

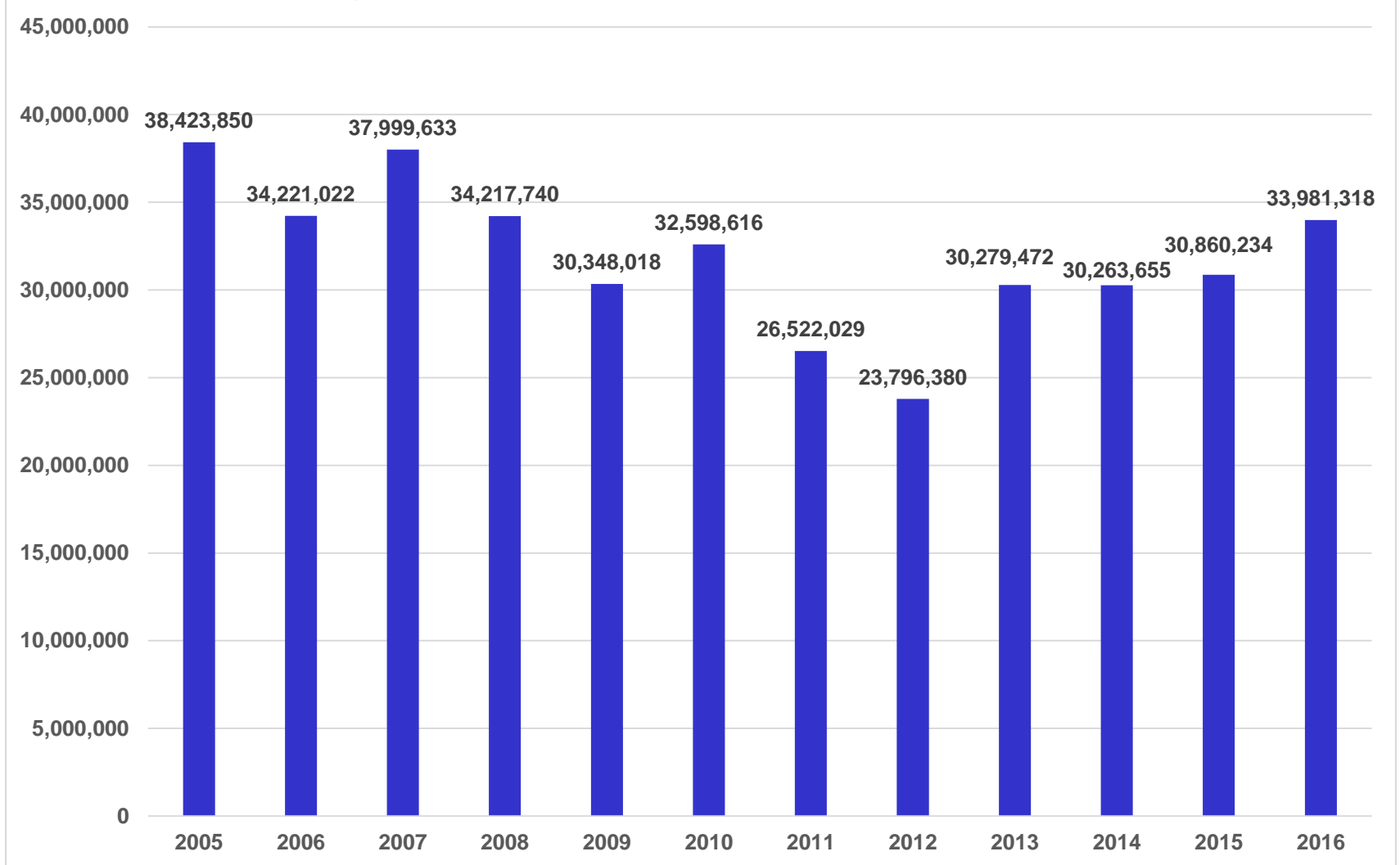
# **Virginia Carbon Dioxide Trading Program**

