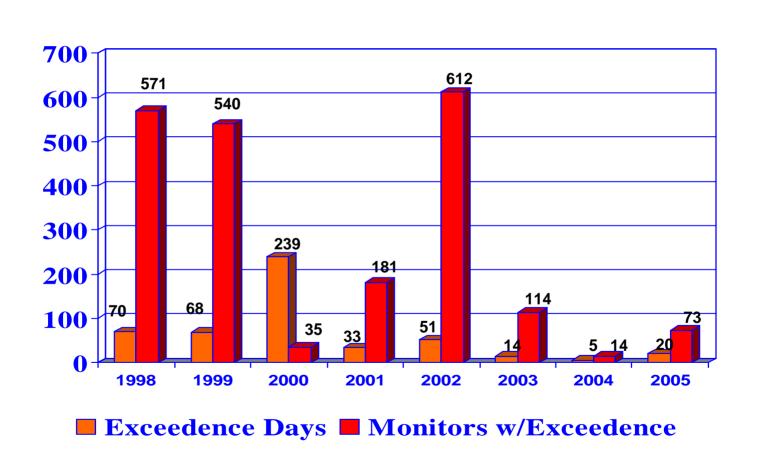




NC Statewide 1-Hour and 8-Hour Exceedence Days



NC Statewide 8-Hour Exceedence Days & Total Measured Exceedences



New Particulate Standards Coming!

- Tighter PM 2.5 Standards to be Proposed Dec 20 by USEPA
- Possible Tighter Annual and 24 hour standards than current
- Current Annual Standard of 15 micrograms/meter cubed might go as low as 12
- Current 24 hour standard of 65 might go as low as 25
- If at Lower End, Many New Areas in Non-attainment
- Also, New "Course" Particle Standard, PM 10 PM
 2.5; Not a Problem for NC at Expected Level
- Final by Sep '06; Designate by Fall '09; Plans due Fall '12

Toxics Protection Branch at the U.S. Open

- Requested by SBI
- **24-Hour, 7 Day Coverage (June 13-19, 2005)**
- Monitored for Chemical Air Releases

Toxics Protection Branch U.S. Open (cont.)

- Airborne Releases Major Avenue of Possible Attack
- Large Crowds (45,000 per day) Potentially Exposed
- Air Monitoring Would Detect releases in time to Alert Authorities and Avoid Widespread Harm to Public

Toxics Protection Branch U.S. Open (cont.)

- Sampling & Analysis for Gases, Vapor, Particulate
- Based Sites on Historical Meteorology
- Used Portable Equipment

Toxics Protection Branch U.S. Open (cont.)

Results

- A Lot of Ammonia It's a Golf Course!
- No Worrisome Chlorine Levels
- No Hydrogen Cyanide
- Some Evidence of Pesticide Applications
- A Lot of Mobile Source Emissions





An Initiative to Deal with an Old Problem

- > 50 % of Enforcement Actions
- Significant Public Health Problem
 - Very Fine Particulate
 - Toxics



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DAQ Rules Update

- Banking Emission Reduction Credits
- CAIR (Clean Air Interstate Rule)
 - NOx / SO2 for coal utilities 28 states + DC
 - EMC approved to go to public hearing
- **CAMR (Clean Air Mercury Rule)**
- BART (Best Available Retrofit Technology)
 - Part of Haze Rules
 - Concept to EMC
- RACT (Reasonable Available Control Technology) for Charlotte MSA (Triangle/Triad?)

Questions?

Hg Report Under the Clean Smokestack Act

Mercury Report/Recommendations

- Federal Clean Air Mercury Rule Promulgated by EPA
- Significant Co-Benefits Expected from CSA Controls (up to 65%)
- Will Co-Benefits be Enough?
- DAQ Recommendation:
 - Mercury Rule <u>at least</u> as Stringent as the Federal Mercury Rule, CAMR
 - Additional Requirements as Determined by Environmental Management Commission

Carbon Dioxide (CO2) Report Under the Clean Smokestacks Act

CO2 – Assumptions & "Extrapolations"

- Acceptance of Global Warming Implied in CSA – Not an Issue to Decide
- CO₂ Specified in CSA, but Assumed to be Inclusive of all GHG (Basically, Adds Methane, N₂O, and Other but "Less Common" Gases)
- CSA Basically Directed Toward Coalfired Power Plants, but Effort was Viewed in Context of all Sources of GHG, Stationary and Mobile

DAQ Recommendations for CO₂

DAQ to do	Administrative	Longer Term
(Action Plans)	& Regulatory	Studies/Plans
8 Listed Plans of Action that DAQ is committing to do.	7 Recommendations for the DAQ and other agencies to act upon under existing authorities and level of knowledge.	7 Long Term general Recommendations to be studied and further developed as part of the stakeholder developed
		Climate Action Plan.

DAQ To Do (Action Plans)

- Develop/facilitate a NC Climate Action Plan (CAP)
 - High level oversight/direction group (Secretary level)
 - Stakeholder groups (transportation, agriculture, efficiency...)
 - Technical working groups government, consultants, etc.

How Does This Effort Relate to the Legislative Climate Change Commission?

- Compliments and Supports the Effort of the Legislative Commission
- Provides Technical Support and Knowledge on GHG Reductions to Include Costs and Benefits
- Benefits Include Economic Boost to the States Economy – Including Estimates of Job Gains
- Ongoing Coordinating with and Reporting to Commission
- Several Stakeholders Groups Including: Industry, Environmentalists, Academia, ...

DAQ To Do (Action Plans) cont.

- Coordinate Development of plan for SE Region
- Baseline Point Source GHG Reporting within 3 Years
- Explore Ways to Facilitate Higher Power Plant Efficiency
- Include Consideration of Measures in SIP
- Adopt/recommend Use of GHG Term "CO₂e" Statewide Instead of "CO₂"
- Explore Ways to Use CO₂ Emission Credits to Fund Program
- Assist Legislative Commission on Climate Change

Administrative & Regulatory Recommendations

A-1: NC increase state government efforts to reduce its own CO ₂ e	A-2: Encourage use of clean coal technologies such as Integrated Gasification Combined Cycle (IGCC)	
A-3: 5 years – Reassess CO ₂ removal and sequestration technology status	A-4: Initiate a NC GHG Registry w/verification	
A-5: Establish major NC GHG tech centers for education, consulting and manufacturing	A-6: NC General Assembly and Executive Branch Influence National/world	
A-7: NC education system incorporate GHG science		

Longer Term CAP Study, Assessment & Actions

LT-1: Endorse, continue to expand and refine State Energy Plan	LT-2: Establish Leadership Center in University for Ag & Forestry Roles
LT-3: Maximize use of animal waste for energy	LT-4: Establish RPS and EPS Standards ASAP
LT-5: Establish Public Benefits Fund	LT-6: Transportation use Reductions and Efficiency Increases
LT-7: Plan or Commission for Long Range Global Warming Disaster Recovery	

Next Steps

- Establish CAP Membership and Groups
- Begin Implementation of El Details
- Work with Global Climate Change Commission
- Develop Climate Action Plan by December 2006 –
- Report to Commission, General Assembly, Governor and Implement

Expected CAP Process

- DAQ Handles Administrative and Day-to-Day Oversight
- Executive Oversight/Steering Committee at Secretary Level
- Stakeholders (30-40) Representing Specific Sectors
- Technical Work Groups (Consultant and Other Volunteer Experts – University, State Government, etc.)

References

http://www.ncair.org/news/leg/co2_final_090 22005.pdf

http://www.ncair.org/news/leg/Mercury_Final_090120 05.pdf

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