Dominion Briefing

Virginia Commission on Coal and Energy

August 2008

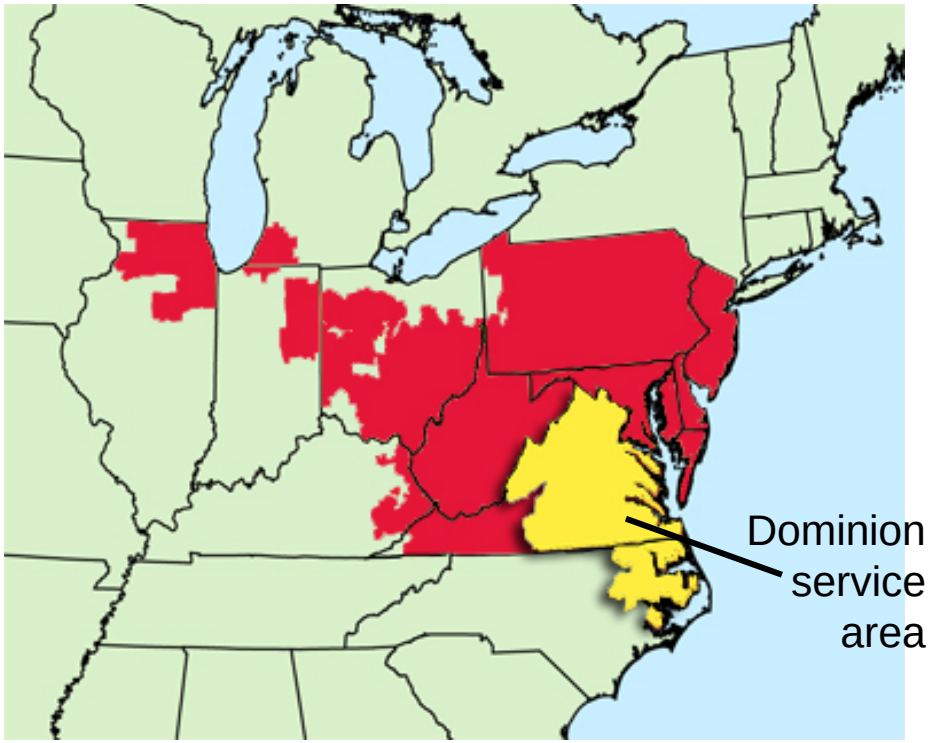
Dominion®
It all starts here.®

Virginia's Rising Energy Demand

- Demand for power rising faster in Dominion service area than anywhere else in the 13-state PJM region

- Dominion will need to add more than 4,000 megawatts of new capacity by 2017

- Equivalent to adding 1 million new homes to customer base



Meeting Virginia's Demand Requires a Diversified Strategy

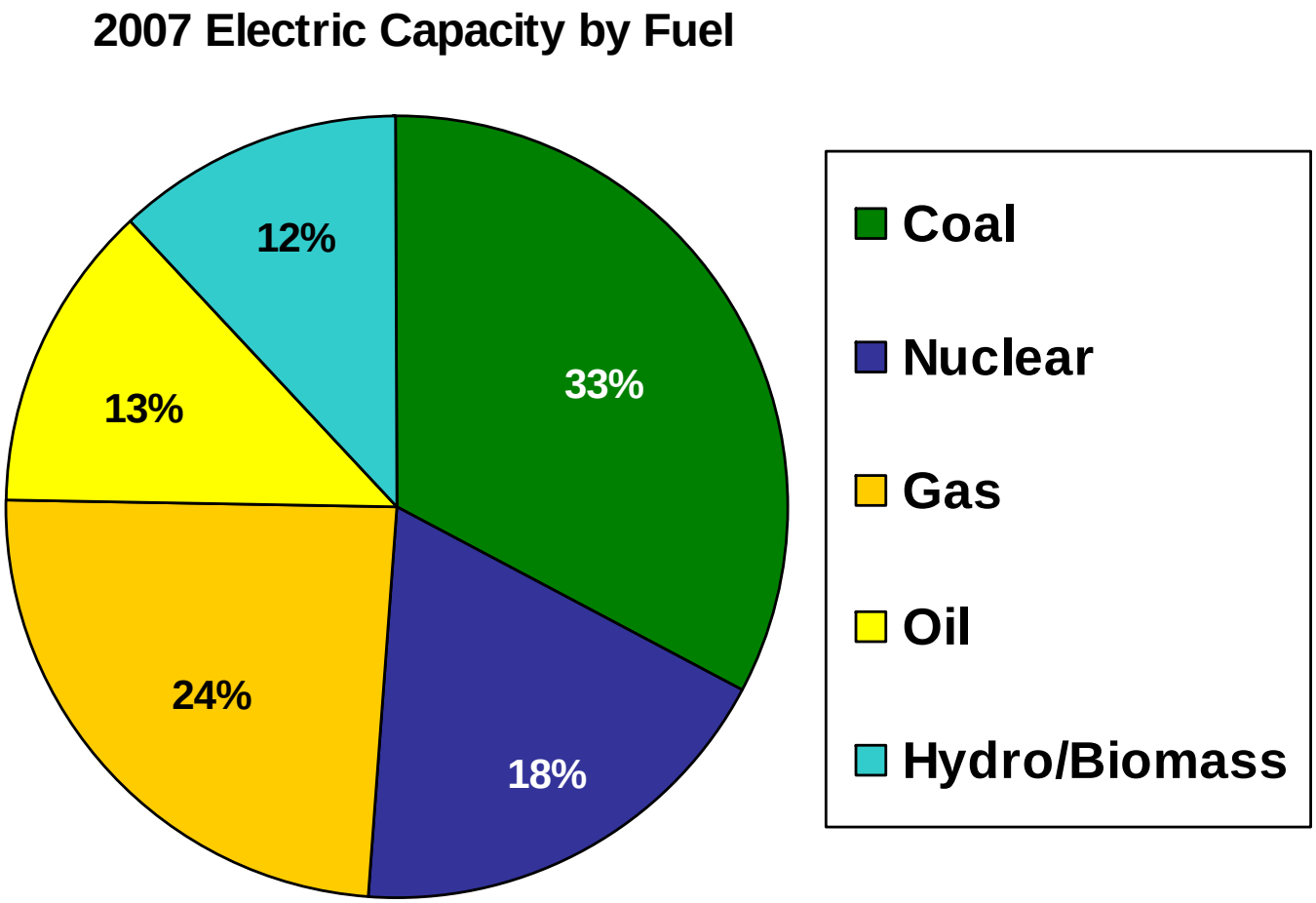
Dominion's objective:

