

# Hampton Roads Planning Commission

***Brett Crable***

**Director, Customer Solutions  
Dominion Virginia Power**



# DOMINION'S COMMITMENT TO CUSTOMERS

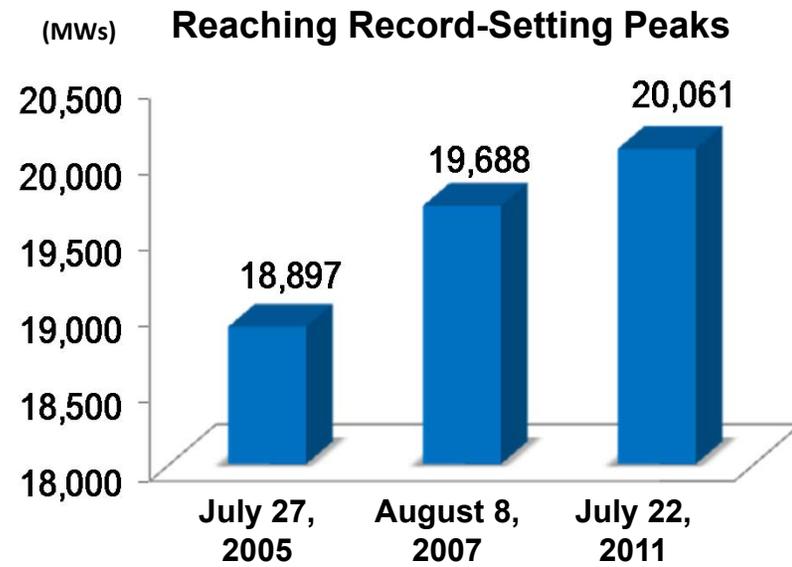
---

- Deliver ***safe, reliable electric service*** to customers' homes and businesses now and into the future.
- Provide ***responsible, competitive rates*** and long-term value to retain and attract business.
- Offer ***innovative energy solutions*** to meet customers' changing energy needs and help them save money.



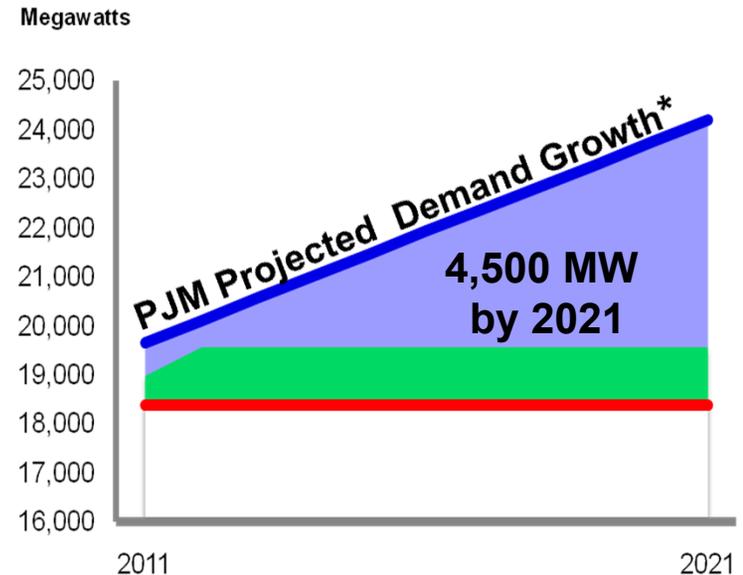
# VIRGINIA'S ECONOMIC GROWTH AND INCREASING ENERGY DEMAND

- Va. ranked #1 among “Top States for Business” by CNBC, and “Top Pro-Business State” by Pollina
- Va.’s unemployment rate continues to be well below the national average
- Energy usage climbing among all customer classes
- Recently established new all-time record peak demand of over 20,000 MW
- Virginia is the second largest importer of electricity in U.S.



