

# **Proposed Carbon Dioxide Trading Program**

**Before the  
Committee on Electric Utility Regulation  
December 4, 2017  
David K. Paylor, Director  
Virginia Dept. of Environmental Quality**

# Executive Directive 11

- May 16, 2017: Governor McAuliffe issued ED-11 directing DEQ to develop a proposed regulation for the board's consideration to abate, control, or limit carbon dioxide emissions from electric power facilities that:
  - Includes provisions to ensure that Virginia's regulation is trading-ready to allow for the use of market-based mechanisms and the trading of CO<sub>2</sub> allowances through a multi-state trading program; and
  - Establishes abatement mechanisms providing for a corresponding level of stringency to limits on CO<sub>2</sub> emissions imposed in other states with such limits

# RGGI

- The Regional Greenhouse Gas Initiative (RGGI) program is a carbon cap-and-trade program covering fossil fuel-fired electric generating units in nine northeast and mid-Atlantic states
  - NY, ME, NH, VT, MA, RI, CT, DE, MD
- Covered sources purchase allowances in quarterly auctions run by RGGI, Inc., with the revenue returned to states

# Opinion of the Attorney General

- May 12, 2017: Virginia Attorney General issued an official advisory opinion that concluded the board is legally authorized to regulate GHG
- "The Board has the authority to establish a statewide cap on GHG emissions for all new and existing fossil fuel electric generating plants as a means of abating and controlling such emissions"

# REGULATORY PROCESS

- June 26: Notice of Intended Regulatory Action (NOIRA) published in Virginia Register
- June 26-July 26: Public comment period  
>2500 commenters
- August-September: Regulatory Advisory Panel (RAP)
- September-October: Proposed regulation
- November 16: Proposed regulation approved by the SAPCB for public comment

# REGULATORY PROCESS

## Regulatory Advisory Panel

- Regulatory Advisory Panel (RAP) created
  - 15 members/alternates
  - Clean Power Plan (CPP) stakeholders group
  - Primary focus: allocating allowances
- August - September meetings
- Final group report sent to board 10/6/17
  - No consensus reached on any specific topic

