Virginia City Hybrid Energy Center

Clean, reliable energy for Virginia’s future

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Virginia City Hybrid Energy Center
Legislation* Provides Guidance and Incentives

- To ensure reliable and adequate supply for projected native load and promote economic development

- Facility must use Virginia coal and be located within the coalfield region of Virginia

- Assures recovery of construction and associated infrastructure costs

- Provides 2% enhancement of ROE for first portion of service life for “carbon capture compatible, clean coal powered” facility

• 800 new jobs during construction
  - Regional assets to be used whenever possible

• Permanent employment of 75 plant operators
  - Annual payroll of over $4 million

• Additional consumption of 2 million tons of coal per annum from local mines – creating 350 mining jobs
  - Limestone mining also essential to plant operation
Virginia City Hybrid Energy Center

Benefits

• Boost to regional economy
  - power station a permanent regional asset

• Substantial contribution to tax revenues
  - $4 to $6 million annual potential

• Will provide clean, reliable & economic electricity for Virginians

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Project will comply with all applicable federal and state environmental laws and regulations
The Virginia City site, consisting of reclaimed mined land, located at St. Paul, Wise County, Virginia, was selected as the site for the new facility.
Virginia City Hybrid Energy Center
A State-of-the-Art Design

• 585 megawatts generating capacity—enough to serve approximately 146,000 homes

• A true hybrid design that:
  – Reduces environmental impact
  – Utilizes coals available in southwest Virginia
  – Enhances reliability
  – Controls costs
After evaluating numerous technologies we selected Circulating Fluidized Bed Combustion – a proven clean coal technology

- Environmental performance
  - Greatly reduces air emissions

- Fuel flexibility
  - Capable of burning waste coal and wood wastes

- Reliability
  - Availability is proven to be greater than 90%

- Cost
  - Less costly than other clean coal technologies
Virginia City Hybrid Energy Center
Carbon Management

The project’s design accommodates emerging carbon dioxide provisions.

Carbon Capture
– The design includes a site for installing carbon capture technology when it becomes commercially available.

Carbon Sequestration
– Dominion is partnering with the Virginia Center for Coal & Energy Research at Virginia Tech to demonstrate carbon dioxide injection into nearby unminable coal seams.
Virginia City Hybrid Energy Center
CFB/Carbon Capture Technology

Limestone  Coal

Circulating Fluidized Bed Furnace

SNCR*

Air Pre-Heater

Heat Exchanger

Fabric Filter Particulate Control

Dry Flue Gas Desulfurization System

CO₂ compression

Carbon Capture

Fan

CO₂ removal

Carbon Sequestration

Chimney

* (SNCR)
Selective Non-Catalytic Nitrogen Oxide Reduction System

Air  Ash Removal
Virginia City Hybrid Energy Center
Water Use Minimization

The power station will utilize air cooled condenser technology

- Reduces overall water consumption
- Eliminates evaporation of cooling water into the atmosphere
- Water supplied by a 6-inch pipe instead of an 18-inch pipe

Typical Power Plant

Air Cooled Condenser Power Plant

10 million gallons per day
< 1 million gallons per day
Construction cannot commence without satisfying the following regulatory approvals:

- Environmental Permits
  Subject to review by DEQ and Federal Land Managers

- Certificate of Convenience and Public Necessity & return on investment determination by the SCC
  In 2006, the SCC agreed that the Project is in the public interest and allowed the accrual of AFUDC, but deferred action on other items
• Air Permit Application filed – February 2007/Updated August 2007
  - Now under review by DEQ and Federal Land Managers
  - Modeling demonstrates that air quality and visibility are protected in Class 1 areas
  - Expect Air Permit draft – October 2007

• Landfill permits for ash disposal
  – Application to be submitted in January 2008
Application for approval of construction, operation & ROE, filed with SCC – July 16, 2007

- The SCC has set the following schedule:
  - Respondents must file by October 1, 2007
  - Public comments filed by December 14, 2007
  - Public Hearing to convene January 8, 2008

- Approval of both the SCC application and the Air Permit requested by April 2008

- Failure to obtain permits by this time will severely delay construction and power generation
Virginia City Hybrid Energy Center
Going Forward

Engineering Firm, Shaw Group Inc., – Selected February 2007
- Detailed design and key procurement underway

Anticipate all necessary permits in hand – April 2008
- Issue Limited Notice to Proceed – December 2007
- Issue Final Notice to Proceed – April 2008
- Construction will take four years
- Commercial operations expected – April 2012
Virginia City Hybrid Energy Center
The View of the Future

Artist’s rendering