Air Issues from a State Perspective

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Climate Change

- The “Great Under-funded Non-Mandate”
  - Lots of duplication of effort
  - Lack of federal input
  - Much debate behind the scenes (just read Air Daily)
  - Federal reporting requirement coming
  - What federal resources are available?

- The Big Questions!
  - How to balance demand growth & reduction goals?
  - Will energy conservation & efficiency be enough?
  - Who’s going to fund it all?
Climate Change

The Possible Answers are…

- More conservation in all sectors
- More alternative power sources (including nuclear)
- Consistent national policy & program
- Credit for these programs in traditional AQ plans
- The elusive “carbon capture” control
- Others (what we’re all here to talk about)!
The Other Air Quality Issues

Other issues to deal with during our spare time:
- Tighter daily PM2.5 standard
- New ozone standard(s)
- Need for new regional/national programs?
- Regulatory uncertainty & litigation
- Decreasing resources
- Loss of infrastructure (RPOs)
- Others (please join in)
CAIR and EGU Growth in Virginia

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VA CAIR Rule

- Same total caps as the federal rule
- New source & EE/RE set-asides
- Unrestricted trading in attainment areas
- No trading in any nonattainment area
  - Applies to both $SO_2$ & $NO_X$
  - Also applied to CAMR
  - Currently under litigation
New EGU Projects in VA

- Ten projects currently permitted or being permitted
- Some may never be built
- Mainly coal and gas powered
- Other possibilities:
  - Expanded nuclear facility at North Anna
  - Coal or nuclear facility in SE VA
Selected EGU Projects in VA

- Virginia City Hybrid Energy Center
- CPV Warren
- North Anna
EGU Case Studies

- Competitive Power Ventures – Warren Co.
  - 580 MW gas turbine facility
  - Very close to Shenandoah National Park
  - Controls – SCR and others
- Subject of great scrutiny due to location
- Additional Concessions:
  - Attainment area NO$_X$ offsets required
EGU Case Studies

- VA Power – VA City Hybrid Energy Center
  - 585 MW circulating fluidized bed facility
  - Designed to burn waste coal
  - Controls – DFGD, SNCR, FF
- Meeting some resistance on AQ grounds
- Additional Concessions:
  - Lower SO2 rate
  - Gas fuel switch at older EGU
EGU Case Studies

- VA Power – North Anna Nuclear Center
  - Addition of a third nuclear reactor
  - Approvals are in process
- Some opposition but approval seems likely
- Probably a sign of things to come
Greenhouse Gas Inventory for Virginia

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GHG Inventory Basics

- Statewide estimate of GHG emission from all sources
- Expressed in Carbon Dioxide (CO$_2$) Equivalence
- Dominated by energy production & use
- Other sources contribute lesser amounts
DEQ Inventory

- Developed for 2005 and 2006
- Covers CO2, Methane, Nitrous Oxide, and Fluorine Compounds
- Hybrid methodology used:
  - State specific data for electric power and motor vehicle sectors
  - EPA default estimates for most other sectors
- Electric sector approach – covers both production & consumption
Energy Use

- Largest emission sector by far – 89%
- Power generation & use (36%)
  - In-state power plant emissions
  - Electricity imports
- Transportation (31%)
  - Motor vehicle emissions
  - Non-road equipment
- Other fossil fuel use (22%)
  - Total fuel use by all other sources
Power Generation Trends in VA

- In-state production of power/emissions
- Emissions linked to generation
- Trend in both is down since 2000

![Graph showing trends in power generation and CO2 emissions from 2001 to 2006.](image)
Electricity Imports to VA

- VA is a net importer of power
- Also exports power
- Net import amount added to inventory
- Converted into CO₂ Emissions
- The trend is up
Transportation Emissions

- Vehicle and non-road emissions
- Major factors:
  - Population
  - Miles of travel
- Trend is up since 2000
Other Emissions Sources

- All other GHG sources - 11%
  - Industrial processes
  - Solid waste management
  - Coal Mining
  - Natural gas/oil production
  - Agriculture
  - Wastewater Management
2005 GHG Inventory by Sector

Total Emissions: 181 Million Metric Tons (MMtCO₂e)

- Transportation: 31%
- Other Fuel Use: 22%
- Agriculture: 3%
- Waste: 3%
- Industrial Process: 2%
- Electricity: 36%
- All others: 3%

Electricity
Industrial Process
Transportation
Other Fuel Use
Agriculture
Waste
All others
VA Ranking with Other States

2004 Fuel Combustion Emissions

VA Ranked 17th Nationwide

DEQ