



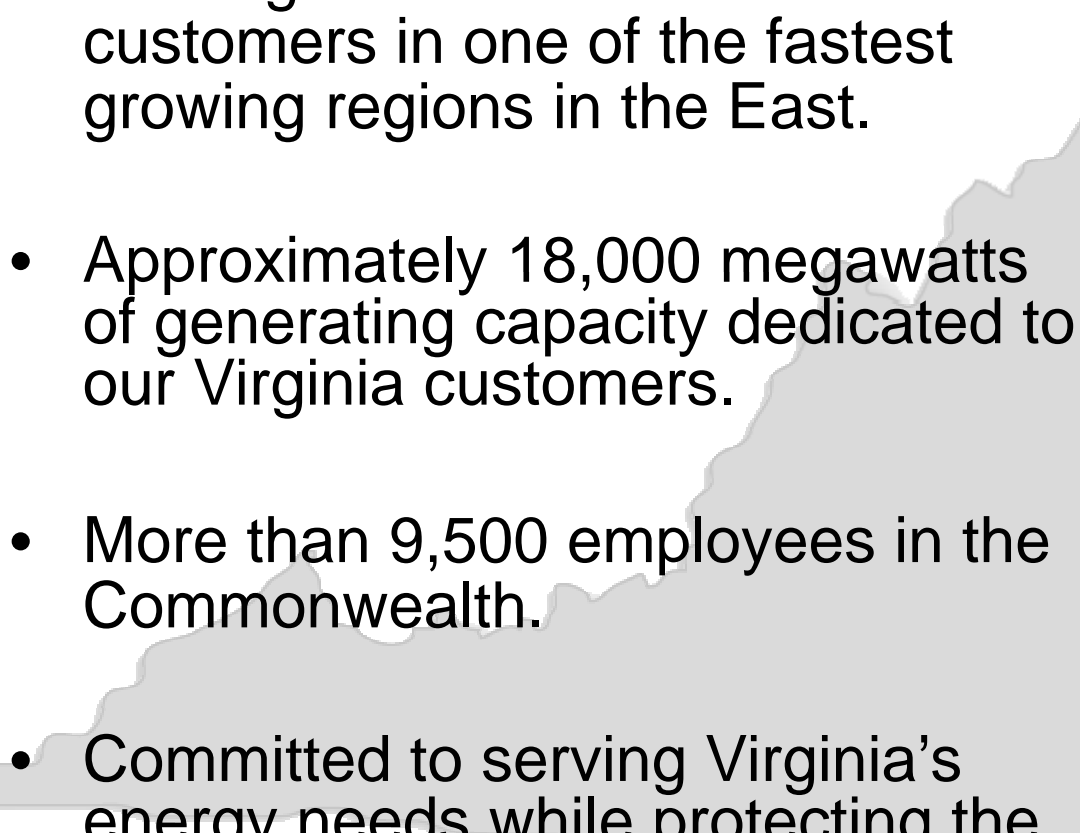
# **Dominion: New Directions in Energy**

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Director – Policy and Business Evaluation  
Alternative Energy Solutions

Mayor's Energy Task Force – City of Virginia Beach  
June 3, 2009



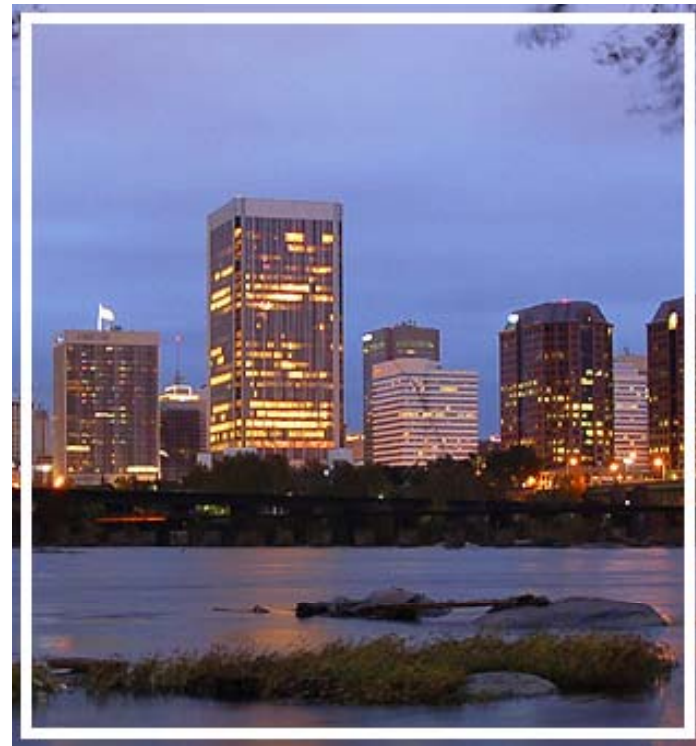
# Dominion: One of America's Leading Energy Companies

