


Global Climate Change Electric Industry Perspective




South Atlantic 2008 Environmental Management Conference
on Critical Issues and State Hot Topics
The South Atlantic States Section of the Air & Waste Management
Association

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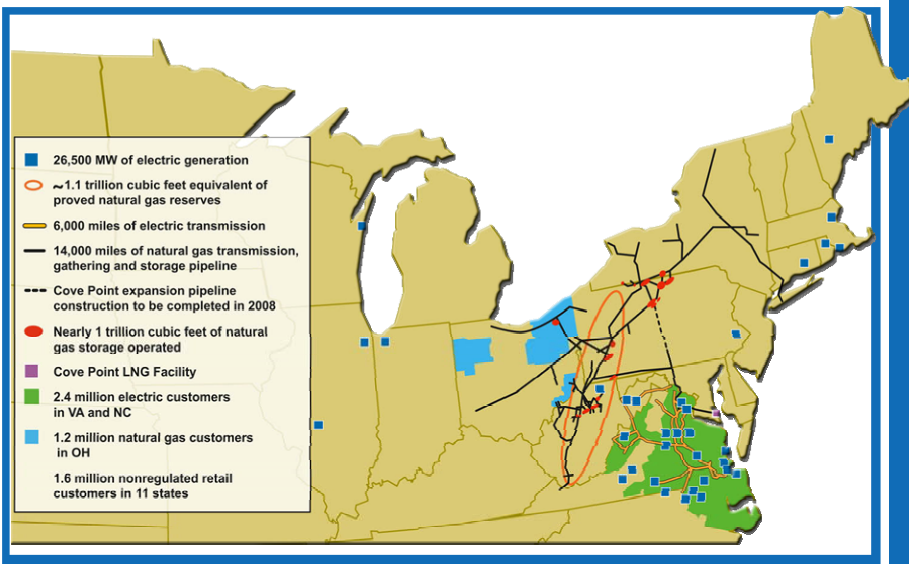
Our Organization



		
<p>Dominion Generation</p> <ul style="list-style-type: none"> • Regulated generation • Merchant generation 	<p>Dominion Energy</p> <ul style="list-style-type: none"> • Gas distribution • Gas transmission & storage • Producer services • Appalachian E&P 	<p>Dominion Virginia Power</p> <ul style="list-style-type: none"> • Electric distribution • Electric transmission • Unregulated retail

2

The Dominion Footprint

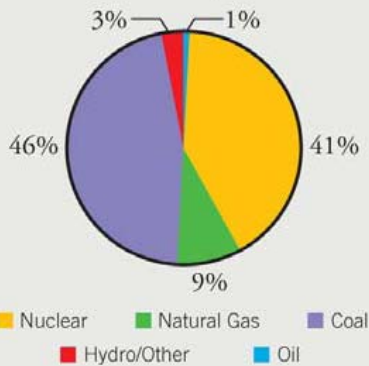


3

Dominion's Diverse Fuel Mix



Dominion Fuel Diversity (MWh Production)



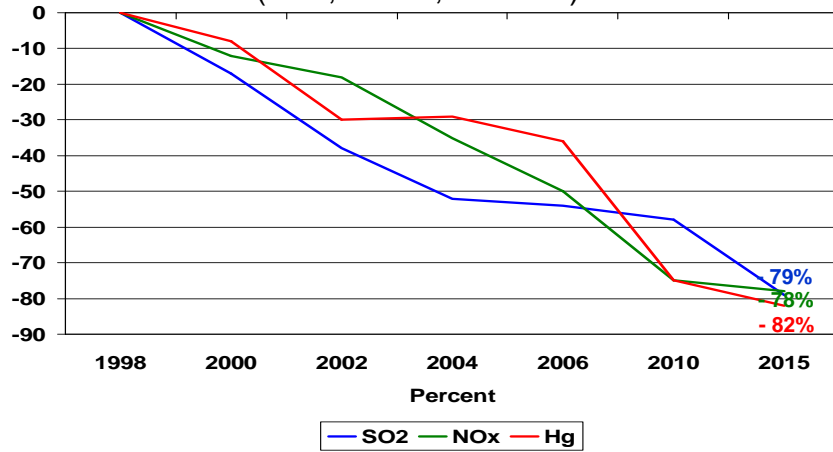
2007 MWh Production

4

Protecting the Environment



Dominion Electric Generation Emission Reductions
(DVP, DENE, Midwest)