## **Proposed Regulation**

# Virginia Electricity Generation Profile

- Historically a coal generation state *[over 50% in 2000]*
- This has changed over the last ten years
- Significant decrease in coal generation
- Significant growth in natural gas capacity and generation (now #1 generation source)
- One constant - two nuclear facilities
- Other generation sources – mostly biomass and Hydroelectric
- Renewables – small but growing generation source
- Also has been an importer of power *[40% in 2010/11, now down to 20-25%]*

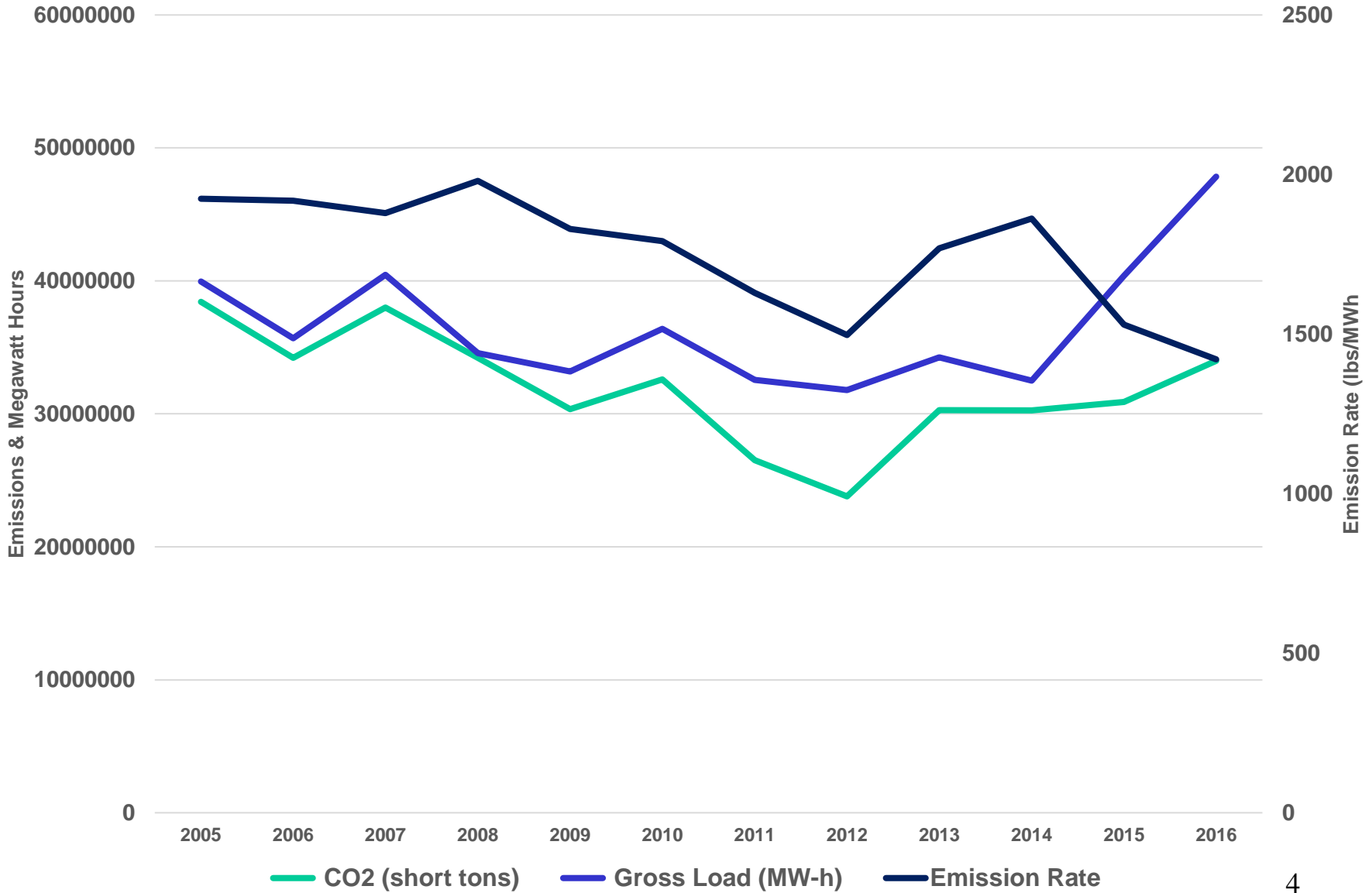
# Virginia Power Plant CO2 Emission Trends