- Providing reliable, affordable energy for our customers while being environmentally responsible

Dominion's integrated strategy:

- Meeting the need with three major tools
  - Conservation and efficiency
  - Renewable generation
  - Infrastructure development
    - Virginia City Hybrid Energy Center
    - Advanced nuclear power
    - Natural gas
    - Transmission upgrades

Dominion Virginia Power Generation



Meeting Virginia's Demand Requires a Diversified Strategy

Conservation and Renewable Energy Development

An Increased Push For Conservation

- Supports Virginia's 10 percent electricity conservation goal
- Just announced major conservation initiative to get more than a third of the way to the goal within five years
- Includes advanced metering technology, air conditioner control, power cost monitors
- The initiative will save customers $1 billion over the next 15 years

Power Cost Monitor

Renewable Generation:

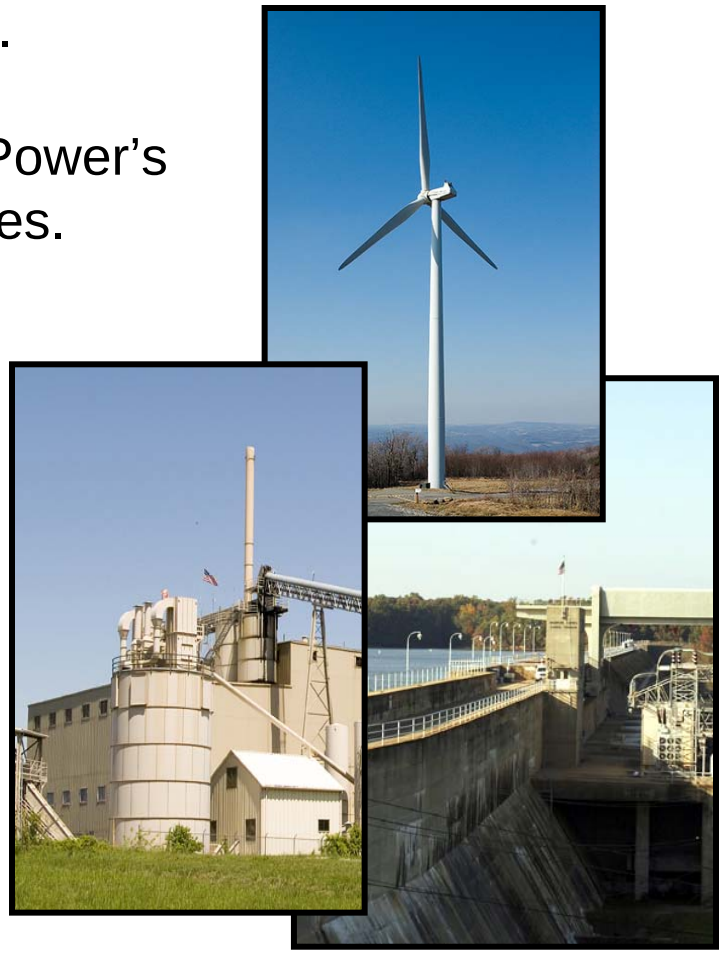
- Supports Virginia goal of having 12 percent of power supply come from renewable resources by 2022.

- Approximately 2 percent of Dominion Virginia Power's current generation comes from renewable sources.