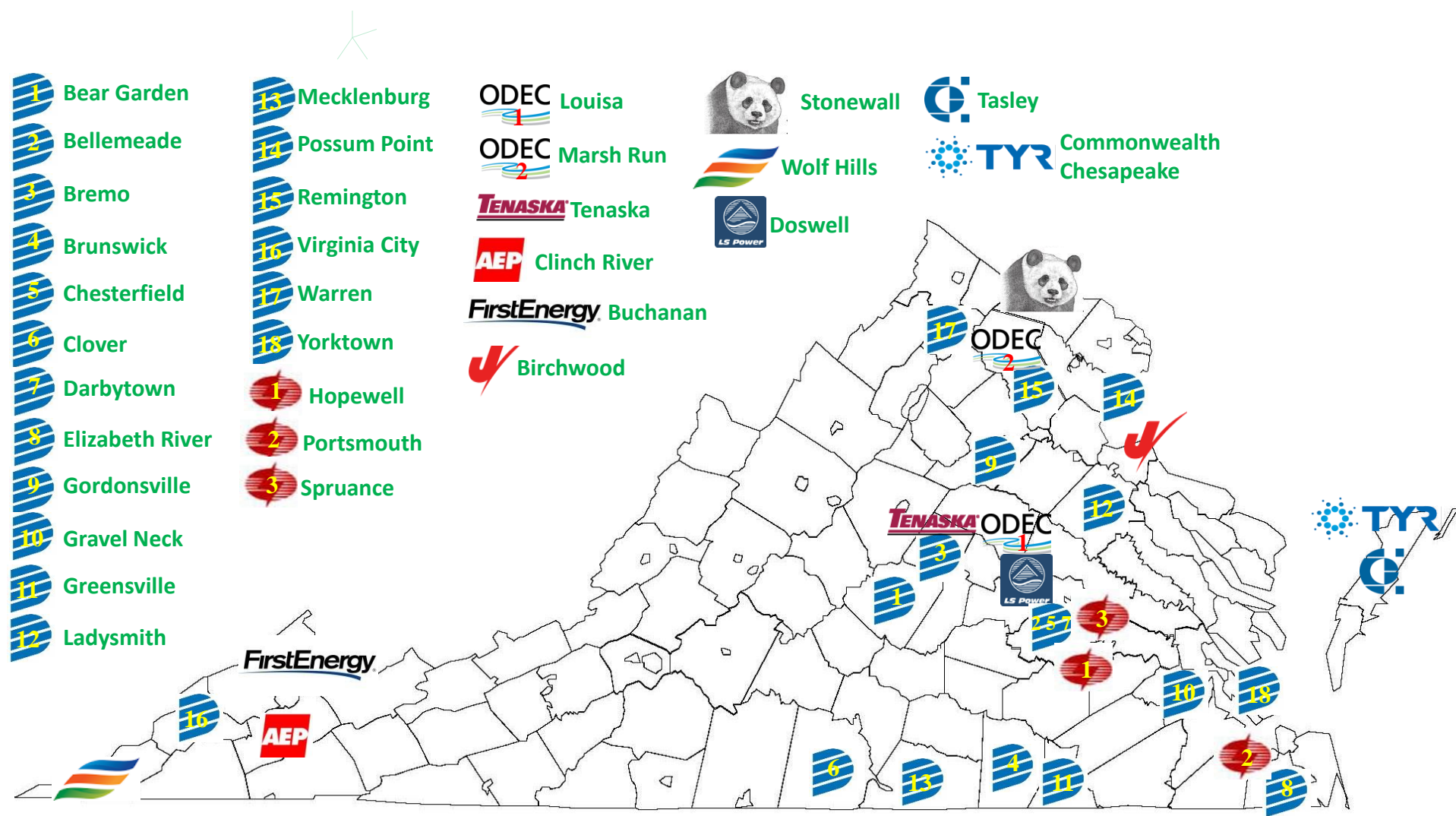
# PROPOSED REGULATION STRUCTURE

- Carbon cap-and-trade program commencing in 2020
- Framework is RGGI August 2017 model rule
- Modified to operate as a Virginia rule with additional provisions and modifications
  - Allocation of "conditional allowances" to covered sources with required consignment to RGGI auctions