Source: EPA Air Markets Program Data (AMPD)



# VIRGINIA POWER SECTOR TRENDS



# Regulatory Background

- **EPA Clean Power Plan**
  - Stayed by the Supreme Court in 2016
  - EPA proposed repeal of the CPP in October
  - More limited replacement plan is expected
- **Governor's Executive Order 57 (June 2016)**
  - Cabinet level workgroup to evaluate & recommend power sector CO<sub>2</sub> reduction strategies
  - 6 meetings, over 40 presentation, >8,000 comments
  - Develop regulation to limit CO<sub>2</sub> emissions from power plants
  - Explore opportunities to link to existing trading programs such as the Regional Greenhouse Gas Initiative (RGGI)

# Regulatory Background

- Attorney General - State Air Board had existing authority to regulate GHG emissions & establish a trading program
- **Governor's Executive Directive 11 (May 2017)**
  - Prepare carbon cap and trade rule for fossil-fuel electric power generating facilities
  - Trading ready to take to the air board before the end of the year
  - Using existing statutory authority
  - Linkable to the RGGI program with similar goals

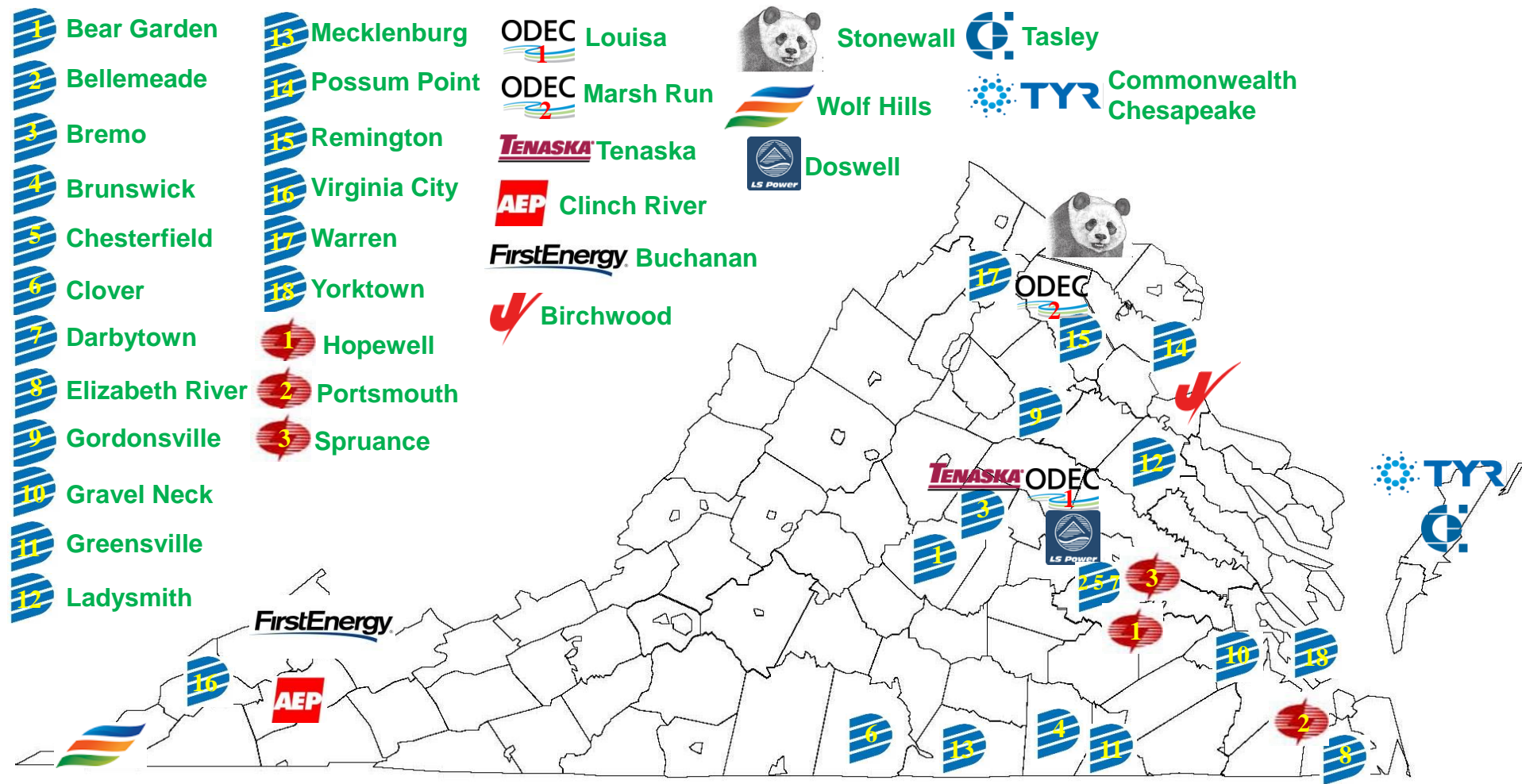
# Proposed Regulation

- CO2 cap-and trade program for power plants
- Based on the latest RGGI model rule
- Modified to meet Virginia specific needs & authorities
- Similar in many ways to other criteria pollutant trading programs
- Designed to meet the goal to reduce CO2 emissions by 30% by 2030

# Regulated Sources

- Fossil fuel-fired electric generating units
  - 25 Megawatts (MW) and greater
  - Fossil fuel 10% or greater of total fuel mix
  - Covers both existing & new units
- Industrial units exempted
  - Owned by and located at an industrial facility
  - Used to provide power/heat to facility with limited excess generation
- Sources issued “allowances” to cover emissions & demonstrate compliance