- Wood waste at two VA power stations.
  - Pittsylvania Power Station
  - Altavista Power Station

- Existing hydroelectric in VA and NC.

- Bath County pumped storage facility (10% of U.S. pumped storage capacity) helps make renewable energy dispatchable.



Renewable Generation:
More Than 750 Megawatts Of Wind Power

- NedPower:
  132 megawatts in West Virginia
- Fowler Ridge:
  325 megawatts in Indiana
- Prairie Fork:
  300 megawatts in Illinois
- Joint development agreement with BP in Virginia

Meeting Virginia's Demand Requires a Diversified Strategy

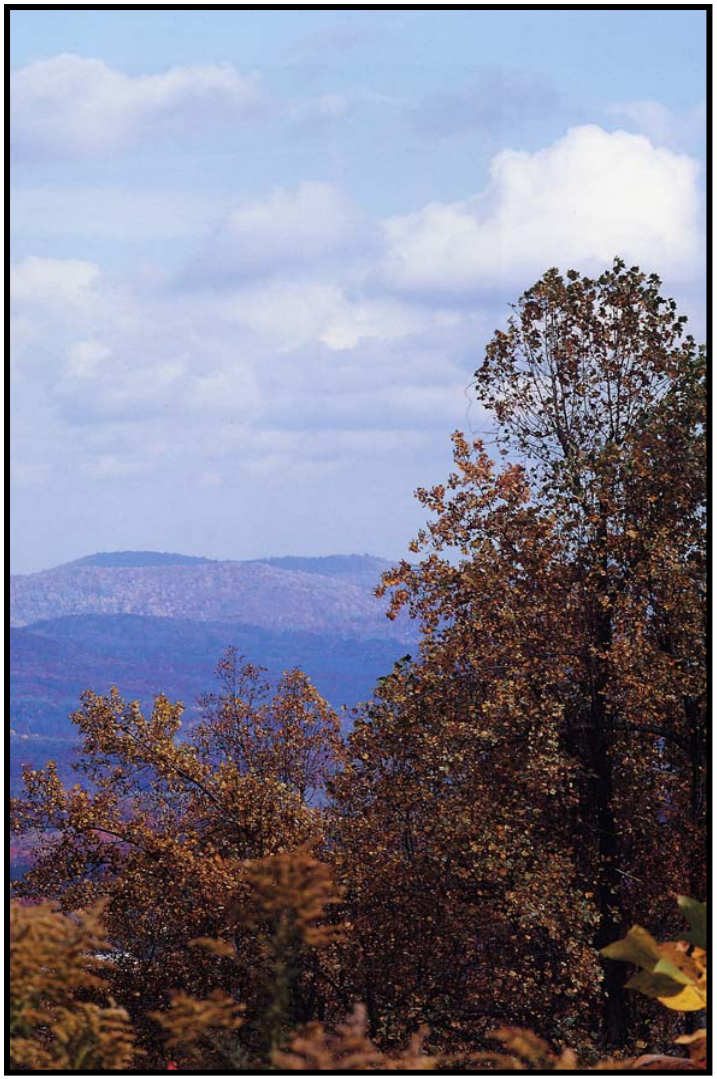
Infrastructure Development:

- Virginia City Hybrid Energy Center
- Advanced nuclear power
- Natural gas
- Transmission upgrades