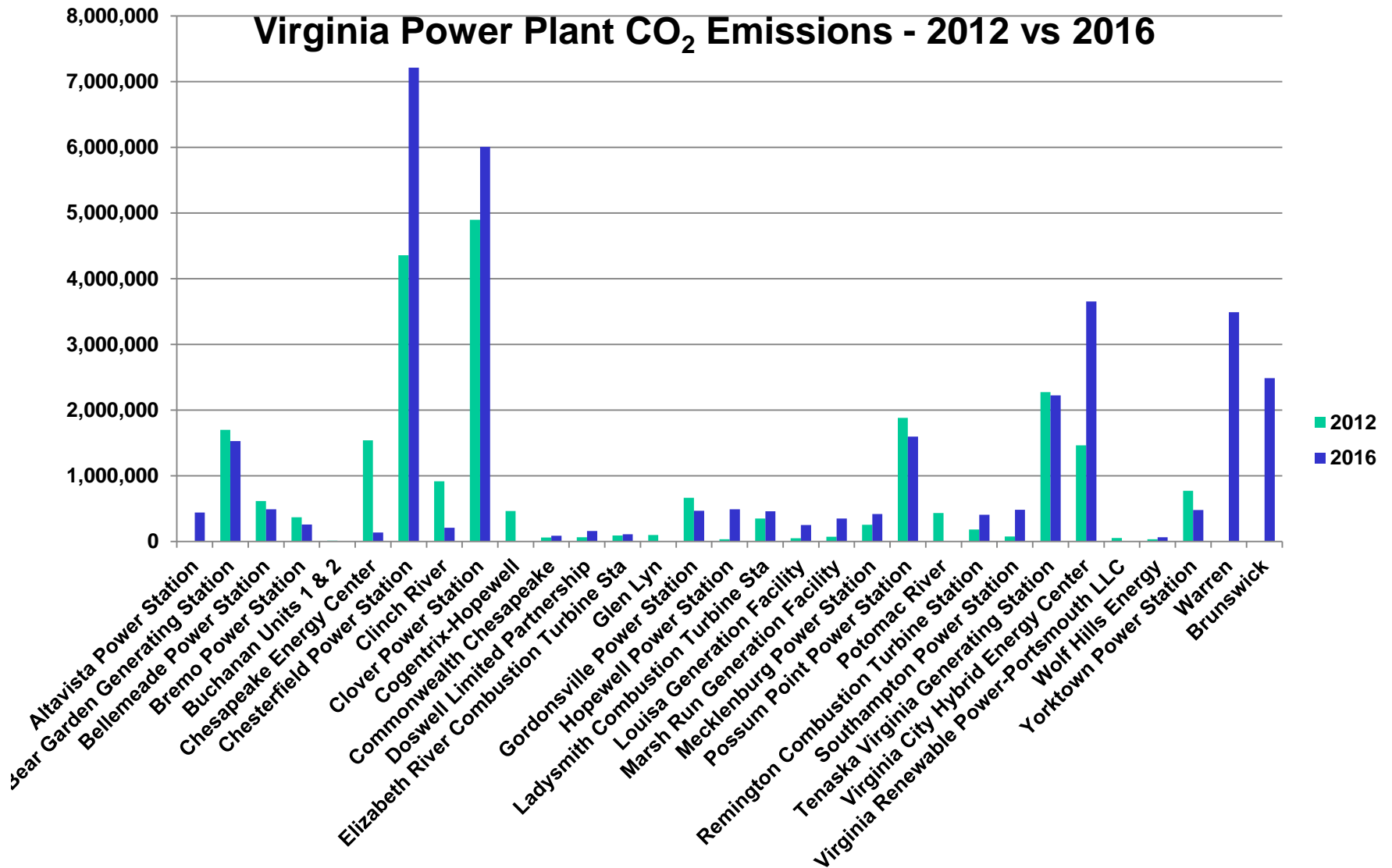
# COVERED SOURCES

- Fossil fuel-fired electric generating units
  - 25 MW and greater
  - Fossil fuel 10% or greater of total fuel mix
  - Referred to as "CO<sub>2</sub> Budget Sources"
  - Each CO<sub>2</sub> Budget Source must hold a CO<sub>2</sub> allowance for every ton of CO<sub>2</sub> emitted during a "Control Period"
- Industrial units exempted
  - Owned by and located at an industrial facility
  - Primarily used to provide power/heat to that facility





