



# Air Issues from a State Perspective

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## **MARAMA Workshop**

February 25, 2008



# Climate Change

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- 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

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- 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

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- 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

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- 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<sub>2</sub> & NO<sub>x</sub>
  - Also applied to CAMR
  - Currently under litigation



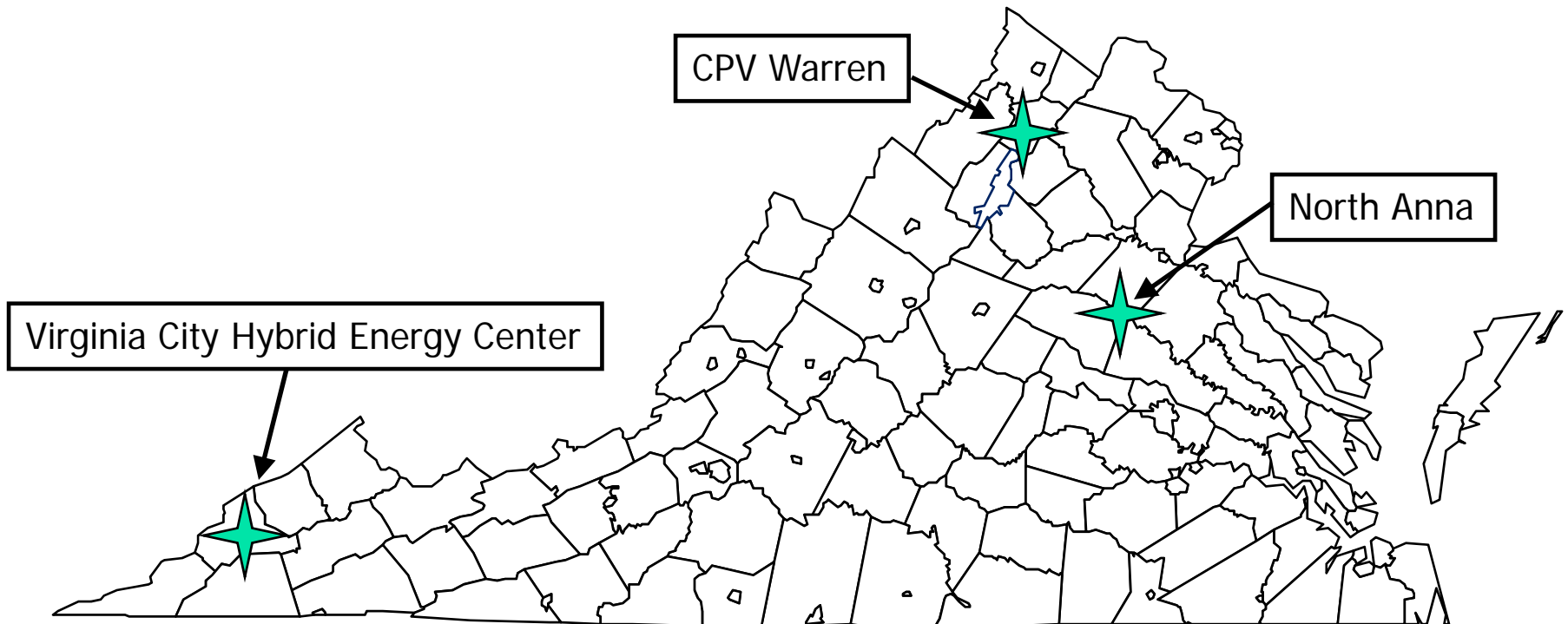
# New EGU Projects in VA

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- 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







# EGU Case Studies

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- 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<sub>x</sub> offsets required



# EGU Case Studies

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- 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 SO<sub>2</sub> rate
  - Gas fuel switch at older EGU



# EGU Case Studies

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- 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

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- Statewide estimate of GHG emission from all sources
- Expressed in Carbon Dioxide (CO<sub>2</sub>) Equivalence
- Dominated by energy production & use
- Other sources contribute lesser amounts



# DEQ Inventory

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- Developed for 2005 and 2006
- Covers CO<sub>2</sub>, 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