- Serving more than 2.3 million customers in one of the fastest growing regions in the East.
  - Approximately 18,000 megawatts of generating capacity dedicated to our Virginia customers.
  - More than 9,500 employees in the Commonwealth.
  - Committed to serving Virginia's energy needs while protecting the environment.
- 

# Dominion: A Major Virginia Taxpayer

About \$141 million in total 2007 tax payments to Virginia state and local governments:

- Property taxes: \$95 million
- Sales & Use taxes: \$22 million
- Other state taxes: \$24 million



# Committed to Serving the Hampton Roads Region

- Fast-growing region of Virginia
- Major military facilities
- More than 685,000 customers in the area



# Meeting Demand Requires a Diversified Strategy

## *Dominion's objective:*

- Meet growing demand through a balanced and diverse portfolio of generation including renewables, energy conservation, and investments in new infrastructure to provide reliable, affordable energy for our customers

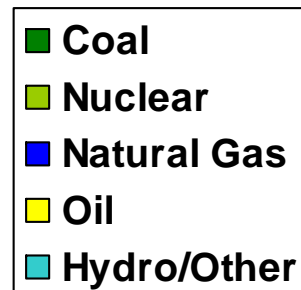
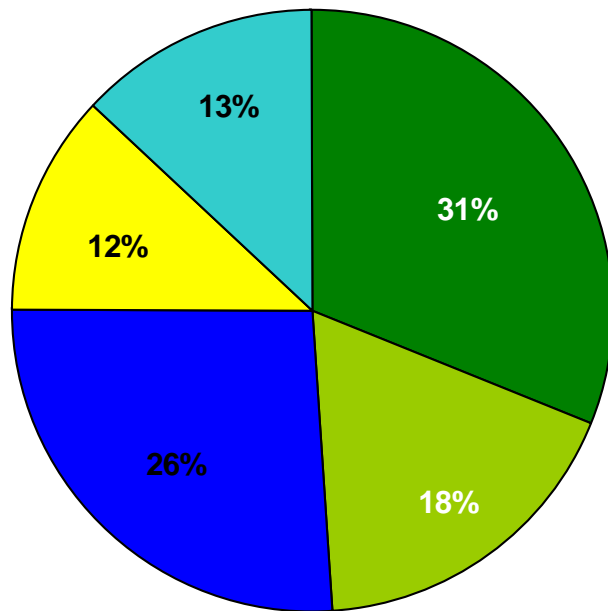
## *Dominion's integrated strategy:*

- A balanced portfolio in the near-term including:
  - Demand-side management programs
    - Demand-side Pilots (Demand Response, Conservation, & Education)
  - New generation
    - Virginia City Hybrid Energy Center
    - Advanced Nuclear
    - Renewables
  - Infrastructure development
    - Transmission upgrades

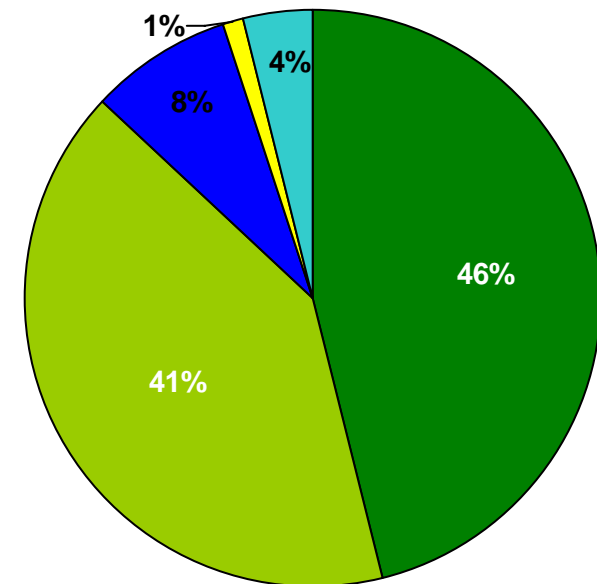
# Dominion Today: Diverse Generation Mix