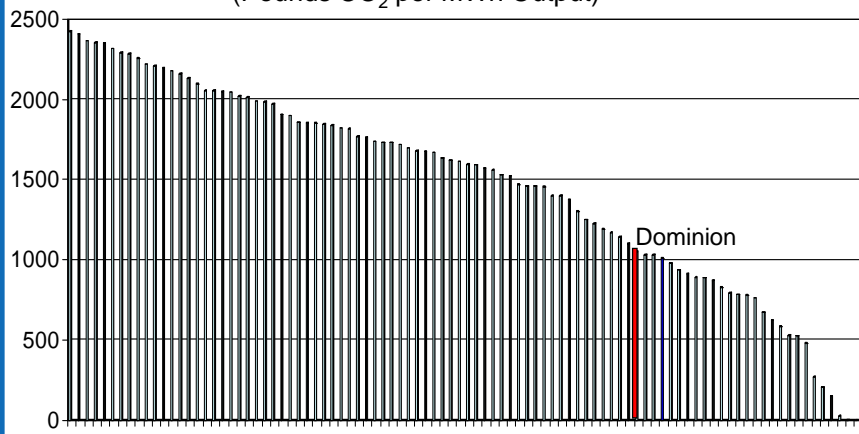


5

Dominion's Low Carbon Intensity



100 Largest U.S. Power Producers
(Pounds CO₂ per MWh Output)



Source: Natural Resources Defense Council, 2008 Study

6

Current Legislative and Regulatory Activities



- Supreme Court ruled CO₂ pollutant under Clean Air Act (*Massachusetts vs. EPA*)
- EPA – Advanced Notice of Proposed Rulemaking (ANPR)
- Congress seriously engaged in developing legislation aimed at reducing GHG emissions
- States/regions adopting comprehensive policies to limit GHG emissions
 - California, Massachusetts
 - Regional Greenhouse Gas Initiative (RGGI)
 - Western Climate Initiative (WCI)
 - Several Midwest states discussing regional program
 - Virginia: GHG reduction goal included in Governor's Energy Plan

7

Regional Greenhouse Gas Initiative (RGGI)

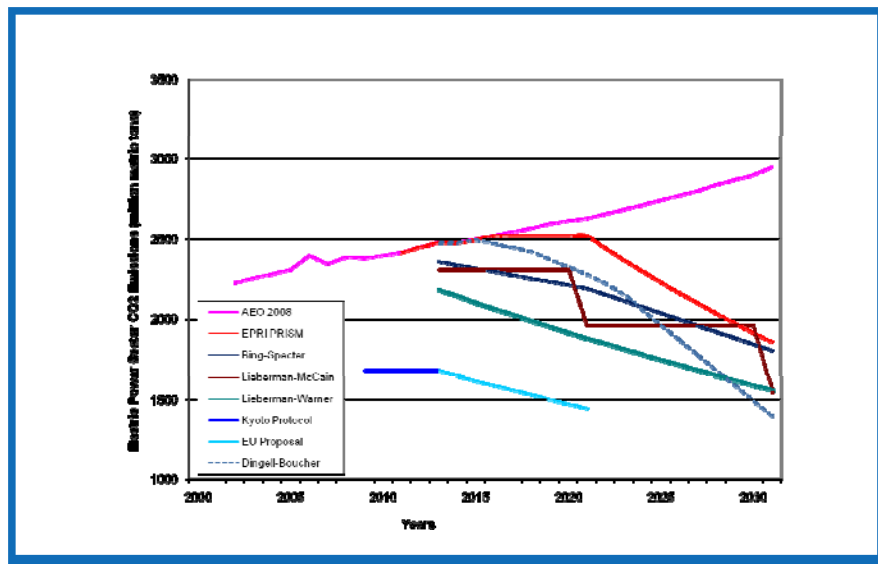


- Utility only, not economy-wide.
- Includes 10 northeastern and mid-Atlantic states; (PA and DC are observers).
- Cap-and-trade program
- Developed model rule and guidelines for auction.
- Massachusetts had developed its own program (2006) and is switching to RGGI in 2009.