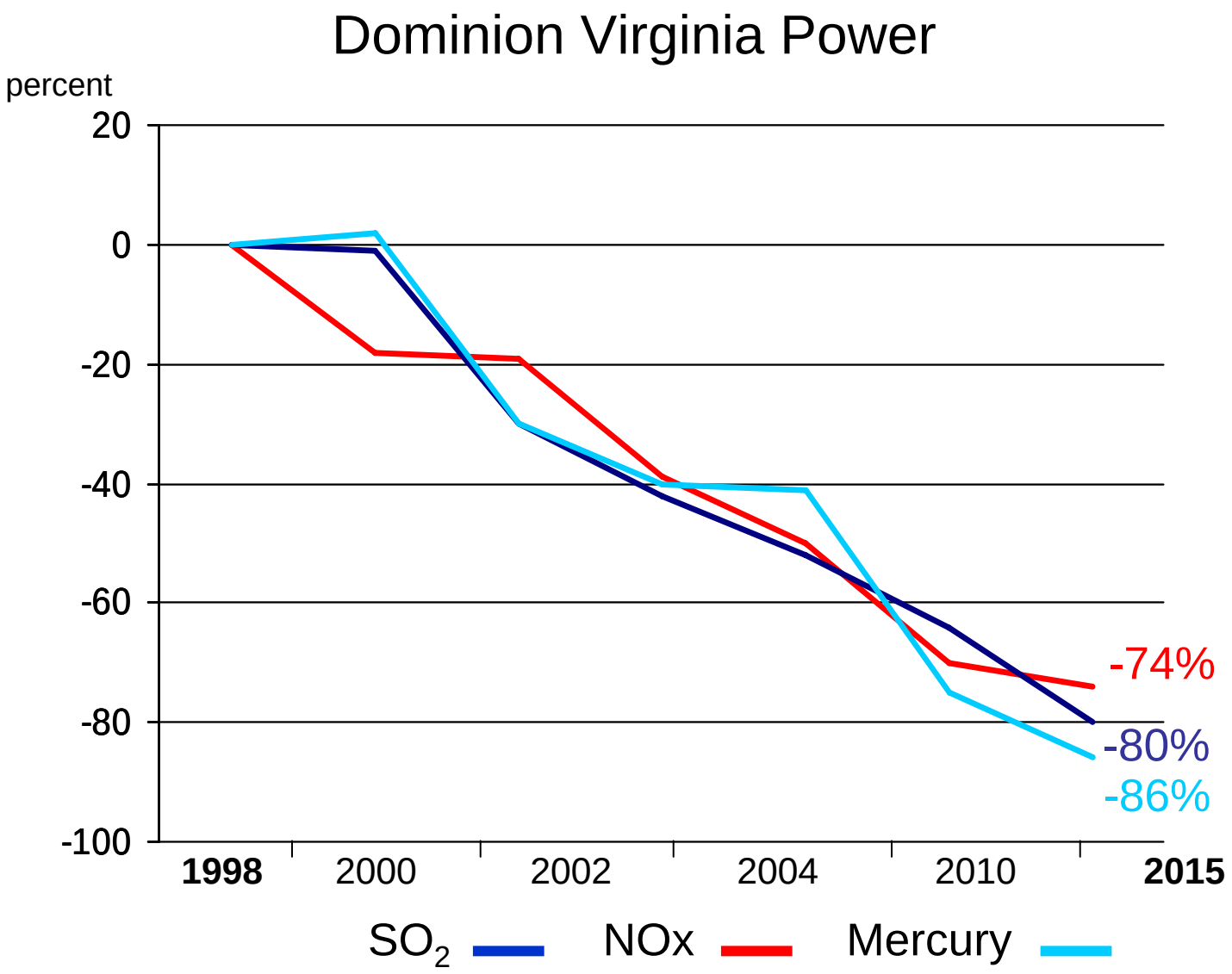
Protecting the Environment:

- By 2015, Dominion will have spent **$2.6 billion** on environmental projects at stations serving Virginia.

- Funds invested in advanced emissions controls such as:
  - Scrubbers on coal stations serving Virginia.
  - Systems to reduce smog and ozone pollution.
  - Converting some coal-powered generating units to cleaner-burning natural gas.



Bottom Line: Big Reductions 1998 – 2015



Virginia City Hybrid Energy Center Overview

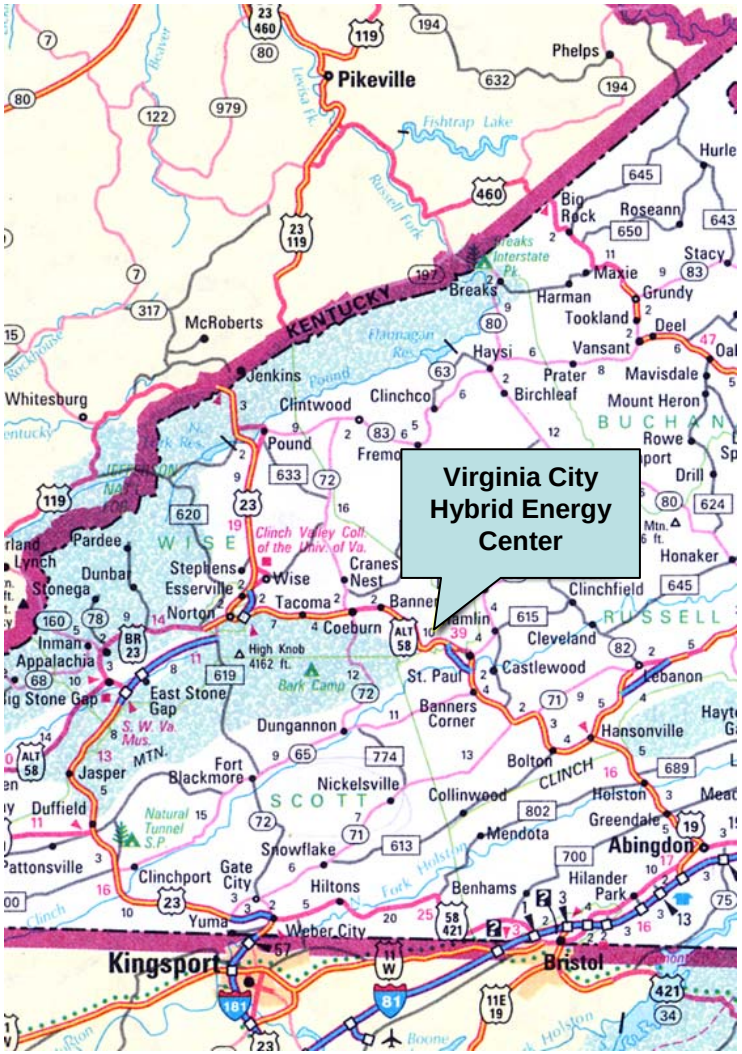
- *"What Dominion has proposed is the full up suite of controls. It is the best there is."* Bruce Buckheit, State Air Pollution Control Board member - June 25, 2008.

