



Climate Change Activities in North Carolina

CAPCA Spring Meeting
Asheville, NC

April 16, 2009



Topics Covered

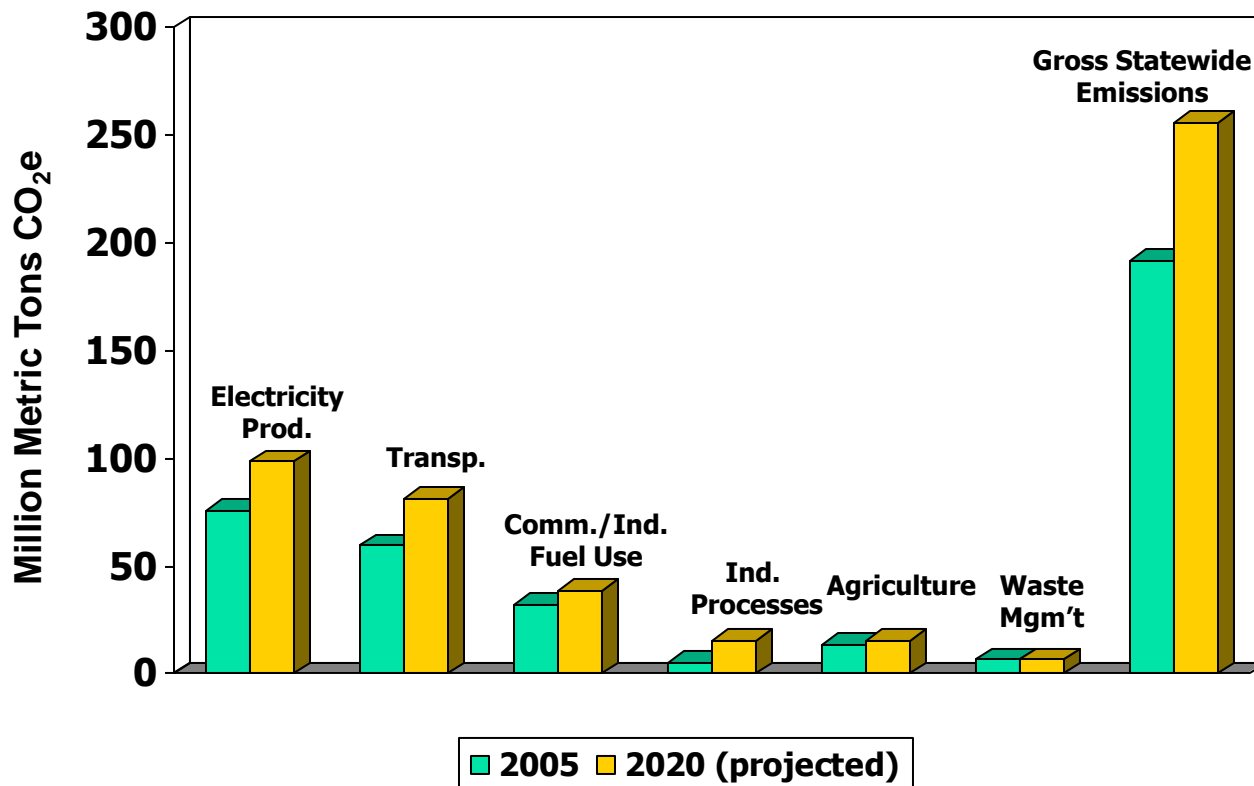
- NC Greenhouse Gas (GHG) Emissions
- Adaptation and Mitigation Activities in the State
- NC Mandatory GHG Emissions Reporting Rule
- NC DENR Reporting to The Climate Registry