# PJM PREDICTS DEMAND IN DOMINION ZONE TO INCREASE BY 4,500 MW OVER THE NEXT DECADE

- PJM Interconnection is a regional transmission organization (RTO)
  - ensures the reliability of the high-voltage electric power system in all or parts of 13 states and the District of Columbia
  - operates the largest competitive wholesale electricity market in the world
- Dominion Zone has highest demand growth rate in PJM's 13-state region

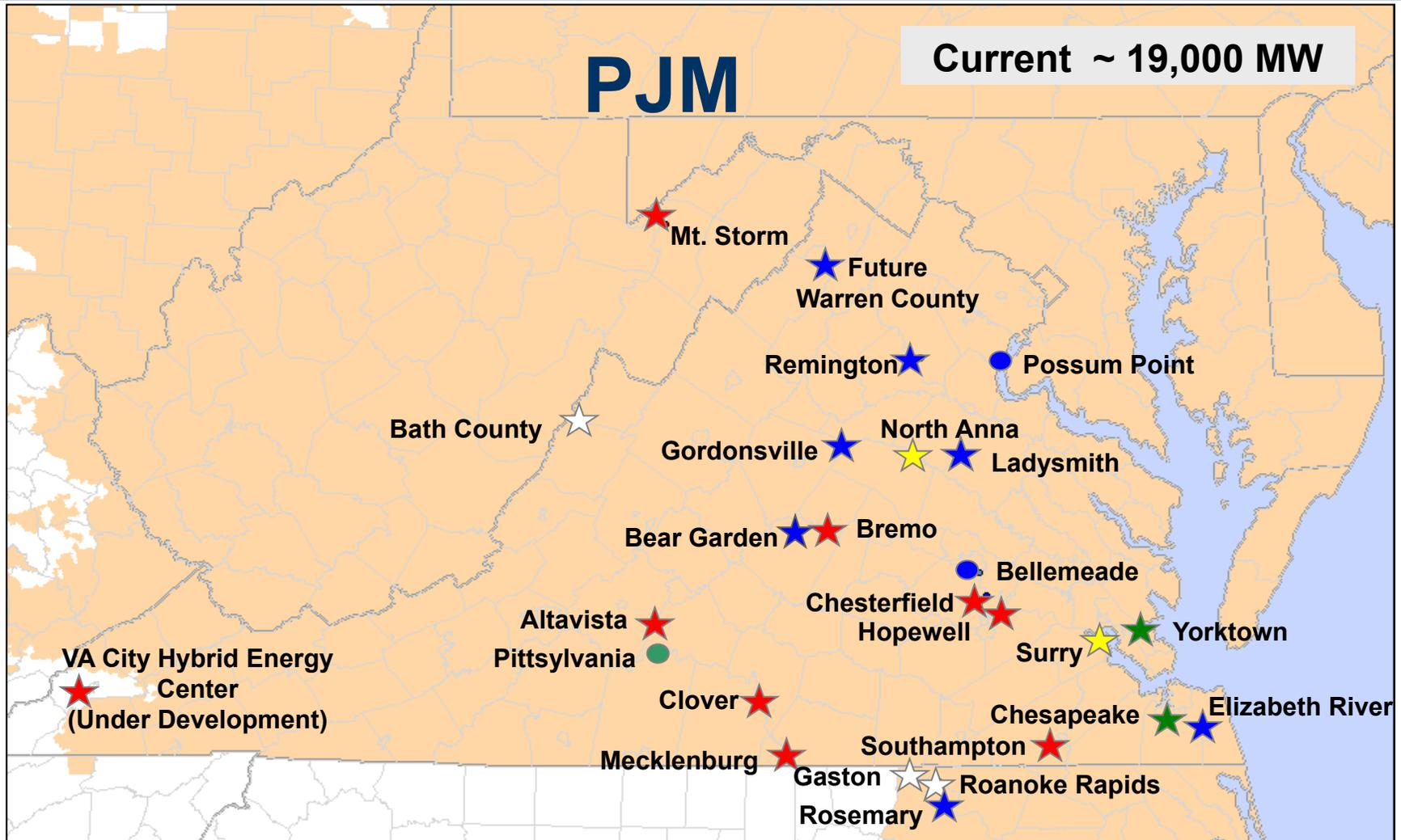


- Generating capacity (Jan. 2011)
- Expected peak demand\*
- New and planned generation\*

•Peak demand growth: PJM long-range forecast, January 2011

# REGULATED GENERATION PROFILE

## VIRGINIA AND NORTH CAROLINA



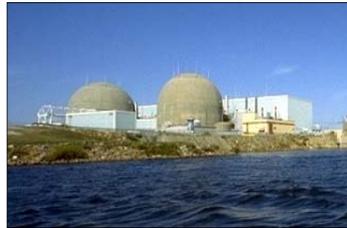
Potential future projects are subject to VA State Corporation Commission approval