- Proposed project meets baseload energy needs and presents a strong environmental package.

- Part of Dominion's integrated strategy combining conservation, renewable energy, and traditional generation.

- Complete environmental package:
  - Protects air quality
  - Uses waste coal and carbon neutral biomass
  - Minimizes water use

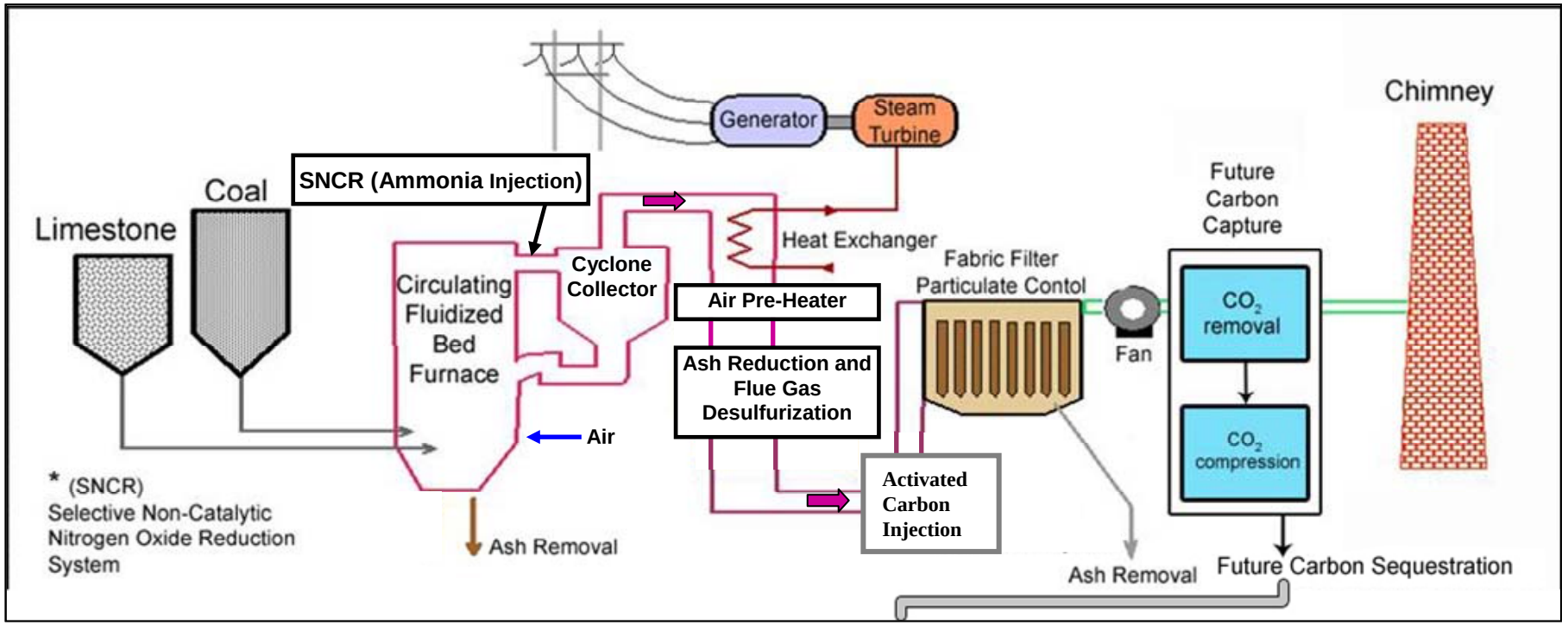
Virginia City Hybrid Energy Center



Virginia City Hybrid Energy Center Emissions Controls

- Limestone injection
- Flue gas scrubber
- Low temperature combustion
- SNCR (ammonia injection)
- Fabric Filter “Baghouse”
- Activated Carbon Injection

Virginia City Hybrid Energy Center Emissions Controls



Virginia City Hybrid Energy Center
New Source Performance Standards

Emission Rate Comparison			
Pollutant	**Units**	**NSPS Limits**	**VCHEC Limits**
Sulfur Dioxide	lb/MMBtu	0.15	0.022
Nitrogen Oxides	lb/MMBtu	0.11	0.07
Particulate Matter	lb/MMBtu	0.03	0.009
Mercury	lb/TBtu	2.05*	0.09

* NSPS for mercury vacated by federal court.