# Fossil fuel-fired electric generating units with $\geq 25$ MW capacity

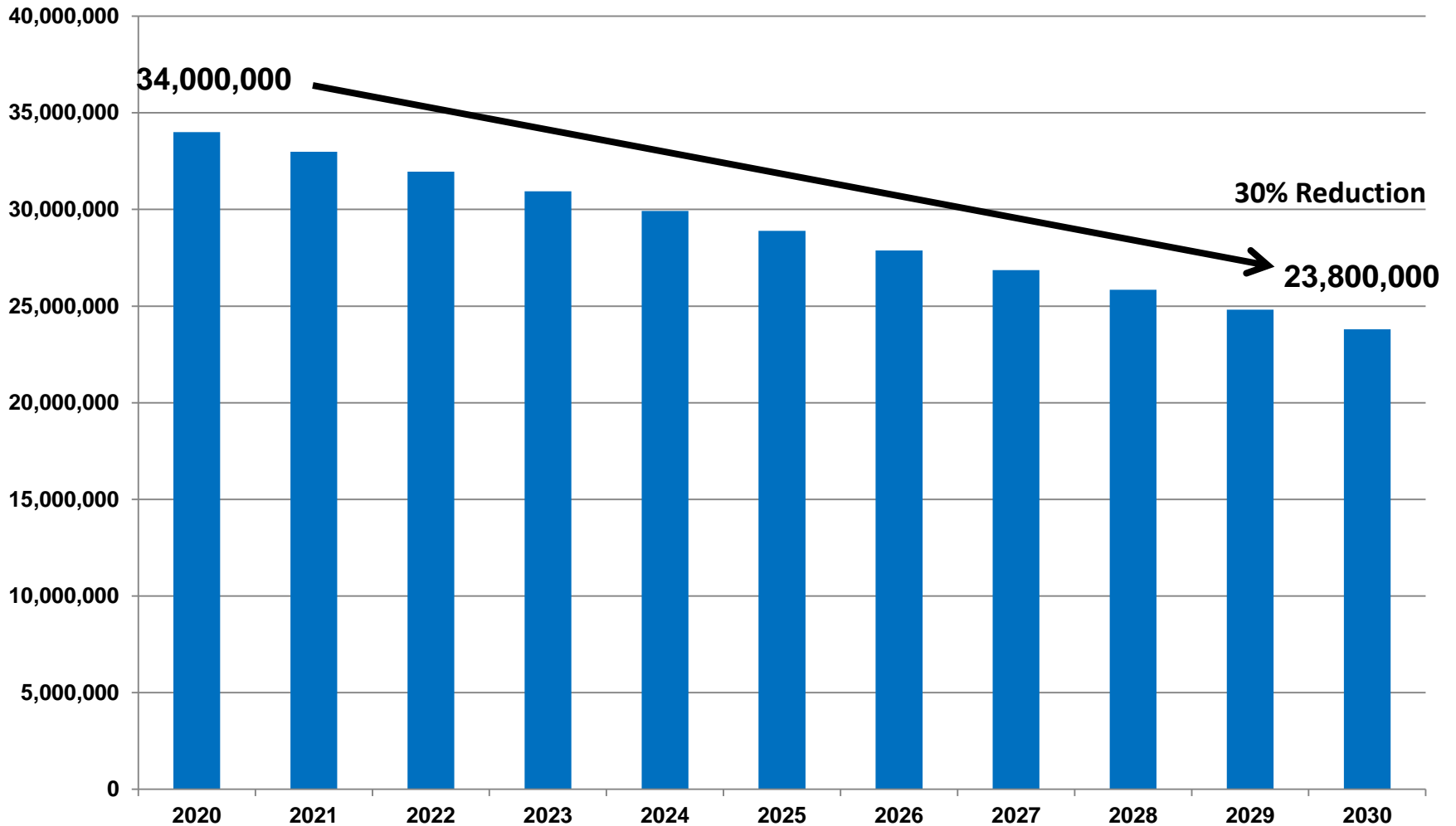


Source: EPA Air Markets Program Data (AMPD)

# CO<sub>2</sub> BUDGETS

- CO<sub>2</sub> Base Budget
  - Commences in 2020 with 33 *OR* 34 million allowances
  - Base budget declines about 3% per year thereafter
  - ECR allowance withdrawal adjustments based on "low" auction price triggers determined by RGGI
  - 2025 banked allowance adjustment determined by RGGI
- Cost Containment Reserve (CCR) Budget
  - In addition to CO<sub>2</sub> Base Budget
  - 10% of CO<sub>2</sub> Base Budget
  - CCR allowances released into auction based on "high" allowance price triggers determined by RGGI

## Proposed Trading Rule Yearly CO<sub>2</sub> Emission Budgets



# CO<sub>2</sub> BASE BUDGET ALLOCATIONS

- 95% of Base Budget allocated annually to CO<sub>2</sub> Budget Sources as "Conditional Allowances" that must be consigned to the RGGI quarterly auctions
  - Allowances for compliance must be purchased at auction
  - CO<sub>2</sub> Budget Sources compensated for conditional allowances consigned to auction at auction clearing price by auctioneer
  - Allocations to CO<sub>2</sub> Budget Sources based on "output updating" method

# CO<sub>2</sub> BASE BUDGET ALLOCATIONS

- 5% of Base Budget allocated annually to Dept. of Mines, Mineral, & Energy (DMME) to assist DEQ for the abatement and control of air pollution, in particular CO<sub>2</sub>

# CONSIGNMENT AUCTION APPROACH

- Conditional Allowances are consigned by CO<sub>2</sub> Budget Sources and holders of public contracts with DMME to the RGGI auctions
  - Auctions managed by RGGI, Inc.
  - Anyone can buy allowances at RGGI auctions
- Cost of allowances determined by auction clearing price
- Sources cannot use Conditional Allowances for compliance
- Revenue is returned to CO<sub>2</sub> Budget Sources and entities designated by DMME by auctioneer for consigned Conditional Allowances sold at auction
- Revenue received by CO<sub>2</sub> Budget Sources owned by regulated electric utilities flow to rate payers pursuant to State Corporation Commission (SCC) requirements