# GENERATION

## *BALANCED, DIVERSE FUEL MIX*



**Coal**



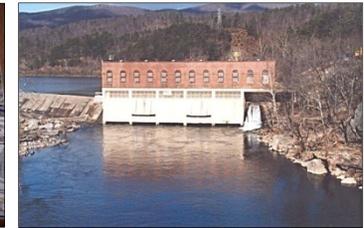
**Nuclear**



**Natural Gas**

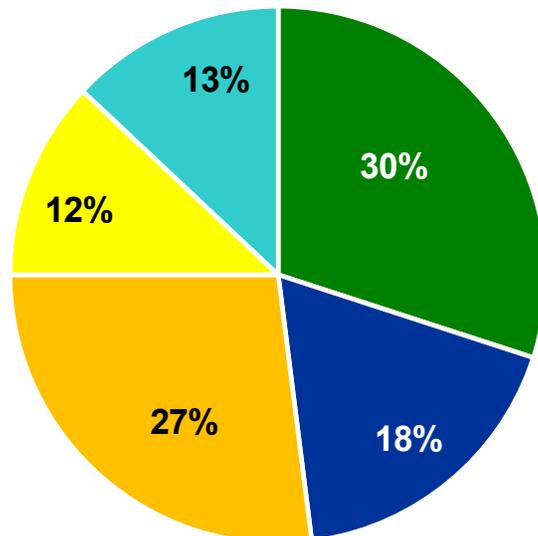


**Oil**

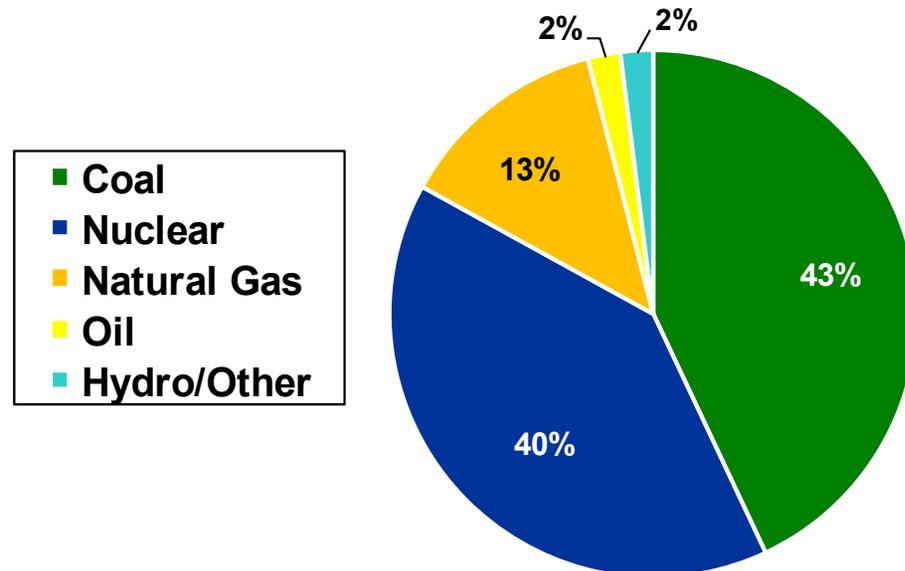


**Hydro**

**2010 Electric Capacity by Fuel**



**2010 Electric Production by Fuel\***

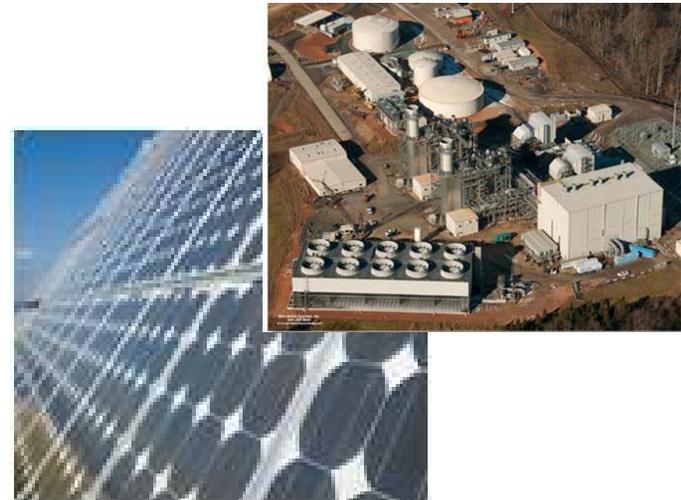


# 2011 INTEGRATED RESOURCE PLAN

## *INVESTMENTS*

**Balance of new generation, transmission projects, and demand side management to help meet projected 30 percent demand increase**