Virginia City Hybrid Energy Center
Bremo Proposal

- Proposing to convert Bremo Power Station from coal to natural gas within two years of VCHEC commercial operation.
- Significant net reductions in emissions from Bremo's conversion based on actual emissions (including VCHEC permitted emissions):
  - SO_2: 11,833 tpy
  - NO_x: 926 tpy
  - Hg: >120 lbs/yr

Virginia City Hybrid Energy Center
Carbon Management

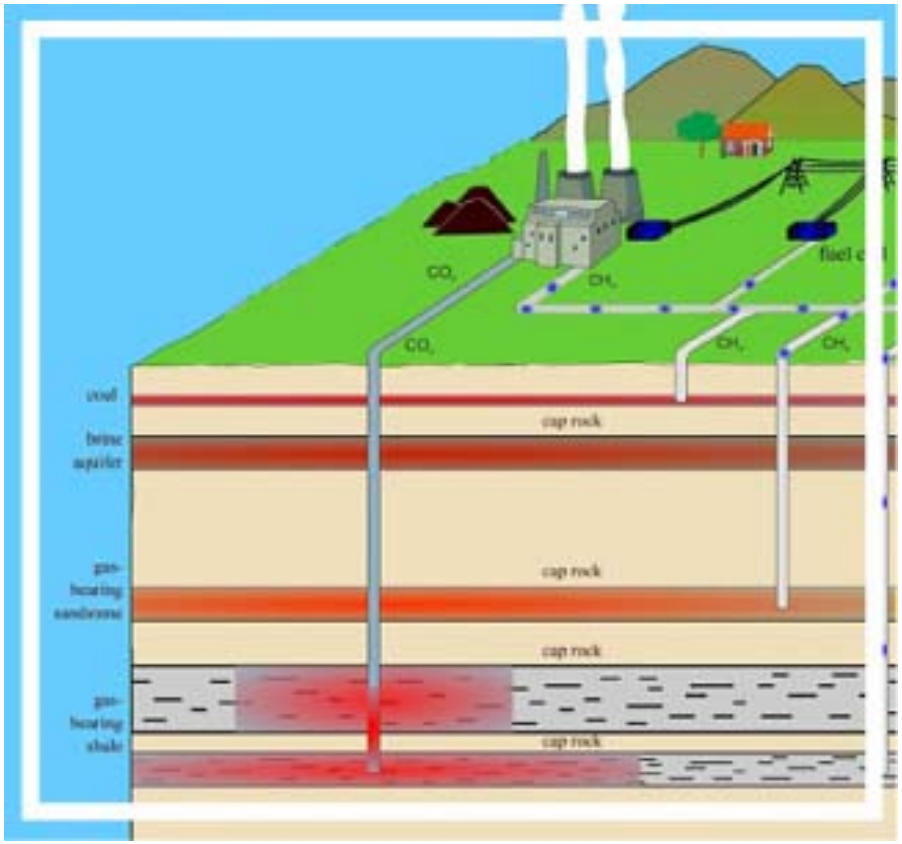
Permit Conditions

- At least 5 percent biomass after 3 years of operation with an eventual requirement for at least 10 percent.

- Bremo conversion

Dominion is also committed to install carbon capture and sequestration technologies as soon as they become commercially available.

Carbon Storage: Seeking a Solution



- $500,000 to Virginia Tech to study carbon storage in coal seams
- Promising site for carbon storage located within 10 miles of project
- The storage basin has the capacity to store all of the carbon emissions over the project's lifetime (292 MMt).
- The Virginia Center for Coal and Energy Research at Virginia Tech is planning a large-scale demonstration of carbon storage.

Virginia City Hybrid Energy Center
Economic Impacts

- Independent study by Virginia Tech found that the project would have an economic impact of more than $439 million annually.
- More than doubles the economic output of Wise County
- Adding upwards of $6 million in tax revenue each year
- Permanent employment of at least 75 plant operators
  - Annual payroll of over $4 million
- 1200 new jobs during construction
- Creating an additional 350 local mining jobs

Advanced Nuclear: North Anna Unit 3

- Virginia Energy Plan recognizes that Virginia has an opportunity to be a leader in the nuclear industry.
- Proposed third unit would provide1500 megawatts* - enough power to serve approximately 375,000 homes.