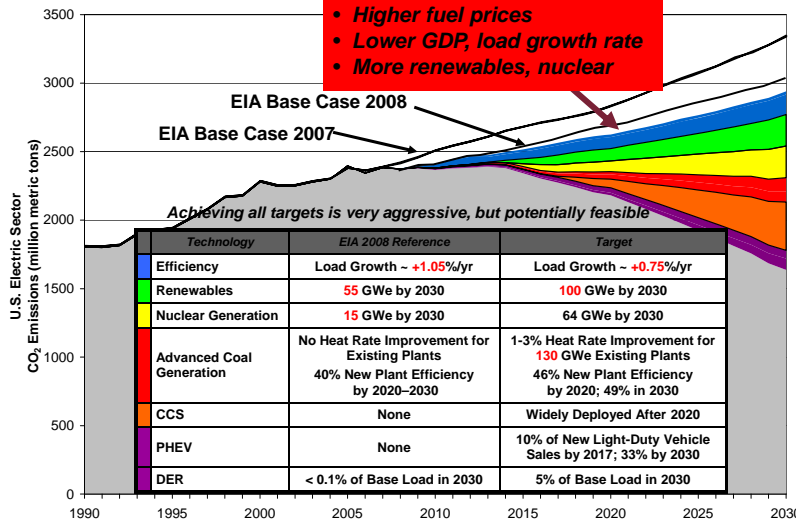


8

Climate Legislation Comparison Power Sector Reduction Targets



CO₂ Reductions – What's Technically Feasible?



(EPRI Prism – With EIA Update)



Key Issues In GHG Debate



- Targets and timetables for GHG reductions
- Consistency of timetables with expected development and deployment of needed technologies
 - Need a full suite of technologies
- Mechanisms to achieve cost-effective reductions
 - Cap and trade, tax or hybrid
 - Auctions, free allowances, or mix
 - Cost containment (e.g., safety valve/price collar) to avoid economic disruption
 - Robust domestic and international offsets

11

Climate Change: Dominion's Position



- Dominion supports federal legislation that:
 - Regulates greenhouse gas emissions economy-wide.
 - Establishes a system of tradable allowances.
 - Slows the growth of GHG emissions in the near term and reduces GHG emissions in the long term.
 - Sets a realistic baseline year and schedule of compliance.
 - Promotes technology development.
 - Includes a safety valve or price collar to protect customers

12

Meeting Needs of Virginia's Still Growing Economy



Dominion's challenge:

- Virginia's economic growth requires reliable, affordable energy for our customers – while curtailing greenhouse gas emissions.

Dominion's strategy:

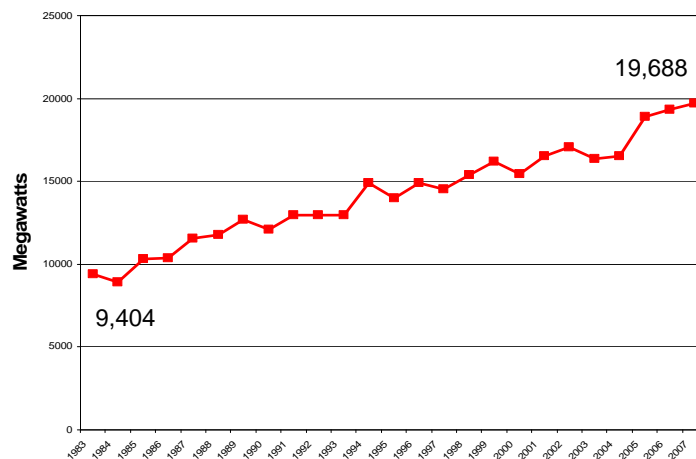
- Meeting the need with three major tools
 - Conservation and efficiency
 - Renewable generation
 - Baseload and intermediate generation and other infrastructure improvements