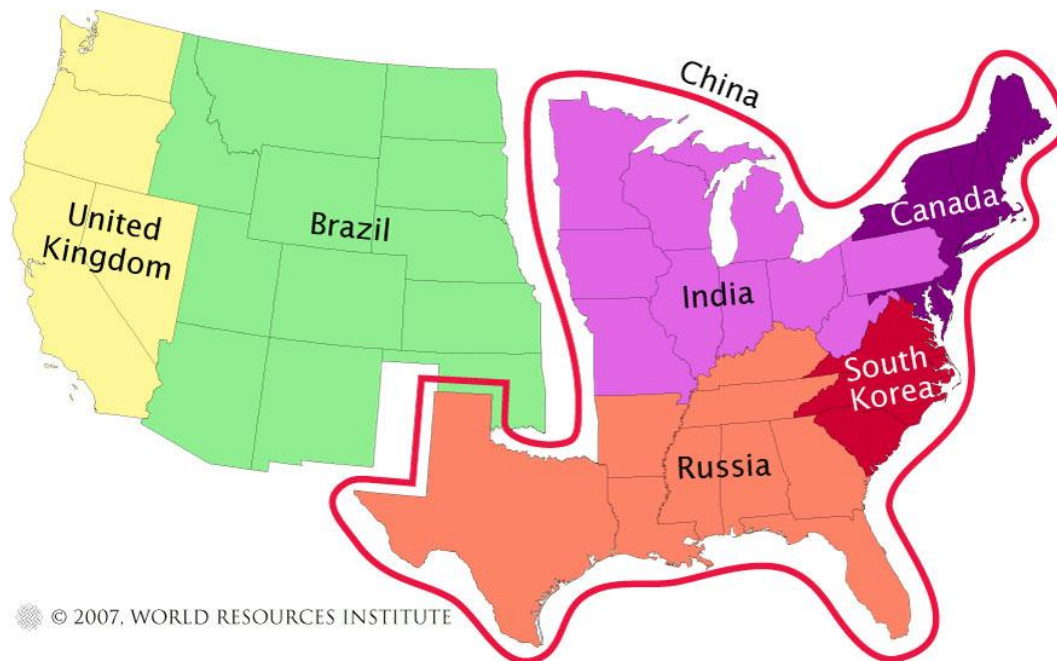
NC Has A Significant GHG Signature

- 9+ Million Citizens (~13M in 2030)
- 3.4 million Homes (~ 5 M in 2030)
- 7 million Cars and Trucks (~10 M in 2030)
- Commercial, Industrial, and Institutional Heated and Cooled Spaces (Growing Daily)
- Many Coal Fired Power Plants
- Growth Increases Electricity Demands and Mobile Emissions

NC GHG Emissions By Sector



North Carolina's GHG Emissions



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- Ranked 12th highest in CO₂ emissions from fossil fuel combustion among U.S. States

- Total NC emissions same as Egypt, Colombia, and Belgium

- Duke Energy – 3rd largest among U.S. utilities in CO₂ emissions (~100 MMtpy)



ECOLOGICAL AND OTHER IMPACTS

- Sea level rise resulting in loss of low lands, salt water intrusion into aquifers (NC has >5000 square miles of land less than 1.5 meters above sea level)
- Plants and animals are projected to go extinct, some decline, and some will increase
- Increase in infectious diseases and allergies
- Crop and tree species will change
- Population shifts / altered migration patterns
- Infrastructure impacts (now or later)
- Increase in Ozone levels due to higher temperatures
- Economic Impact – 1/3 of economic activity comes from tourism, forestry, and agriculture (\$100 billion/yr)



Recent Findings

- **NC Coastal Geology Cooperative Study**
 - Based on measurements of past climate and sea-level changes
 - Sea Level Curve
 - Before 1800 – 3.3 in/100 yrs
 - 1800 to 1900 – 7 in/100 yrs
 - 1900 to 2000 – 16 in (1.3ft)/100 yrs
 - Project rise in NC of at least 1.8 to 3 ft by 2100
- **U.S. Forest Service and Univ. of Georgia Study**
 - Hemlock trees in Southern Appalachia are dying faster than in the North; Resulting in rapid alteration of forest carbon cycle; Affecting entire ecosystems
 - Non-native insects responsible; Lower frequency in frost conditions and lower winter temperatures are increasing pest population
 - Most of remaining hemlock trees will be gone in <10 yrs.



Climate Change Adaptation Activities

■ Nature Conservancy Study

- \$1.25 million Grant from Duke Energy and Others to help the Alligator River Nat'l Wildlife Refuge cope with rising sea levels
- Advancing salt water through man-made ditches affecting forests, changing marsh, and altering farming fields as peat soils are breaking down
- EPA estimate: 1 million acres in the Albemarle Peninsula could be under water by 2100
- Planned activities
 - Install devices to manage flow of water in the ditches/help restore natural hydrology
 - Plant marsh grasses and restore wetlands as a buffer to rising seas
 - Build oyster reefs to absorb pounding waves

■ NC Sea Level Rise Risk Management Study

- \$5 million grant from the Dept. of Homeland Security
- NC Division of Emergency Management to perform risk assessment and mitigation strategy evaluations of sea level rise in NC



NC Legislative Commission on Global Climate Change (LCGCC)