- 2 major combined-cycle natural gas facilities – in addition to those recently built or announced – and new gas-powered combustion turbines (peaking units)
- New renewable initiatives (3 biomass conversions, distributed solar)
- Expanded energy efficiency/demand reduction programs
- Preservation of option to build North Anna Unit 3
- Continued transmission and distribution investment



# NEW GENERATION

## *RECENTLY BUILT OR UNDER CONSTRUCTION*

---

- **Bear Garden:** *Completed on time, on budget*
  - 2 gas-fired combined cycle (CC); 580 MW in Buckingham County
  - Intermediate units functioned in summer 2011 as baseload due to low natural gas prices
- **Virginia City Hybrid Energy Center**
  - 585 MW coal-fired baseload unit in Wise County
    - Expect commercial operation in summer 2012
  - To date, project is on-schedule and on-budget



# ENVIRONMENTAL CHALLENGES

## *RETROFIT VS. RETIRE*

---

- **Three-pronged approach:**

- Good stewards of the environment; comply with the regulations
- Provide safe, reliable power at the lowest cost option for the customer
- Meet the demand needs identified by PJM

- **Economics has to play a part:**

- Environmental technology must work with existing facility
- Availability of the new fuel for a turbine conversion
- Customer benefit is a strong driver in decision process

# COMMUNITY SOLAR POWER PROGRAM

---

*Supports recent legislation promoting **solar distributed generation (DG)** within the Commonwealth*

## **Two new solar offerings\***

- 30 MW of Dominion-owned solar distributed generation located at customer sites
  - Typically 0.5 MW to 1.0 MW on a roof top
  - Provides Dominion the ability to study impacts and assess benefits of Solar DG on the distribution system
  
- Special tariff capped at 3 MW for customers wanting to sell solar output to the company
  - Alternative to net metering
  - New green option for customers



\*Potential future projects are subject to VA State Corporation Commission approval

# RECENT AND PLANNED TRANSMISSION INVESTING IN HAMPTON ROADS

---

*More than \$658 million in investments to  
improve reliability*

## Completed:

- Carson-Suffolk 500 kV Line and Suffolk-Thrasher 230 kV Line

## Under Construction:

- Hayes-Yorktown 230kV (*Summer 2012*)
- Landstown-Virginia Beach 230kV Line (*December 2012*)

## In Development:

- Chickahominy-Skiffes Creek 500kV and Skiffes Creek-Wheaton 230kV Lines (*November 2014*)

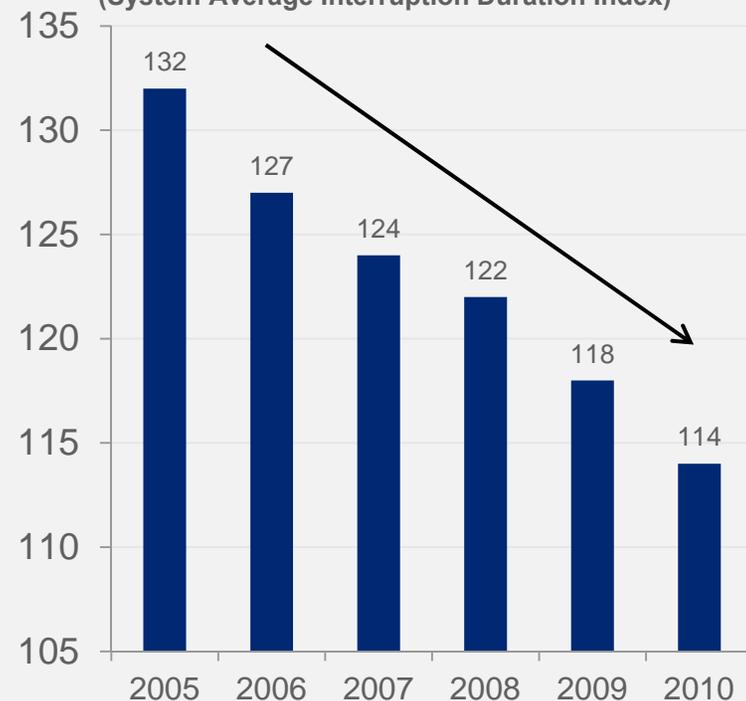
# ELECTRIC DISTRIBUTION

## IMPROVING RELIABILITY THROUGH ASSET MANAGEMENT

- Neighborhood Transformer Replacement Program
- Circuit Reconditioning Program
- Other Programs
  - Substation Transformer Replacement
  - Primary Cable Replacement
  - Switch Replacement
  - Tree Trimming