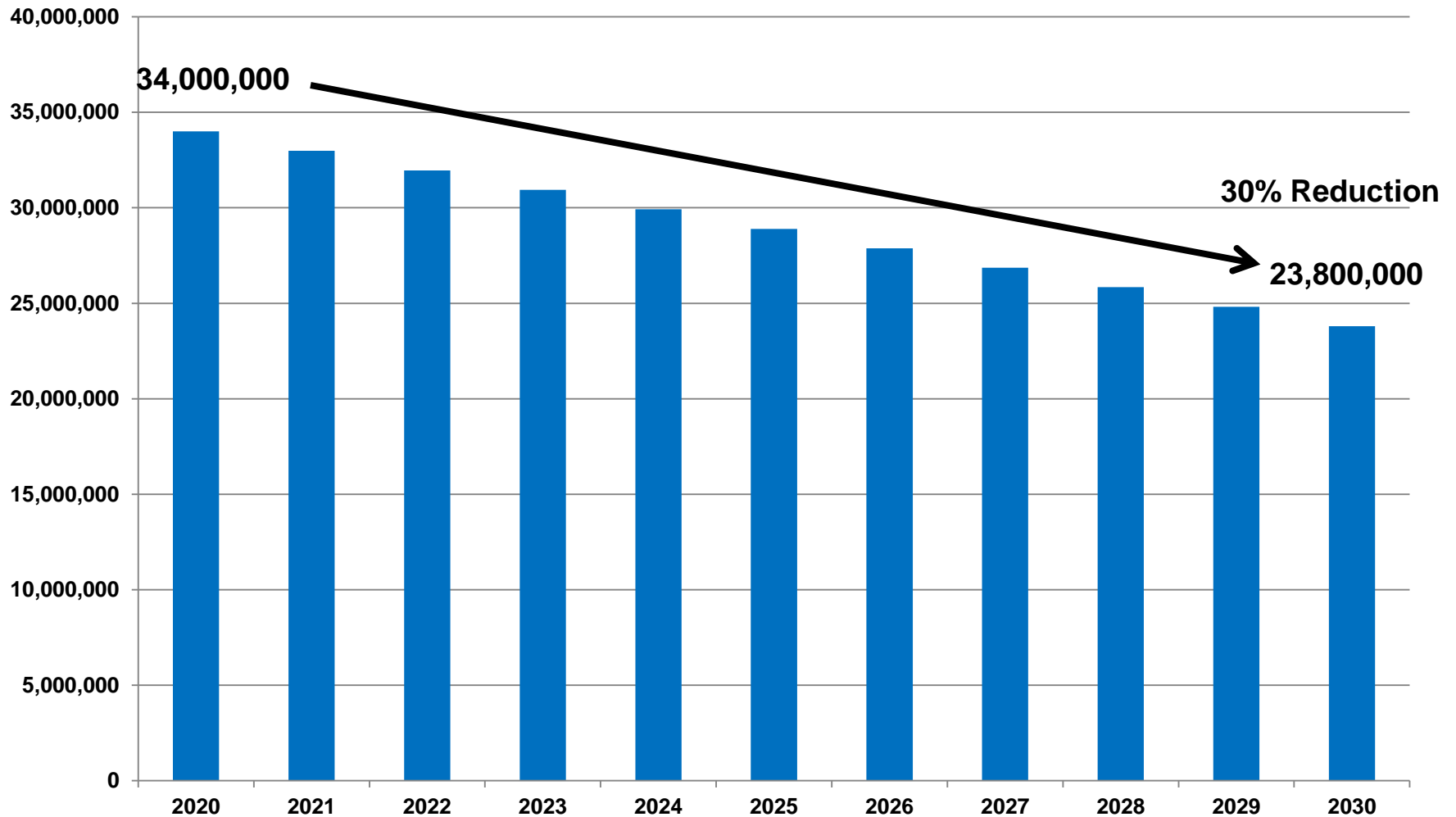


## Fossil fuel-fired electric generating units with $\geq 25$ MW capacity

# Trading Rule Emissions Budget

- CO<sub>2</sub> Base Budget
  - Begins in 2020 with 33 *OR* 34 million allowances
  - Base budget then declines 3% per year to 2030
- Most of the allowances (95%) allocated to regulated Sources as "Conditional Allowances"
- Allowance allocations to Sources based on "output updating" method
  - Megawatt hours (MWh) of generation averaged over 3 years
  - Allocation updating will capture new and retired sources
  - Updated in 2021 and every three years thereafter
- Remaining allowances (5%) allocated to support electricity demand reduction strategies

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



# CONSIGNMENT AUCTION

- All other RGGI states mainly directly auction their allowances
- Consignment auction approach included in the VA proposal
- This meets RGGI need for transparent allowance price discovery & is allowed under current statutory authority
- Sources cannot use conditional allowances for compliance
- They must instead be consigned by the sources to the RGGI quarterly auctions
- Auction proceeds are returned to the sources
- Sources must then buy the allowances needed for compliance
- Thus the proceeds received by sources will at least partially mitigate their compliance costs