13

Growing Energy Demand

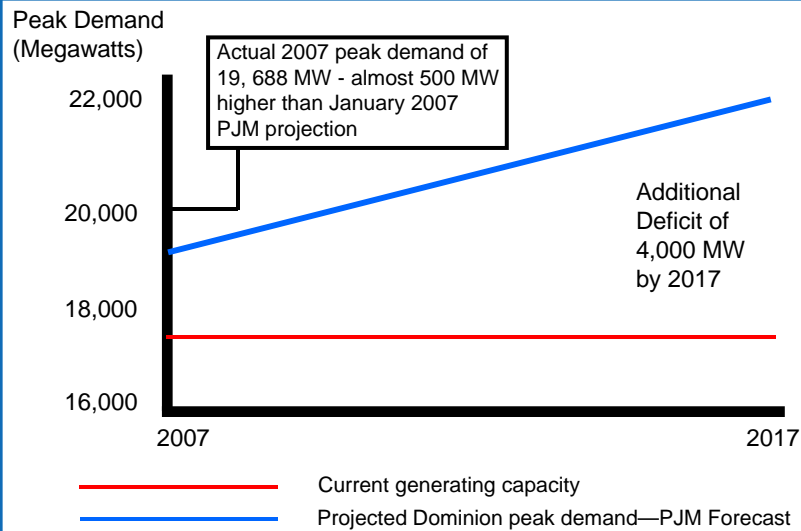


Dominion Peak Demand: 1983-2007



14

Virginia's Mounting Electric Energy Gap



15

Conservation – A Top Priority



- Conservation a key to meeting Virginia's growing energy needs while protecting the environment.
- Dominion committed to state's goal of 10% electricity consumption reduction by 2022.
- Developing portfolio of demand-side management programs
 - Plan to be filed with SCC in near future
 - Evaluating "smart" technologies
- Important part of an integrated strategy.



Power Cost Monitor

Even with conservation, still need balanced generation development

16

Renewable Generation



- Committed to meeting VA's goal of 12 percent renewable power by 2022 and NC's 12 percent RPS by 2021.
- Biomass at three Virginia power stations
- Conventional and run-of-river hydroelectric
 - Pumped storage helps make renewable energy dispatchable
- Wind Power – More than 750 megawatts of wind power in operation or under development
 - Joint development agreement in VA
 - Grant County, WV: 132 megawatts
 - Indiana: 325 MW
 - Illinois: 250 to 300 MW



17

Baseload and Intermediate Generation



- Need low-cost power generation.
- North Anna 3
 - Proposed constructing new nuclear unit which produces power with no air emissions.
- New combined cycle gas units to provide intermediate load.
- Virginia City Hybrid Energy Center
 - Low-cost power with advanced environmental protections.
 - Cofired with up to 20% biomass.



18

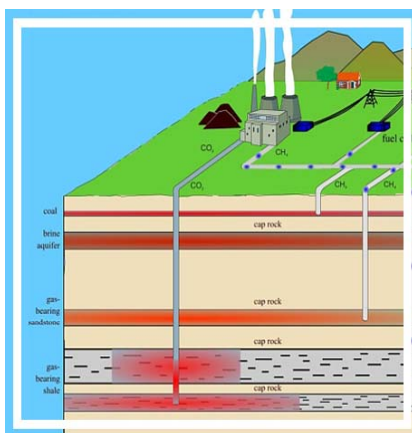
Virginia City Hybrid Energy Center



- Partially offset carbon emissions by converting Brevoort Power Station to natural gas.
- Cofiring with biomass (up to 20 percent) mitigates carbon emissions
- Funding promising Virginia Tech research on injection of carbon in unmineable coal seams in the region

19

Carbon Storage: Seeking a Solution



- Partnership with Virginia Tech to study carbon storage in unmineable coal seams
- Participating in the Midwest Regional Carbon Sequestration Partnership
- Hosting pilot project at Brayton Point station in Massachusetts
 - Goal: convert biomass, coal and petroleum coke into separate streams of natural gas and storage-ready CO₂

20

Need for Consistent Approach



- Climate Change is a global issue
- Requires a consistent national approach as well as international efforts
- Regional and state efforts should work in tandem with a consistent national approach

21



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22