Improved system performance resulting from reliability initiatives

SAIDI excluding Major Storms  
(System Average Interruption Duration Index)



3-Yr Rolling Average

# COST-EFFECTIVE DEMAND-SIDE MANAGEMENT

- 5 DSM programs available to customers:
  - Air Conditioning Cycling Program
  - Residential Lighting Program
  - Low Income Program
  - Commercial HVAC Upgrade Program
  - Commercial Lighting Program
- Requested SCC approval of 6 additional programs:
  - Total of **1,350 GWh** of energy savings = Enough to power more than **100,000** homes for a year



*\*Regulatory determinations may be subject to change through actions on rehearing or appeal. Dominion cannot ensure the outcome of such cases.*

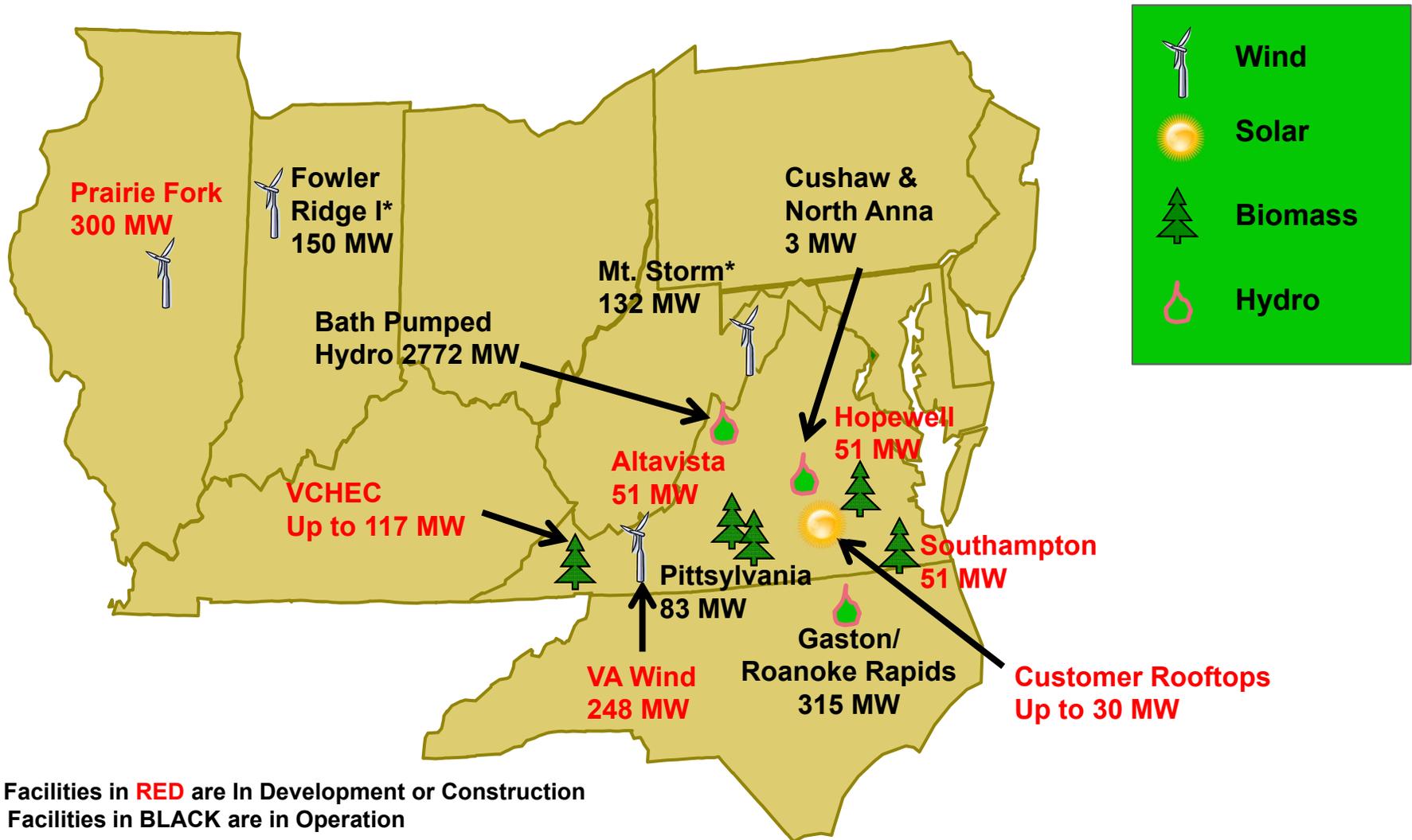


**Dominion<sup>®</sup>**

# Appendix

---

# DOMINION HAS EXPERIENCE WITH RENEWABLES BOTH IN VIRGINIA AND BEYOND

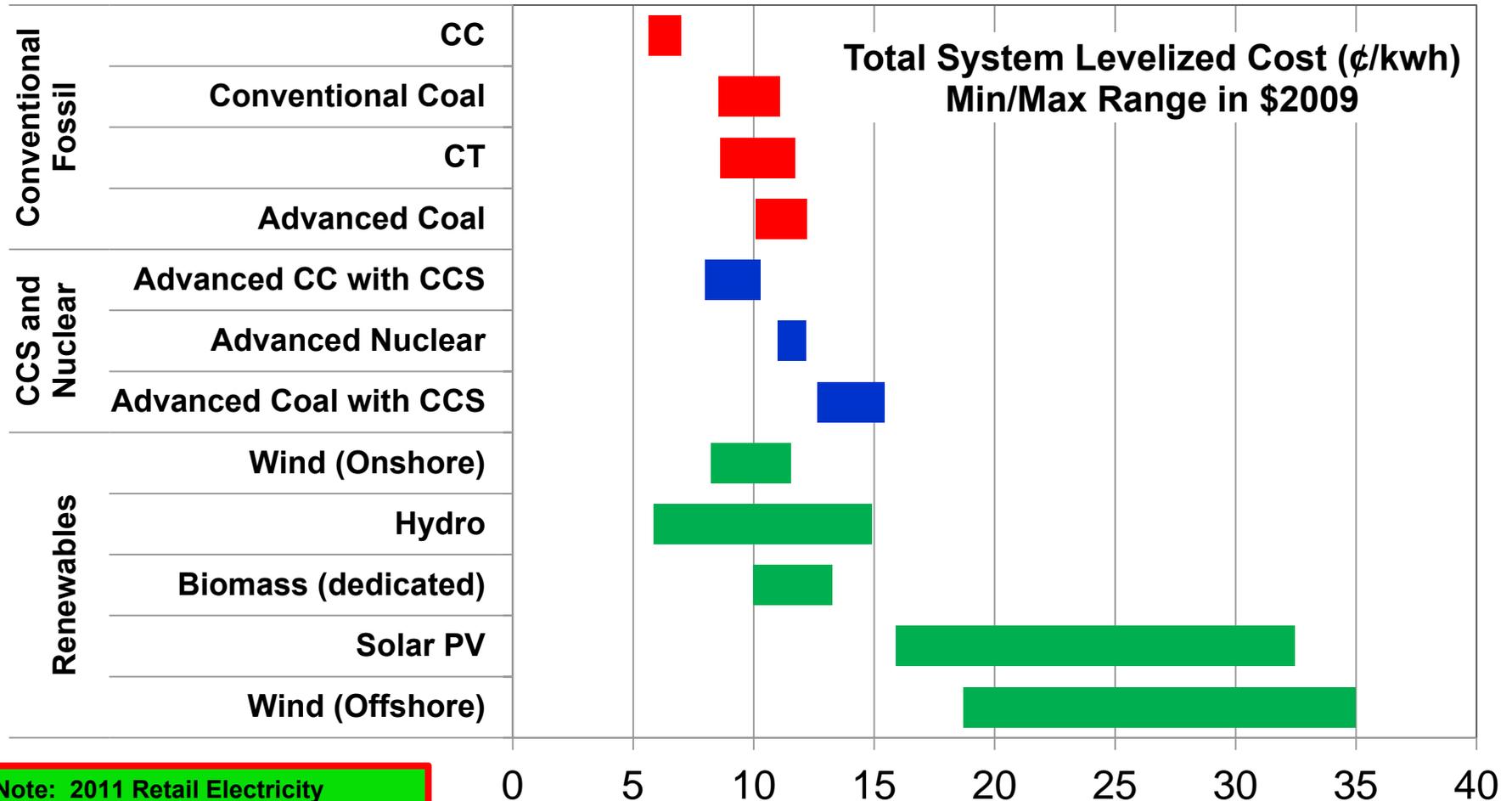


Note: Facilities in **RED** are In Development or Construction  
Facilities in **BLACK** are in Operation