- Established by the Legislature in 2005, Extended Until Fall 2009
- 34 Members; 18 Legislators – Others from diverse stakeholder groups
- What Actions Should be Taken to Deal With Issue?
- Need for Goal of GHG Reductions in NC? What Should the Goal Be?
- Final Report Due October 1, 2009



Recently Passed Legislations

- SB 3 – REPS, Promote Renewable Energy / Energy Efficiency
- SB 567 – Allow distribution of E-Blended Fuels
- SB 1272 - Definition of Biodiesel
- SB 1277 – State Diesel Vehicles, warranties / B20 Fuel
- SB 1452 – Diesel School Buses to Use Minimum B20
- SB 668 – Energy Conservation in State Buildings
- SB 670 – Use of Solar Collectors on Detached Single Family Residences



Current Legislative Activities

Bills Introduced in the NC General Assembly (Session 2009)

- HB1441 – GHG Emissions Reduction Act
 - Requires DENR to inventory GHGs, State to reduce GHGs according to a schedule, and DENR to plan statewide GHG reductions and monitoring to meet the specified targets
- HB1290 – NC Clean Cars Program
 - Adopt rules to implement a LEV program equivalent to California's program
- HB1200 – Extend NC Climate Change Commission to Oct 1, 2010
- HB1205 – Establish NC Commission on Climate Change and Advisory Council



Current Legislative Activities (Cont'd)

Bills Introduced in the NC General Assembly (Session 2009)

- HB1440 – NC Renewable Energy Market Creation
- HB28 – Legislative Research Commission to Study GHG Credits for Farming
- Bills Related to Energy Efficiency and Energy Conservation
 - Tax credit for energy efficient homes
 - Solar manufacturing incentives grants
 - High performance homes and sustainable construction



DAQ Activities

- Clean Smokestacks Act
- NC Climate Action Plan Advisory Group (CAPAG)
- Mandatory GHG Emissions Reporting Rule
- The Climate Registry
- Energy Reporting and Reduction Activities



CO₂ Studies For the Clean Smokestacks Act

- Clean Smokestacks Act, June 2002
 - DAQ to study and recommend CO₂ controls from coal-fired power plants and other stationary sources
- 3rd and Final CO₂ Report – September 2005
 - Looked at Options to Reduce
 - Recommended the Formation of a Stakeholder Group to Prepare a NC Climate Action Plan



CLIMATE ACTION PLAN ADVISORY GROUP (CAPAG)

- Open and Public Process to:
 - Identify and assess mitigation options
 - Conduct analyses and make recommendations
- 43 Stakeholders Representing a Diverse Range of Interests and Expertise
- 56 Recommendations (<http://www.ncclimatechange.us/>)
 - Agriculture, Forestry and Waste Management
 - Energy Supply
 - Residential, Commercial, Industrial Energy Use
 - Transportation and Land Use
 - Cross Cutting
- ASU Secondary Economic Impact Analysis



Amendments to Annual Emissions Reporting Rule 15A NCAC 02Q .0207

- (a) The owner or operator of a Title V facility shall report by June 30th of each year the actual emissions during the previous calendar year of:
 - ...carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, ...

- Rule Status
 - Currently in the Hearing Process
 - Facilities encouraged to report 2008 emissions voluntarily



Key Features – NC DAQ Rule

- Calculation and reporting details are not specified in the rule
 - Provided in a separate document titled "2008 NC Greenhouse Gas Emission (GHG) Inventory Instructions"
 - Reporting instructions can be modified anytime
 - Future versions will coincide with EPA rule once it becomes final
- All Title V facilities must report the following:
 - GHG emissions from "all permitted sources"
 - GHG emissions from "insignificant sources" if criteria and hazardous air pollutants currently reported **and** facility-wide GHG emissions are above pollutant specific thresholds