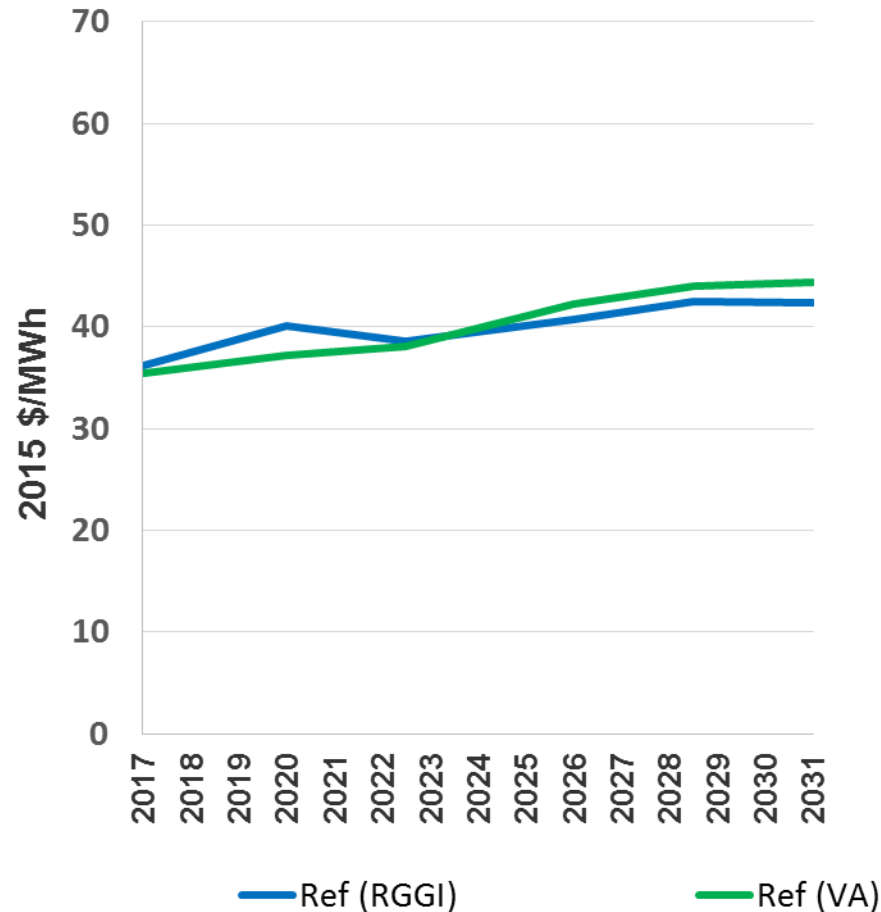
# ICF MODELING

- The Georgetown Climate Center contracted with ICF to analyze the potential impacts of Virginia's participation in RGGI
- Virginia DEQ specified the assumptions, sources and scenario specifications for the analysis
- VA Reference Cases
  - One uses assumptions provided by VA DEQ
  - One uses same assumptions used by RGGI states
- VA Policy Scenarios
  - Modeled a cap in VA similar to RGGI and linked to RGGI, against both reference cases