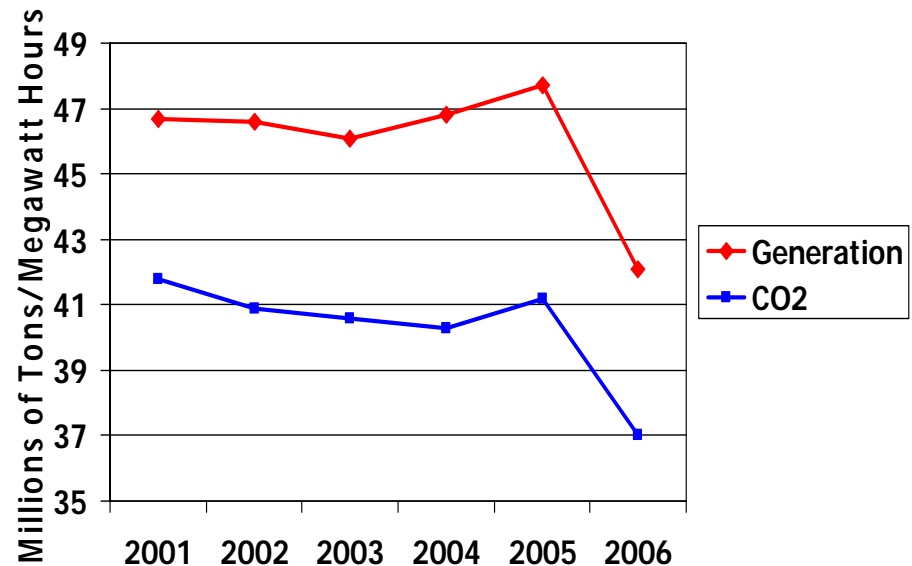
# Energy Use

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- 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

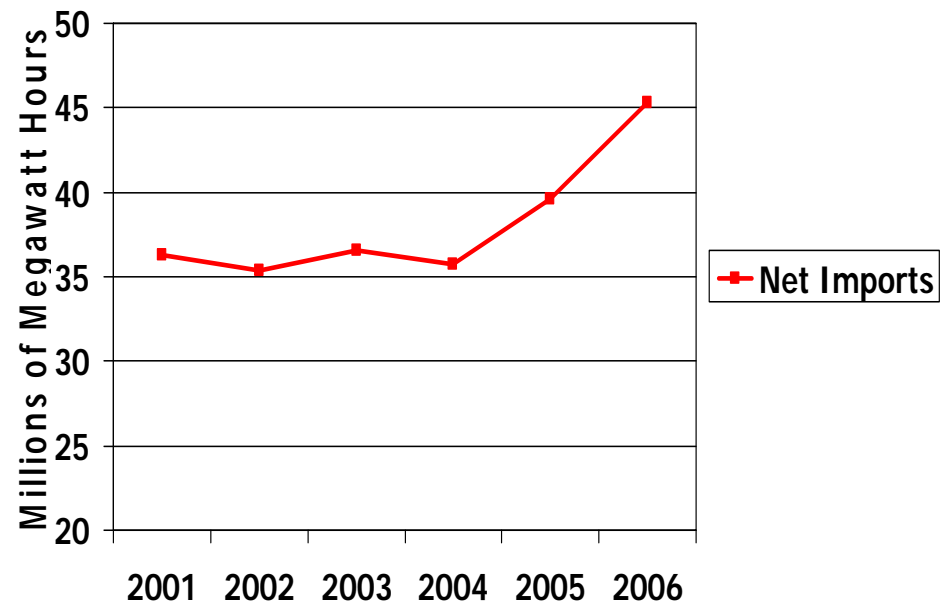
- In-state production of power/emissions
- Emissions linked to generation
- Trend in both is down since 2000