* Dominion's ownership expected to be 1,300 megawatts

Advanced Nuclear: North Anna Unit 3 Timeline

Milestones

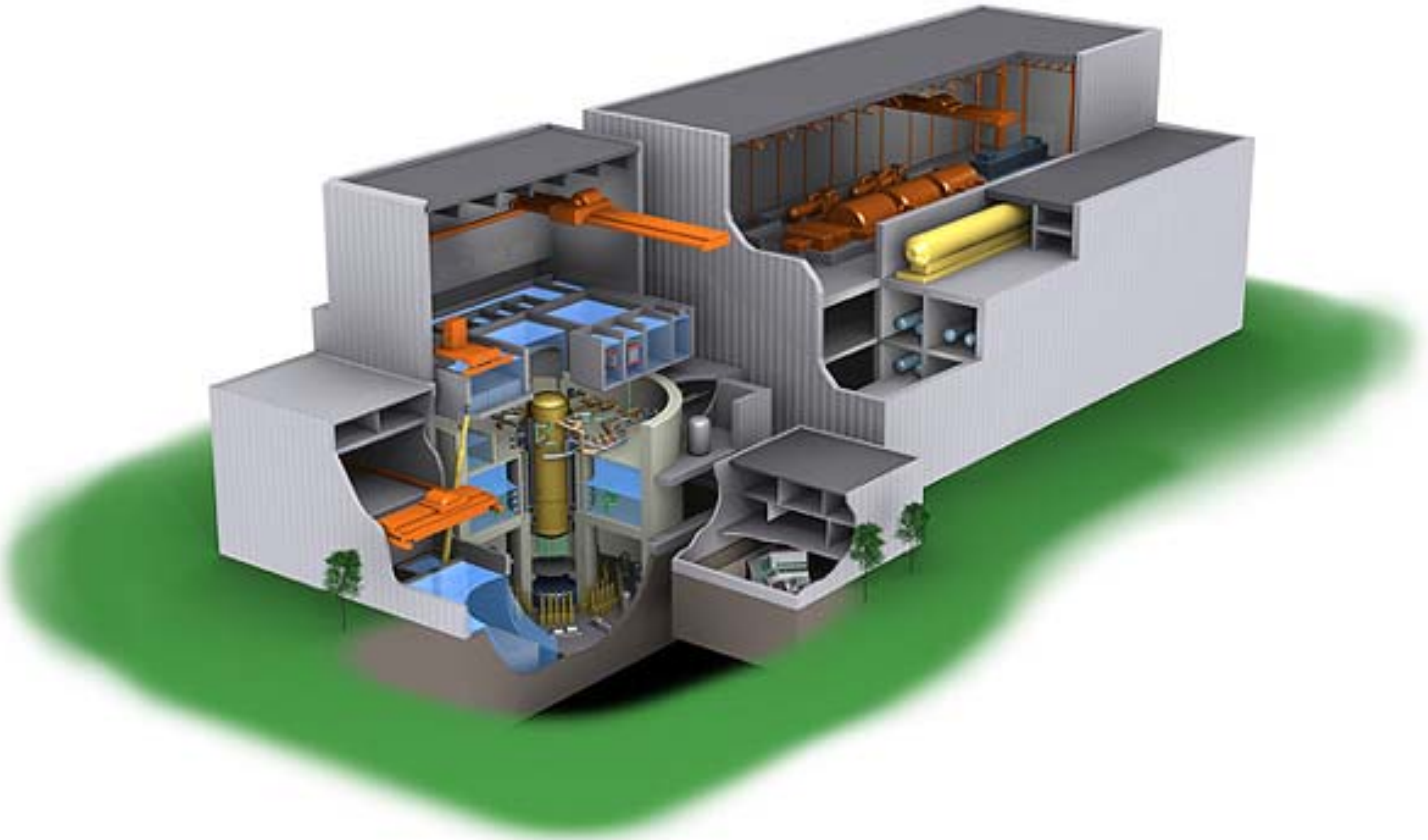
- Filed Early Site Permit 2003
- NRC approved ESP 2007
- Filed Combined Operating License 2007
  - First utility to file a complete application
- Potential third reactor on line as early as 2016

Future steps

- Final contract negotiations with GE Energy for the ESBWR reactor
- SCC Certificate of Public Convenience and Necessity