## Dominion Virginia Power

2008 Electric Capacity by Fuel

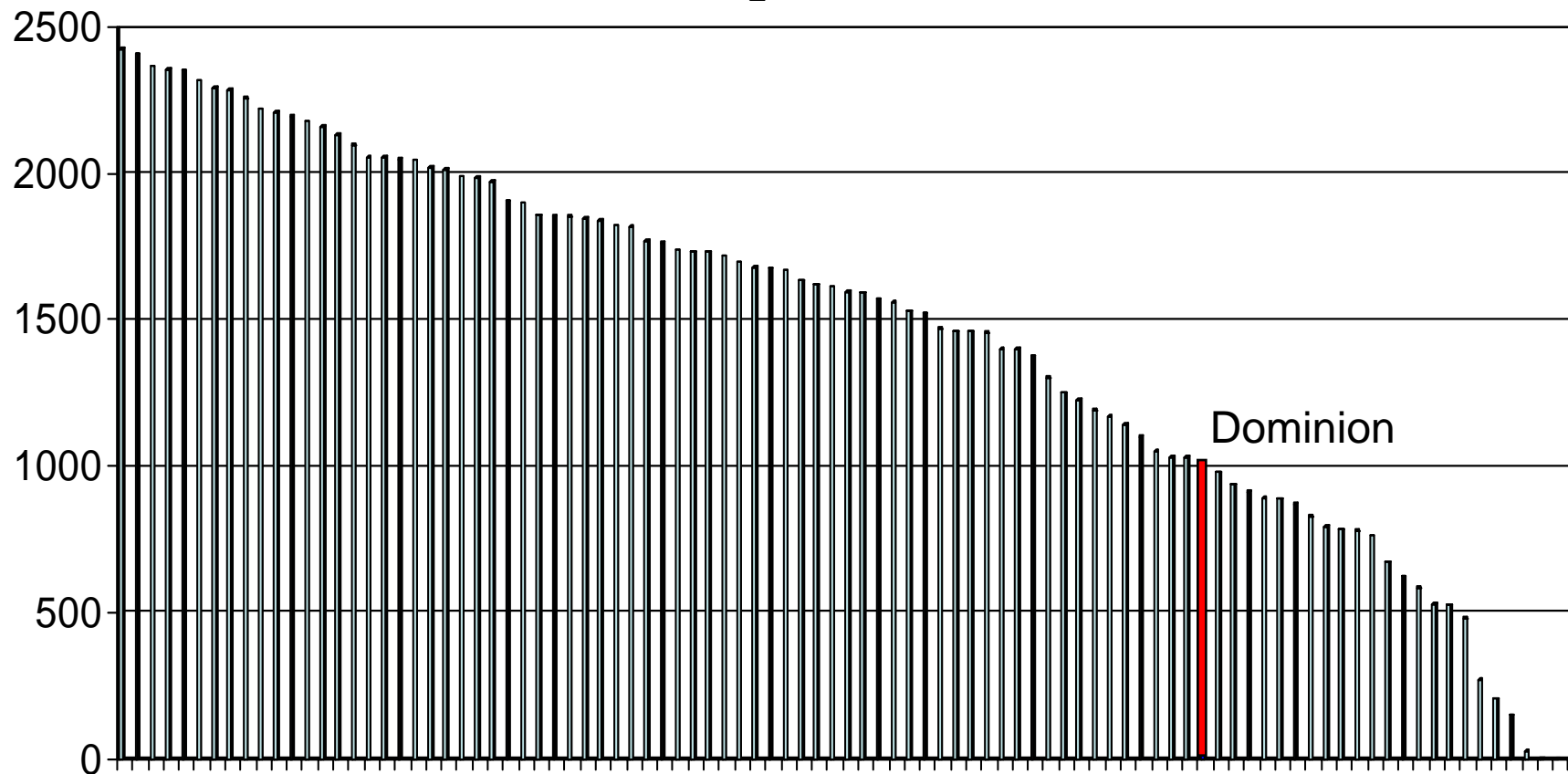


2008 Electric Production by Fuel



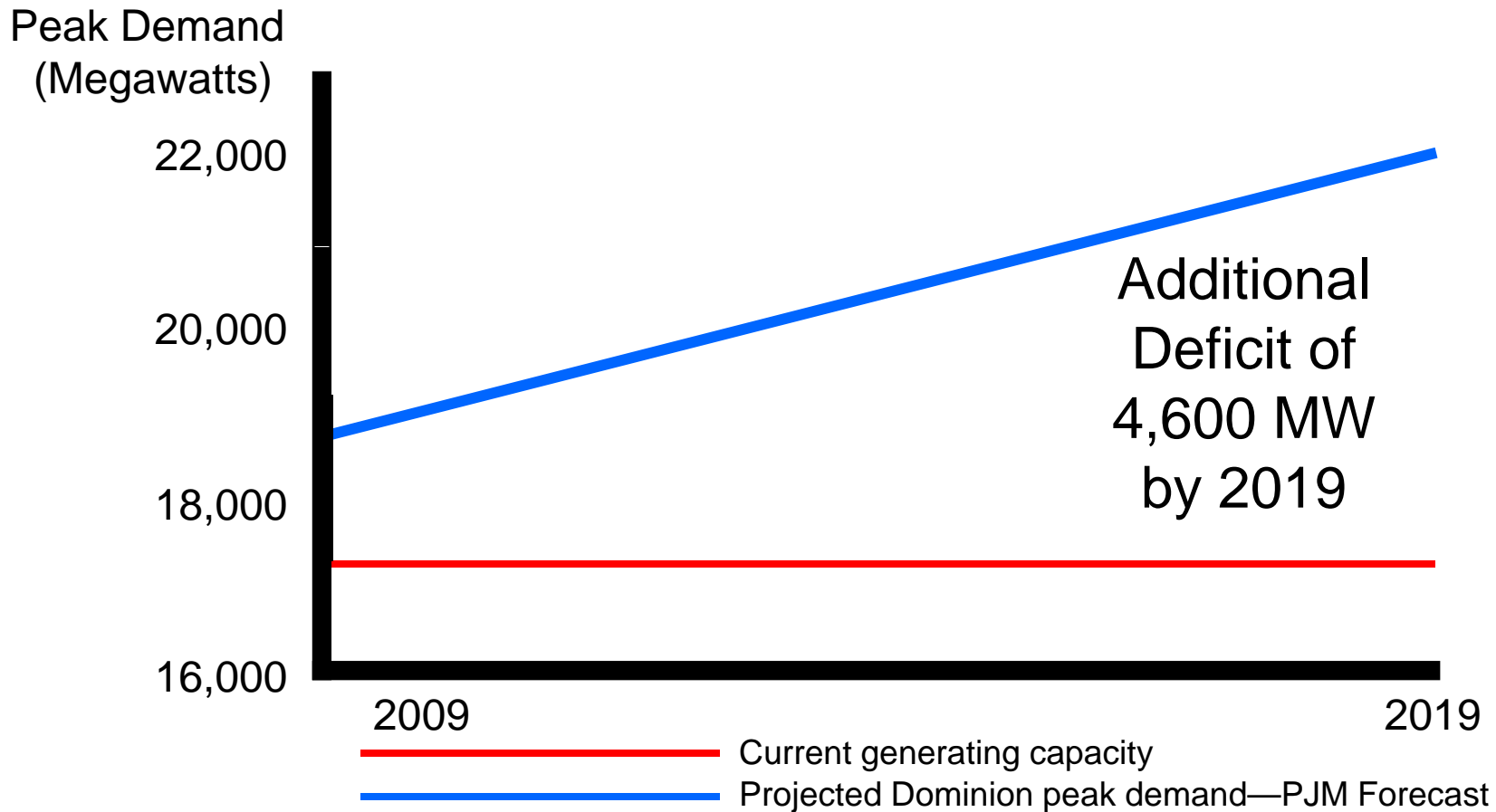
# Dominion Today: Low Carbon Intensity

100 Largest U.S. Power Producers  