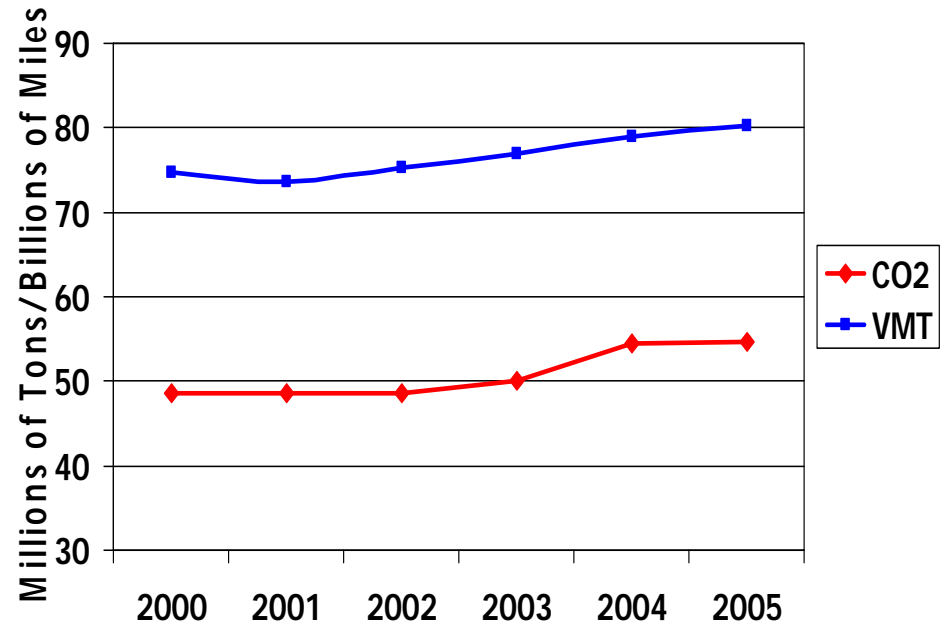
# Electricity Imports to VA

- VA is a net importer of power
- Also exports power
- Net import amount added to inventory
- Converted into CO<sub>2</sub> Emissions
- The trend is up