Key Features – DAQ Reporting Instructions

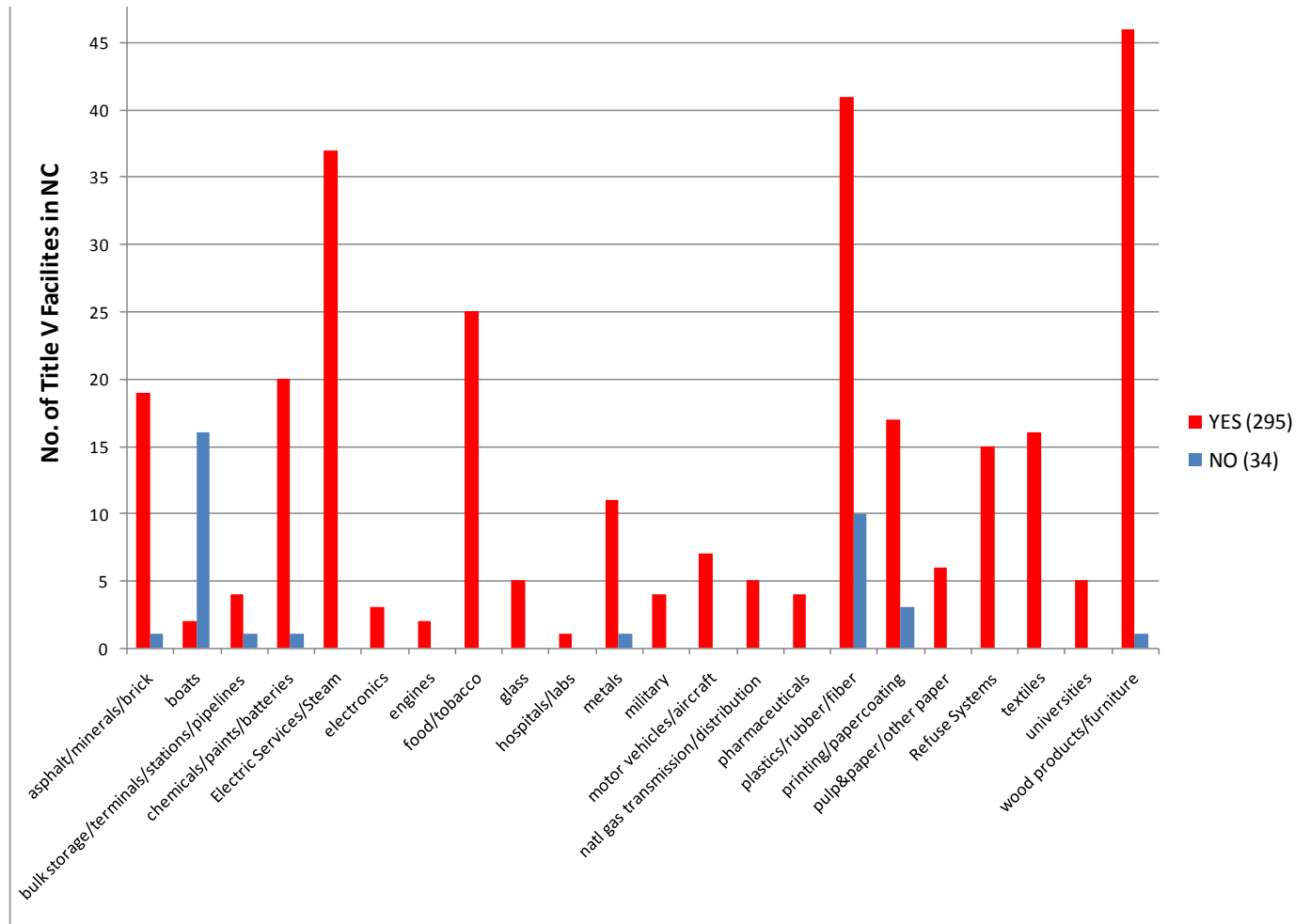
■ Reporting Mechanism

- Submit emissions along with criteria and hazardous pollutants in DAQ Air Emissions Reporting Online (AERO) System
- GHG emissions reported on a compound-specific basis
- Units are short tons per year

■ Assistance Provided to NC Industries

- Emission calculation guideline documents
- Spreadsheets
- Workshops
- Telephone/Email technical support