(Pounds CO<sub>2</sub> per MWh Output)



Source: Natural Resources Defense Council, 2008 Study

# Virginia's Mounting Electric Energy Gap

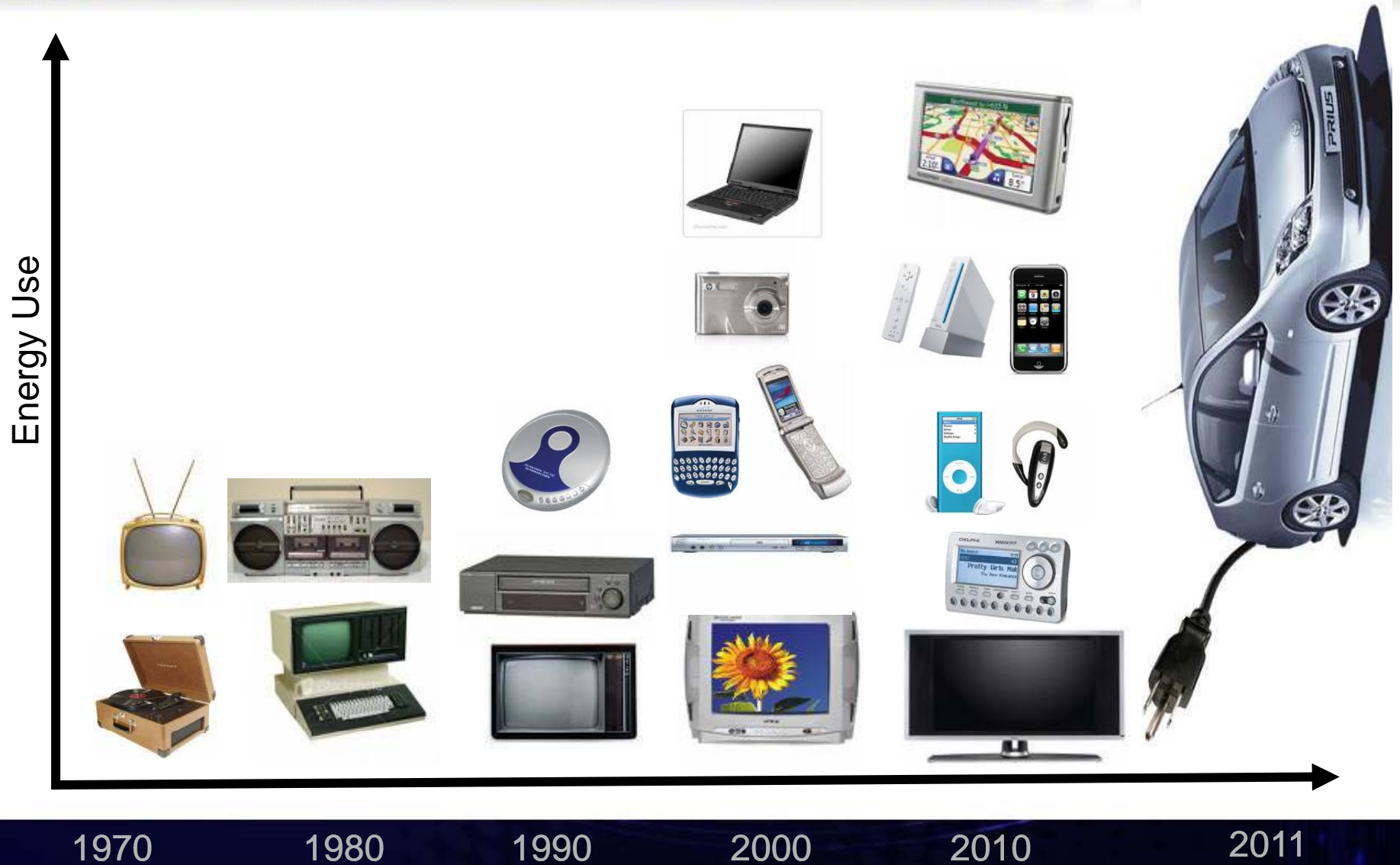


# How Did We Get Here?

## Extreme Growth:

- Connected more than 700,000 new customers in past 16 years.
- 30,000 customers expected to be added this year.
- Spent \$2.5 billion on new distribution facilities over the period.
- Usage of existing residential customers has increased by about 12% since 1992.
- Northern Virginia data centers.

