Dominion Briefing

Virginia Commission on Coal and Energy

August 2008
• 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
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

2007 Electric Capacity by Fuel

- Coal: 33%
- Nuclear: 24%
- Gas: 18%
- Oil: 13%
- Hydro/Biomass: 12%
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
• 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

Dominion Virginia Power

SO₂  NOx  Mercury

percent

-100 -80 -60 -40 -20 0 20 40 60 80 100


-74% -80% -86%
“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

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<th>Pollutant</th>
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<th>NSPS Limits</th>
<th>VCHEC Limits</th>
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<td>Mercury</td>
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* NSPS for mercury vacated by federal court.
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
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.
• $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
• Virginia Energy Plan recognizes that Virginia has an opportunity to be a leader in the nuclear industry.

• Proposed third unit would provide 1500 megawatts* - enough power to serve approximately 375,000 homes.

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