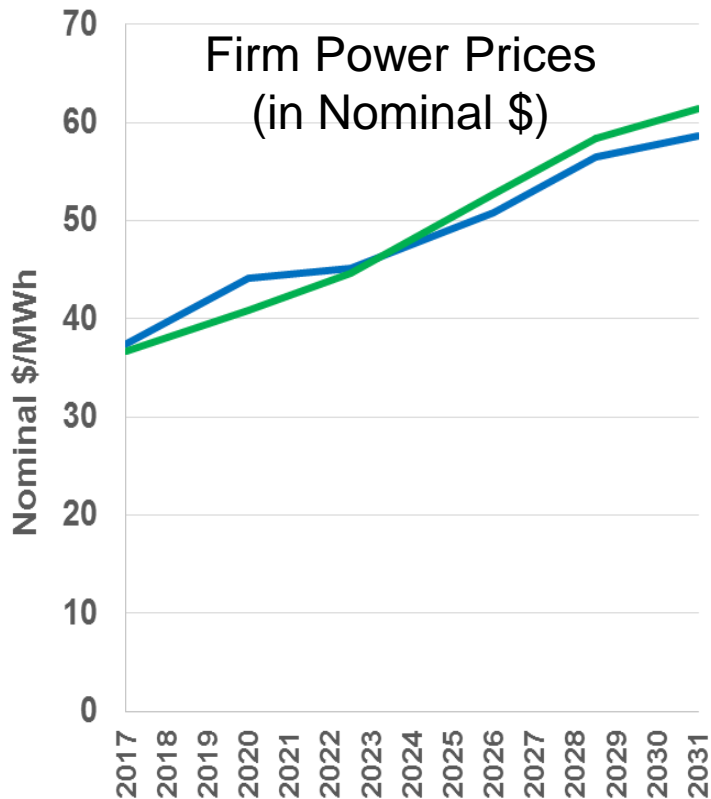
# RGGI Auction Stabilization Features

- Cost Containment Reserve (CCR) – Allowance reserve to add to the market when prices exceed a set trigger price
- Emission Containment Reserve (ECR) – Allowances to remove from the market when prices indicate an overabundance of available allowances
- Bank Adjustments – Specific withholding of allowances to address an excess of banked emissions
- Allowance Floor Price – Point where allowances are not sold at auction based on a set trigger price
- All these auction features are meant to address the costs and emission reduction goals of the RGGI program

# COMPLIANCE

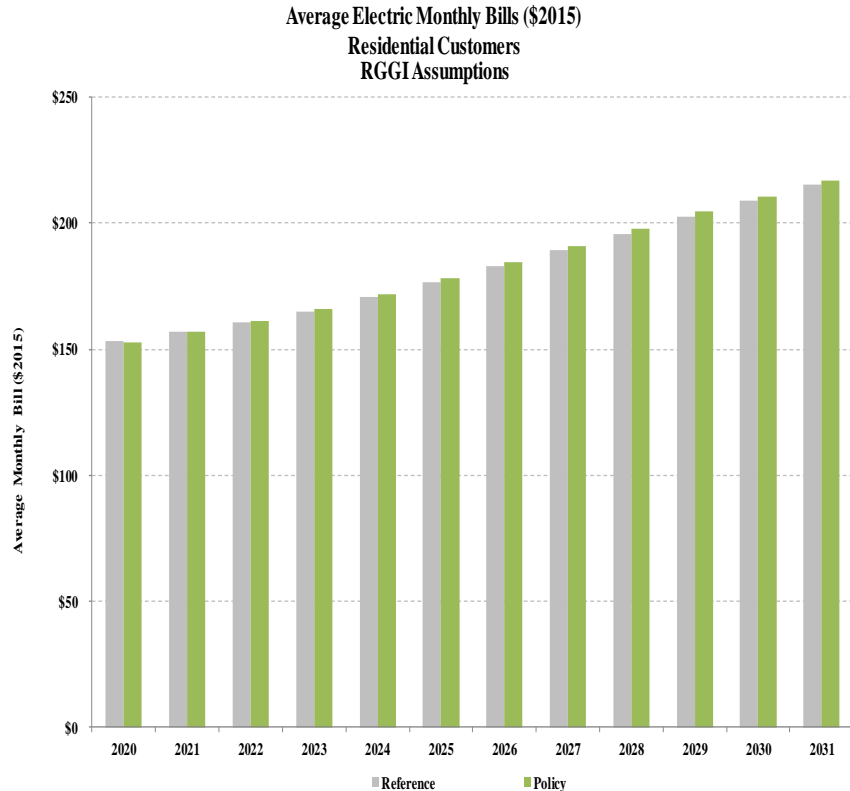
- Must hold allowances for CO<sub>2</sub> emissions during "Control Periods"
- Three Year Control Periods beginning in 2021
  - *BUT* must hold at least 50% of required allowances in each of the two initial years of a control period
  - Banking of allowances permitted, but can't "borrow" against future allowances
- 2020 is a Single Year Control Period
  - Necessary to coordinate with RGGI control periods
- Penalties for non-compliance (3 for 1 allowance)

# Power Sector Modeling



- Power sector modeling performed using IPM
- Modeled the impact of VA joining RGGI
- Ran two different scenarios (RGGI & VA specific)
- Baseline (BAU) & policy runs
- Results indicated cost increases of joining RGGI in the 3 to 8% range

# Electric Bills Impact Analysis



- Performed electric bills impact analysis on VA joining RGGI as well
- Ran for both IPM modeling scenarios (RGGI/VA)
- Determined bill impacts for three sectors (residential, commercial, and industrial)
- Estimated average bill increases from 0.3 to 1.1%



## Next Steps

- Proposed regulation is currently under executive review
- Expect publication in the VA Register in early Jan 2018
- Followed by a public comment period and public hearings
- For much more information:

<http://www.deq.virginia.gov/Programs/Air/GreenhouseGasPlan.aspx>