# Our List of Must-Haves Grows



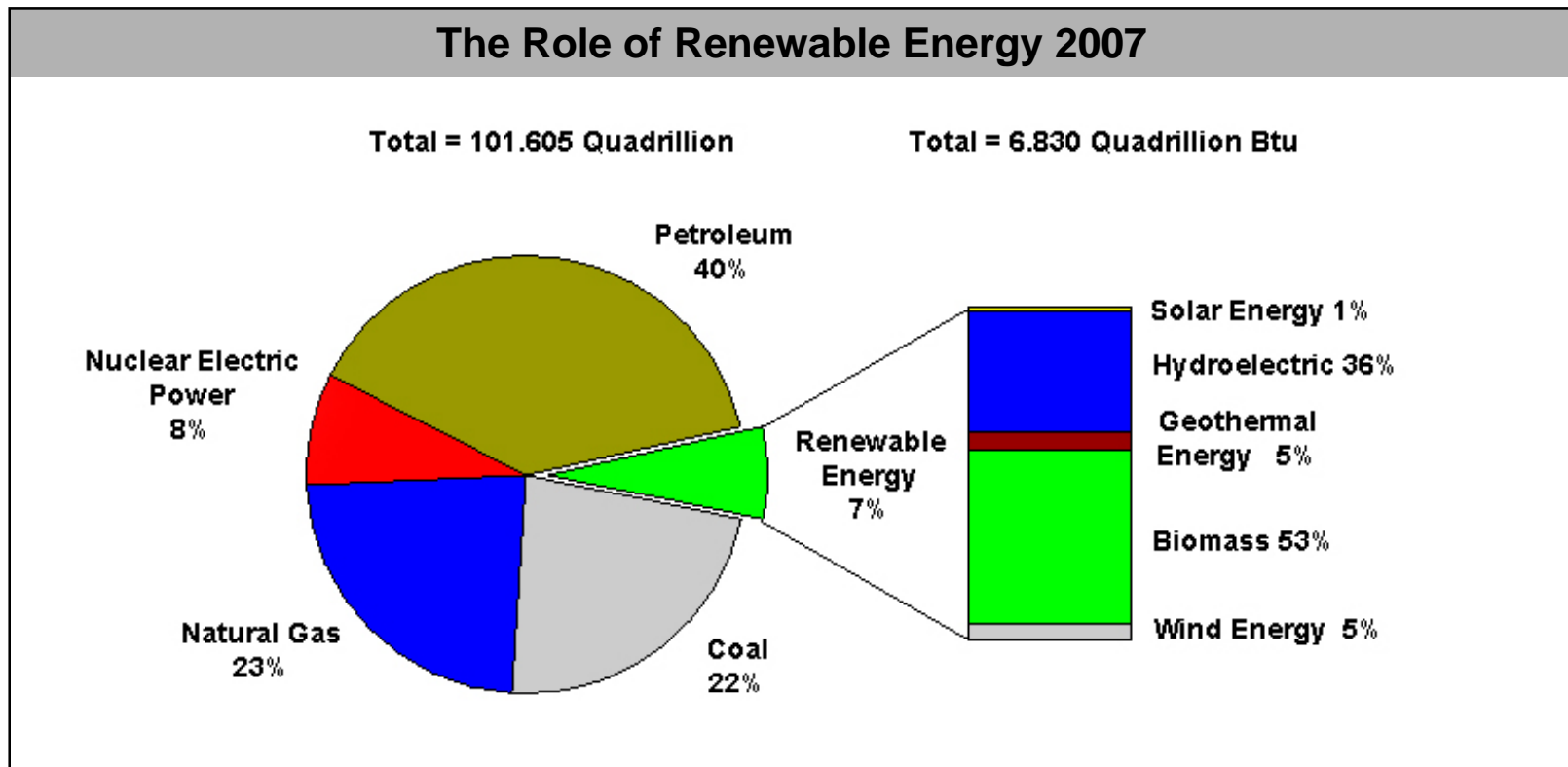
# America's Utility Industry: 21<sup>st</sup> Century Challenges