# Transportation Emissions

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



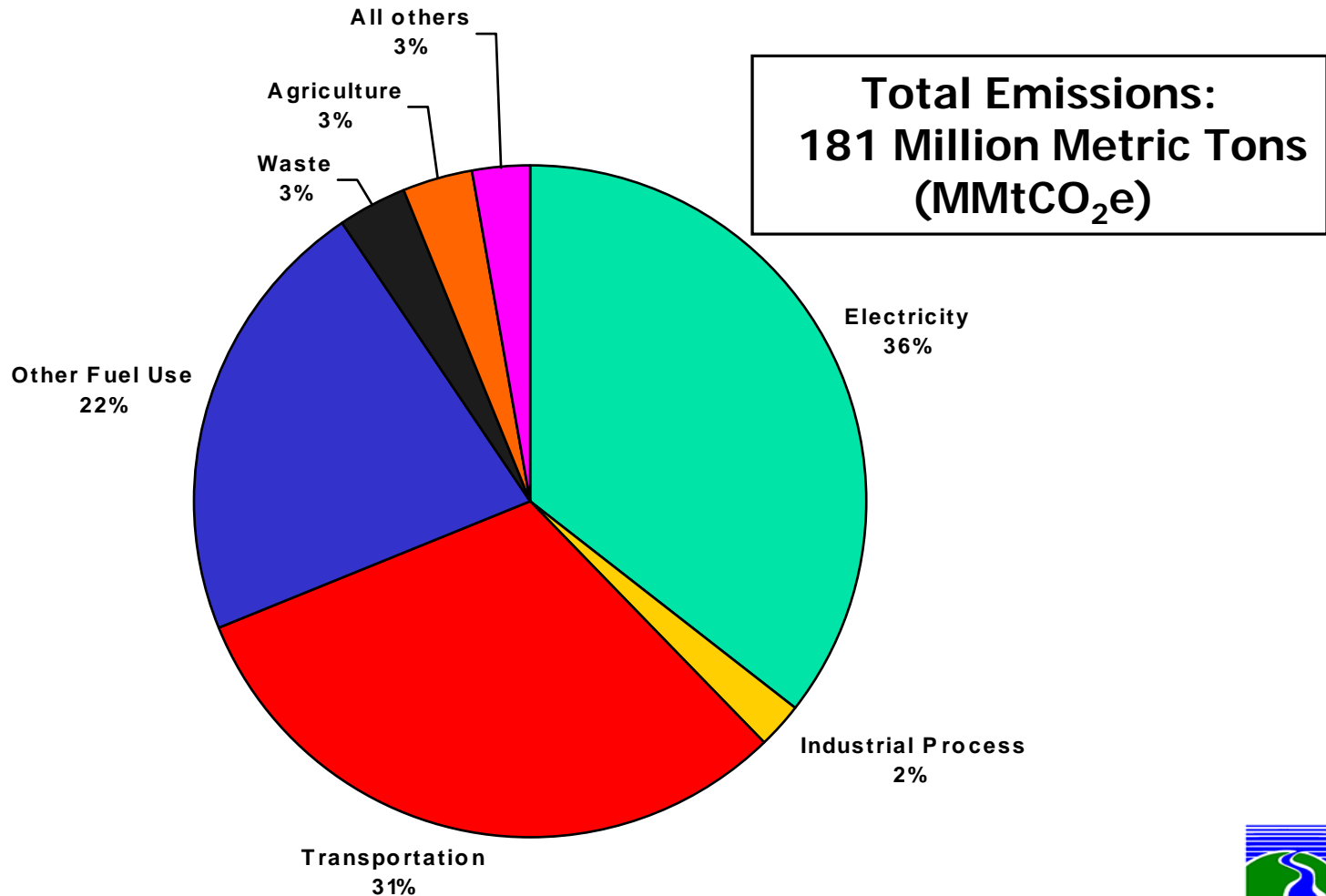


# Other Emissions Sources

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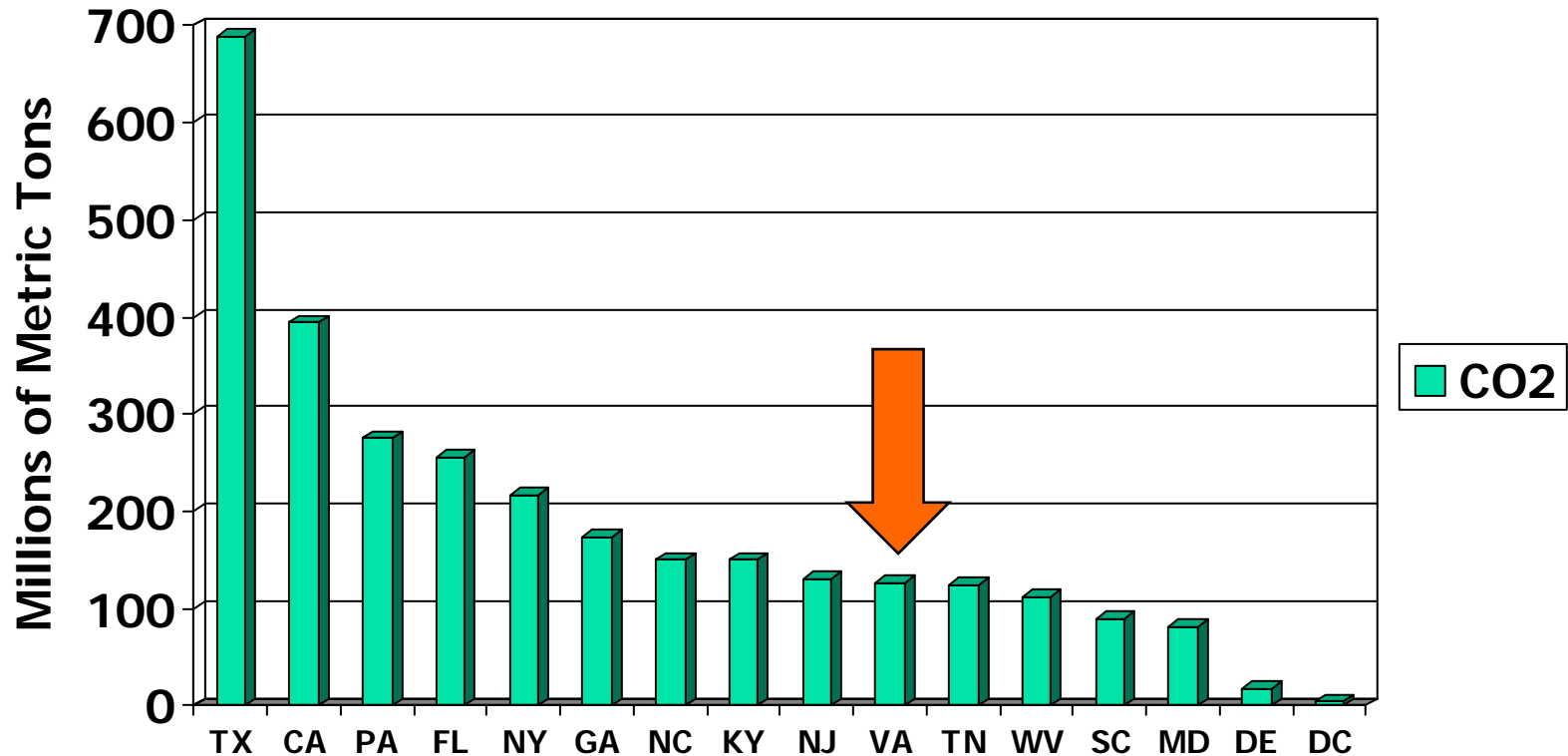
- All other GHG sources - 11%
  - Industrial processes
  - Solid waste management
  - Coal Mining
  - Natural gas/oil production
  - Agriculture
  - Wastewater Management

# 2005 GHG Inventory by Sector



# VA Ranking with Other States

## 2004 Fuel Combustion Emissions



**VA Ranked 17<sup>th</sup> Nationwide**