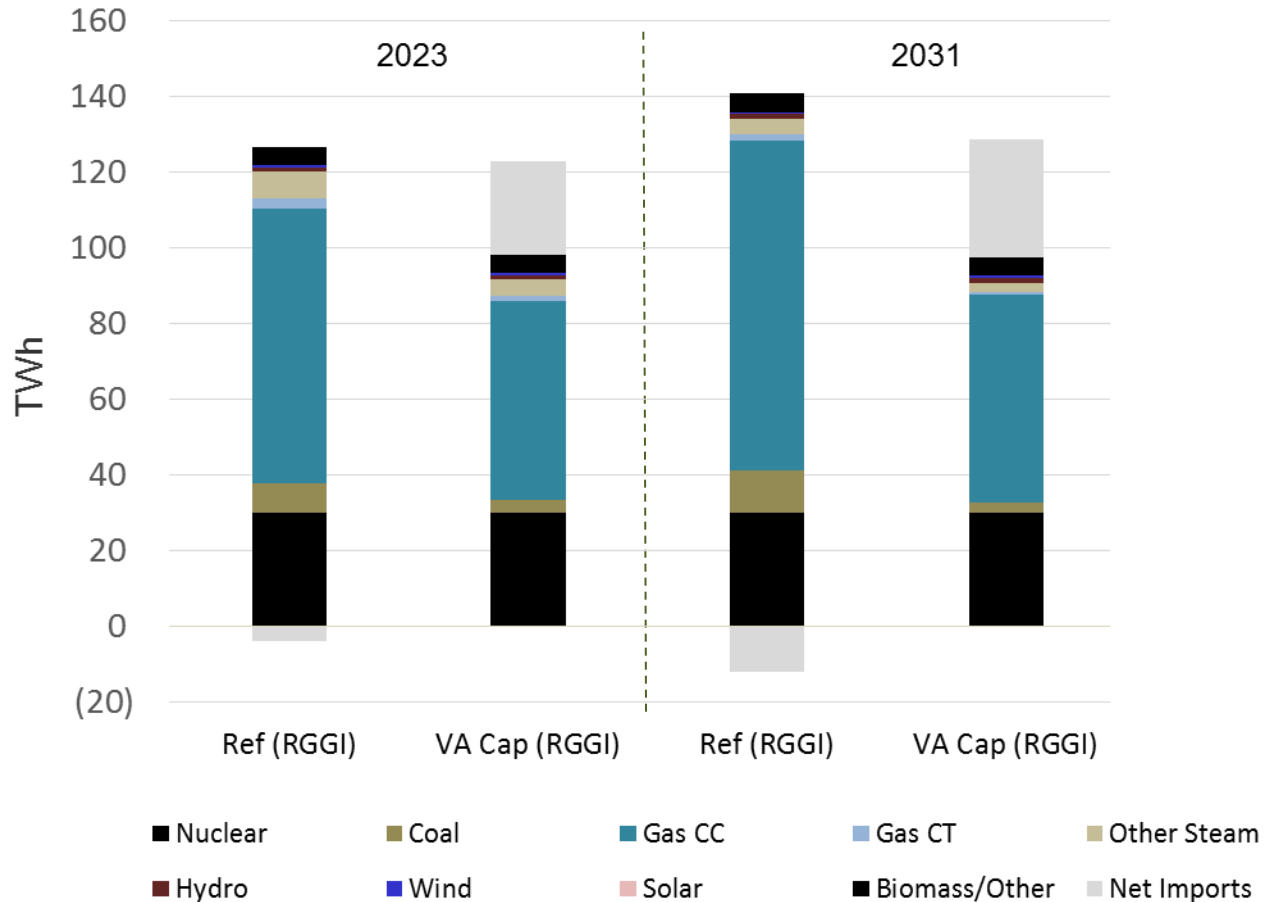
# VA Firm Power Prices

- The chart shows the projected VA average annual firm (energy + capacity) prices in constant 2015 dollars.



# VA Generation Mix

- The chart shows generation by type and net imports for VA.



# Virginia IPM Scenario Customer Bill Analysis

November 9, 2017

**Average Electric Monthly Bills (\$2015)  
Residential Customers  
RGGI Assumptions**



**Residential Average Bills  
Policy Scenario & Reference Case with RGGI Assumptions (2020-2031)**

# Commercial Average Bills Policy Scenario & Reference Case with RGGI Assumptions (2020-2031)

## Average Electric Monthly Bills (\$2015) Commercial Customers RGGI Assumptions



# Industrial Average Bills

## Policy Scenario & Reference Case with RGGI Assumptions (2020-2031)

### Average Electric Monthly Bills (\$2015)

#### Industrial Customers

#### RGGI Assumptions



# Virginia Average Bill Impacts Per Customer Class IPM Scenario Summary Comparison RGGI Assumptions / 2015 \$

	<u>Reference Case</u>	<u>Policy Case</u>	<u>% Difference</u>
<b>2020</b>			
Residential	\$152.97	\$152.51	- 0.3%
Commercial	\$882.35	\$878.53	-0.4%
Industrial	\$29,913.65	\$29,739.43	-0.6%
<b>2031</b>			
Residential	\$215.14	\$216.77	0.8%
Commercial	\$1,185.85	\$1,199.03	1.1%
Industrial	\$38,923.66	\$39,438.56	1.3%
<b>Averaged 2017-2031</b>			
Residential	\$181.42	\$181.61	0.7%
Commercial	\$1,019.44	\$1,029.03	0.9%
Industrial	\$33,934.27	\$34,304.47	0.1.1%

# REGULATORY PROCESS

## WHAT'S NEXT

- Proposed regulation approved by the SAPCB for public comment
- Executive review:
  - Department of Planning and Budget
  - Secretary of Natural Resources
  - Governor
- Publication in Virginia Register
  - Commences a 60-day public comment period
  - At least one public hearing
- Final stage