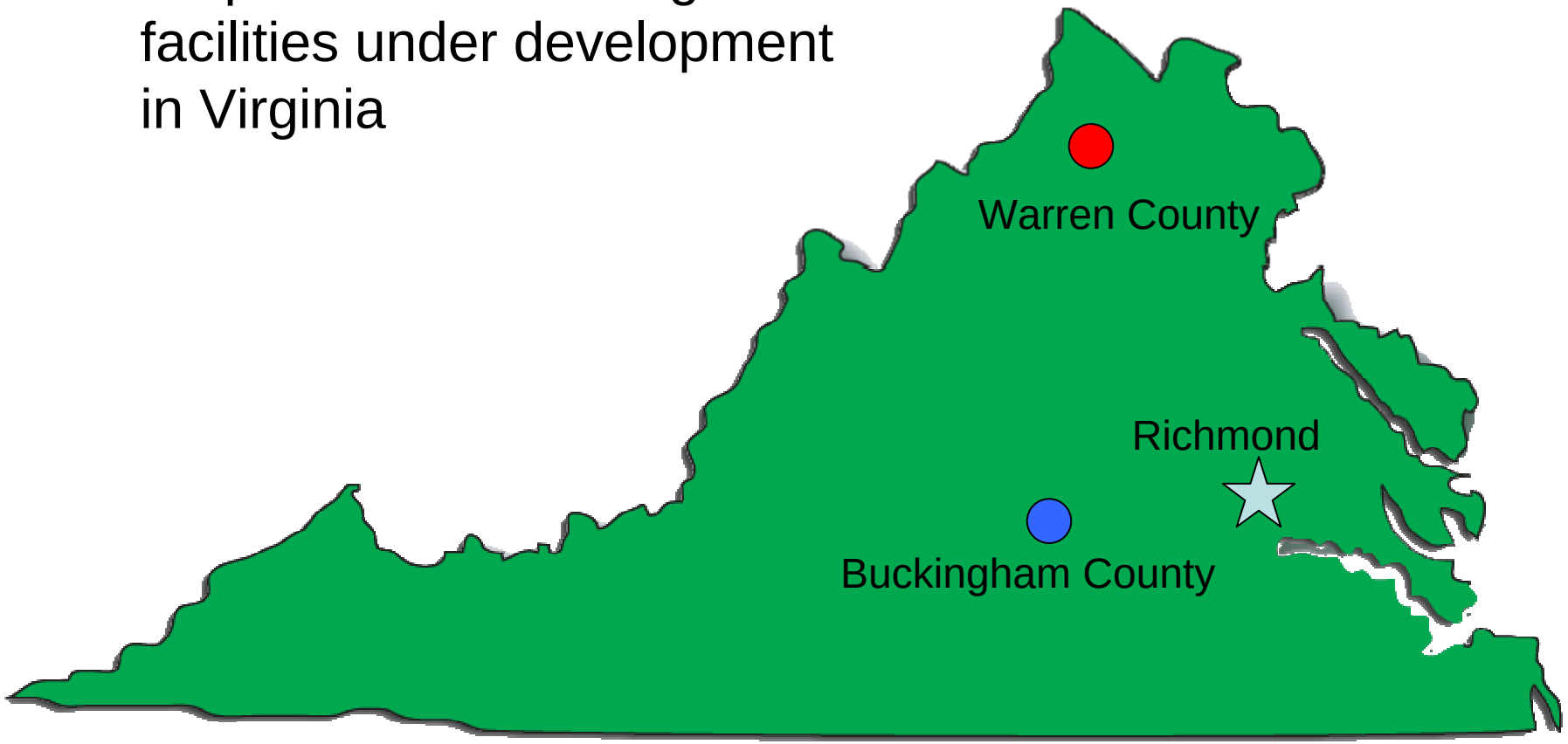
Advanced Nuclear: North Anna Unit 3 Design

General Electric's ESBWR Reactor Design



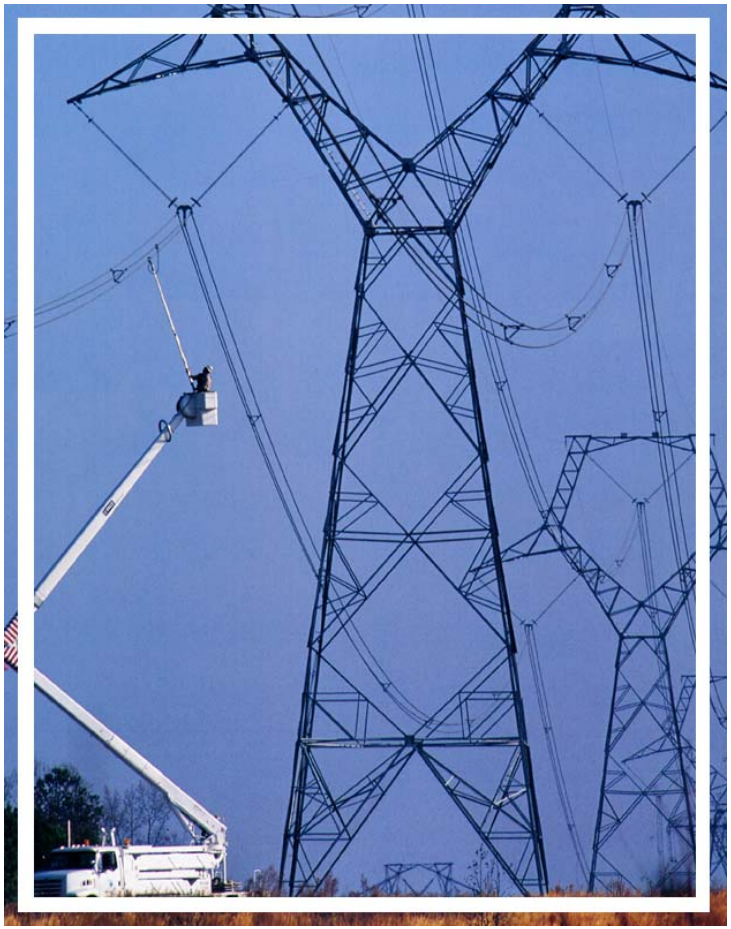
Also in the Mix: Natural Gas

Acquired two 600-megawatt facilities under development in Virginia



* Potential additional units may be in IRP

Upgrading the Power Grid



- High growth areas:
  Hampton Roads, Central and Northern Virginia
- Urgent need:
  230 kV and 500 kV lines to ensure reliability
- Blackouts could occur by 2011 in portions of Virginia
- 13 projects planned or under way in VA and NC


Dominion
It all starts here.