\*Megawatt capacity represents Dominion's 50% capacity only

# LEVELIZED COST OF NEW GENERATION 2016 COMMERCIAL OPERATION



Note: 2011 Retail Electricity Prices in Virginia  $\approx 10\text{¢/kwh}$  (Generation + Fuel + Transmission)

Source: U.S. Energy Information Administration, report on the Annual Energy Outlook, April 2011  
CC = Combined Cycle; CT = Combustion Turbine; CCS = Carbon Capture & Sequestration; PV = Photovoltaic

# Virginia RPS Goals

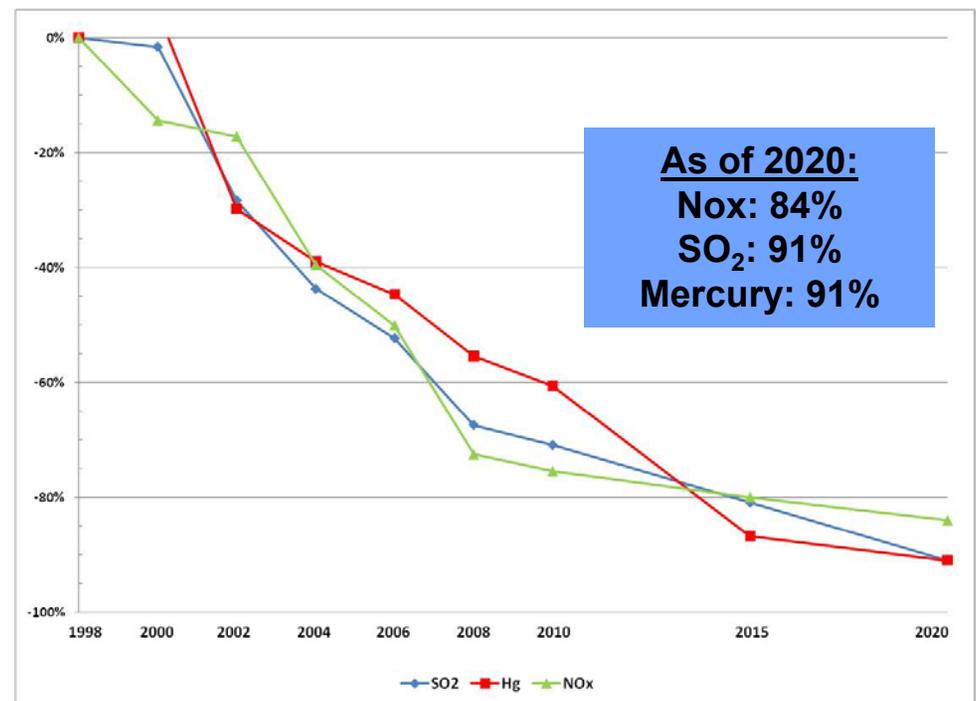
---

- ❑ In 2007, Virginia passed into law a voluntary Renewable Portfolio Standard (RPS):
  - 4% by 2010
  - 7% by 2016
  - 12% by 2022
  - 15% by 2025 (added in 2009)
  
- ❑ Sunlight, wind, falling water, sustainable biomass, energy from waste, wave motion, tides, and geothermal power
  
- ❑ Dominion's Virginia RPS program was approved by the VA SCC in 2010
  - Use existing assets
  - Build new where feasible
  - Buy low-cost RECs

# A RECORD OF ENVIRONMENTAL IMPROVEMENT

- Reached an historic agreement with EPA in 2003
  - Required two-thirds reduction in SO<sub>2</sub>, NOx emissions
- Since 1999, approx. \$1.8 billion in environmental projects
- Additional retrofits and conversions planned

Projected Regulated Generation Emissions Reductions



# Carbon Dioxide Emission Reductions

- Comparing 2000 to 2009, generating fleet (based on ownership percentage):
  - Reduced our average CO<sub>2</sub> emissions rate per MWh of energy produced by ~16 percent – while the fleet has grown 44 percent
- Integrated strategy for reducing GHG emission intensity based on:
  - Maintaining a diverse fuel mix
  - Investing in renewable energy
  - Promoting energy conservation and efficiency