- Rising demand
- Environmental protection - including climate change and RPS legislation
- New generating stations
- Intensified conservation programs
- Advanced technology delivery systems



# Renewable Energy Growing from Small Base

- Wind energy increased by 187% between 2002 and 2007
- Solar energy increased by 13.5% between 2002 and 2007
- Biomass increased by 3.5% between 2002 and 2007



# Dominion's Integrated Strategy

- A balanced and flexible portfolio of reliable, cost-effective energy resources including an offering of energy conservation programs
- Environmentally friendly generation, including clean coal, natural gas, renewable, possible nuclear
- Transmission and delivery system improvements



# Dominion's Response: Conservation

- Conservation a key to meeting Virginia's growing energy needs while protecting the environment.
- Dominion committed to state's goal of 10 percent electricity consumption reduction by 2022.
- Distributed 3 million CFL light bulbs
- Conservation Plan to be filed with SCC later this year, after July 1.
  - 13 programs under consideration;
  - Proposed "smart meters";
  - Expected to reduce demand by 1 million Mwh by 2011 and save customers \$1 billion over 15 years.
- Important part of our integrated strategy.



Power Cost Monitor

# A Portfolio of Programs

- 13 conservation and load management programs under consideration, including:
  - Residential and Commercial Lighting Programs
  - Air Conditioner Cycling Program
  - Heat Pump Upgrade Program
  - Commercial HVAC Upgrade Program
- If approved by SCC effective in 2010



# “Smart” Meters: Building a New Relationship Between Utility and Customer

Digital “smart meters” or advanced metering infrastructure (AMI):

- Provide two-way communication between utilities and customers
- Improve outage monitoring and response
- Save energy through more precise voltage control
- Provide greater information to customers
- Expand “time of use” rate options
- Improve home energy management



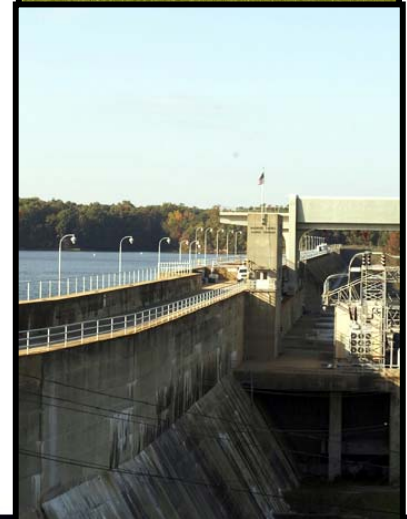
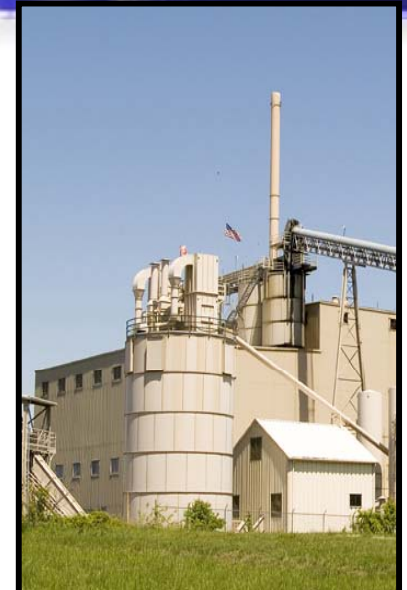
# Dominion's Response: Environmentally Friendly Generation

- Virginia City Hybrid Energy Center
- Carbon capture and storage research
- Possible North Anna 3 nuclear unit
- New gas-powered generation
- Unit uprates
- Renewable energy: wind projects in WV, IN, IL, VA



# Renewable Energy

- Supports Virginia goal of 15 percent of power supply from renewable resources by 2025
- Approximately 2 percent of Dominion Virginia Power's current generation comes from renewable sources
- Biomass at three VA power stations
  - Pittsylvania Power Station
  - Altavista Power Station
  - Virginia City Hybrid Energy Center
- Existing hydroelectric in VA and NC
- Bath County pumped storage facility (10% of U.S. pumped storage capacity) helps make renewable energy dispatchable
- Green power option available in 2009