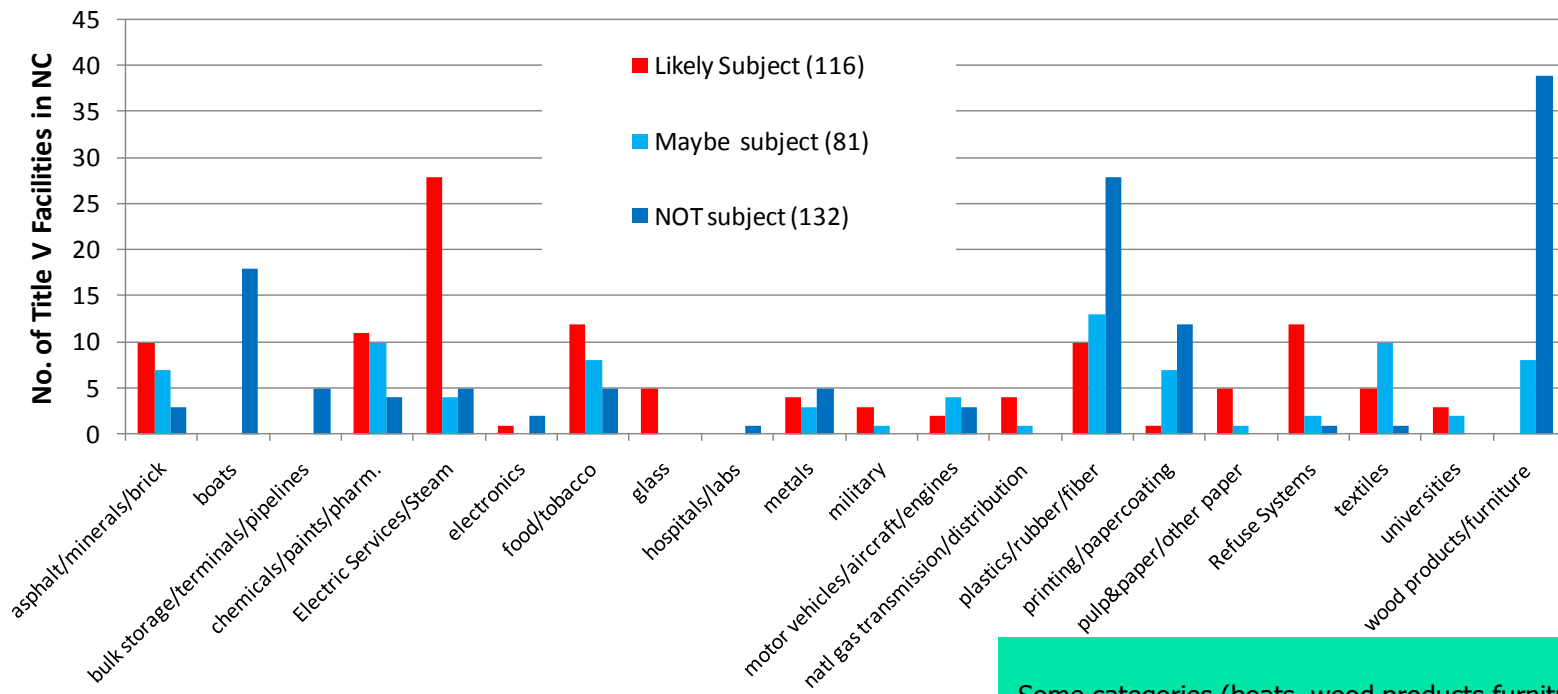
Under NC Requirements, 90% of All Title V Facilities Will Report



Most polyester resin users (boats and other plastics) have no permitted combustion sources

How Will NC Title V Facilities Be Impacted By the Proposed EPA Rule?

Of the 329 Title V sources permitted in 2008, 30-60% may have to report based on actual emissions



Some categories (boats, wood products furniture, hospitals) not expected to be subject to rule

THE CLIMATE REGISTRY (TCR)



The Climate Registry

- TCR's MISSION: To set consistent and transparent standards for the measurement, verification, and public reporting of Greenhouse gas emissions throughout North America in a single unified registry.
- MEMBERS: 41 U.S. States
13 Canadian Provinces
4 Native Sovereign Nations
6 Mexican states
- REPORTERS: 309 Reporters



North Carolina Division of Air Quality

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DENR Reporting To TCR

- 1st State Agency to Commit: “Lead By Example”
- DENR Climate Change Work Group
 - Representatives from 25+ Divisions, Sections, and Programs
 - Support From Top Management
- 2008 Reporting
 - Electricity Use: 2000+ buildings, 1000+ structures
 - Mobile Sources: 1300+ vehicles, Airplanes, Helicopters, Boats
 - Stationary Combustion: on-site fuel use
- Beyond Reporting...
 - Analyze Data
 - Identify Opportunity – energy savings, \$\$\$, fuel
 - Set goals and Implement Strategies



Why Are We Doing This?

- We Can't Manage What We Don't Measure
 - Identify areas to reduce utility and fuel costs
 - Increase inter-organizational communication
 - Reduce our carbon footprint
- Understand the Impact of Our Operations
 - Assess environmental liability
 - Provide information to public and stakeholders
- Recognition as an Environmental Leader
- Become Part of Community of Climate Policymakers, Business Leaders, and Environmentalists



Thank You!

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