# Dominion's Announced Wind Energy Projects



- NedPower in Mount Storm, WV:
  - 264 megawatts (partnered with Shell)
- Fowler Ridge in Benton County, IN:
  - 400 megawatts online (partnered with BP)
  - Could be expanded to total of 750 MW
- Prairie Fork in Christian & Montgomery Counties, IL:
  - 300 megawatts
- Virginia wind projects in Tazewell and Wise Counties

# Virginia Wind Projects: Overview

- BP and Dominion partnership to jointly own, operate and develop wind projects in Wise County and Tazewell Counties.
- Purchased about 2,560 acres of land in Tazewell County.
- The exact size of projects and scope of benefits not yet determined.
- Projects will be subject to all local, state and federal permits and approvals.



# Upgrading the Power Grid



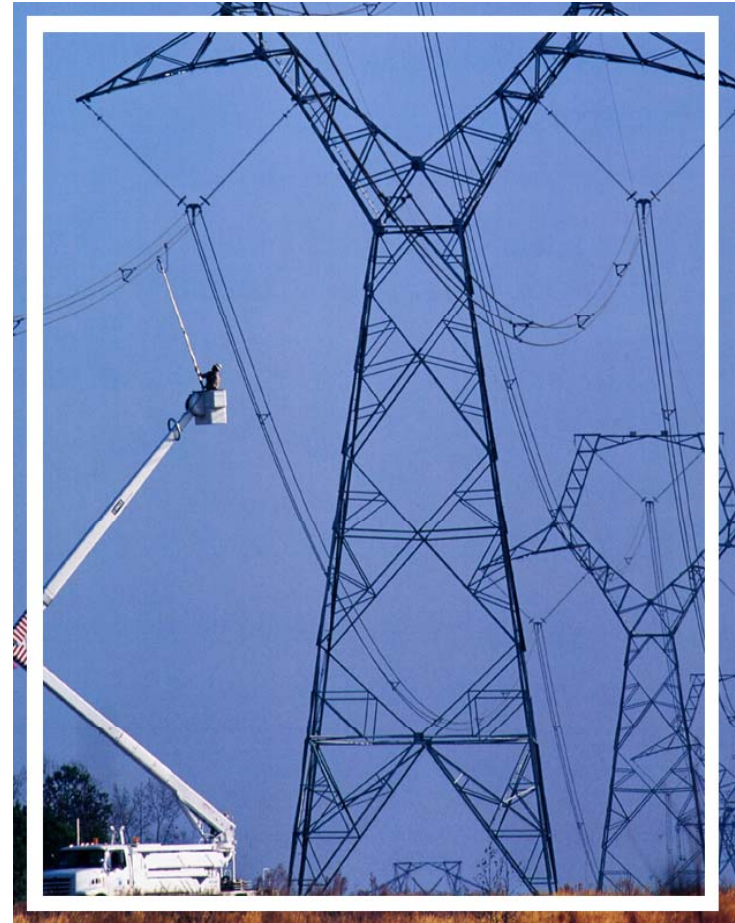
## Transmission: Electricity's Highway System

Power is useless unless you can get it where it's needed.

- Eleven major projects planned or under way in Virginia and North Carolina
- Nearly \$900 million investment
- Critical projects in Hampton Roads, Central and Northern Virginia

# Transmission: Carson to Suffolk (500kV)

- Critical to improving reliability in Hampton Roads area
- 500-kilovolt (kV) transmission line, approx. 60 miles
- Expansions planned for Carson, Suffolk and Thrasher Substations
- SCC approval received October 31, 2008
- Construction expected to begin fall 2009



# Alternative Energy Solutions: Objectives

- Conduct technology research in renewables and conservation and load management to support Dominion Business Units
- Participate in the nation's energy policy
- Identify business opportunities
- Provide an information and idea-sharing forum for the Company



# Alternative Energy Solutions: Technology Priorities

## Conservation and Load Management

- “Smart Grid”
- Distributed Generation
- Electric/Hybrid Vehicles
- Solar
- Wind
- Storage



# Alternative Energy Solutions: Technology Priorities

## Renewables

- Biomass
- Storage
- Tidal
- Solar
- Wind





**Dominion<sup>®</sup>**  
It all starts here.<sup>®</sup>