

RGGI 101

Webinar for NEPOOL Participants

IMAPP Proceeding



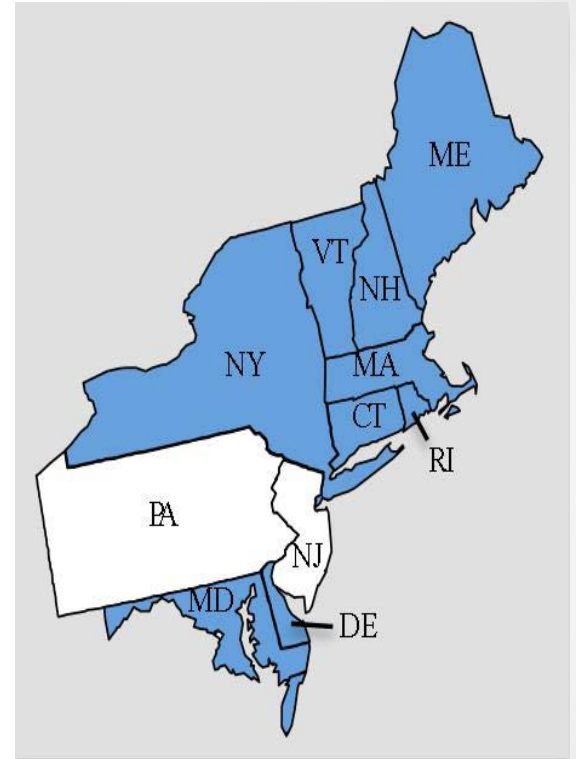
August 19, 2016

Why Market-Based Multi-State Cap?

- Proven model (see EPA webpage “What is emissions trading?” <https://www.epa.gov/emissions-trading-resources/what-emissions-trading> including video - “Emissions Trading 101”)
- Cost-effective
- Limit on emissions
- Provides economic benefits
- Closely aligns with the regional nature of the electricity grid
- Fosters regional cooperation
- Simple, transparent, and verifiable tracking and compliance system

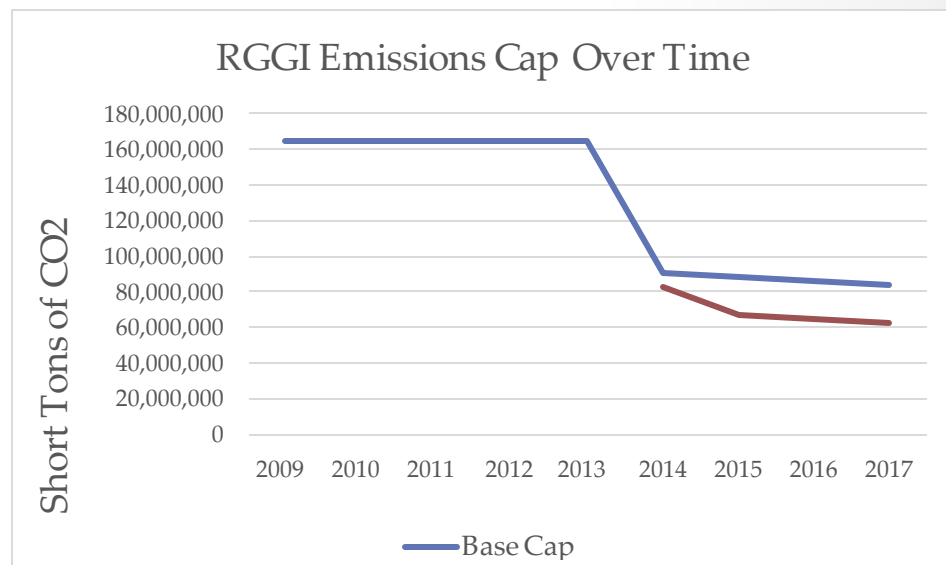
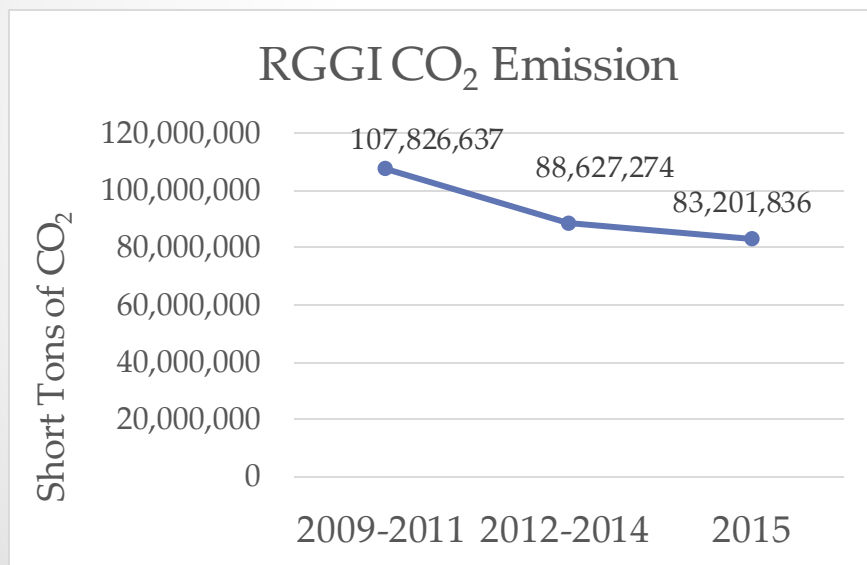
RGGI Program Scope (see www.rggi.org for more details)

- Nine states participating in RGGI, spanning three RTOs
- States collectively establish a regional budget (“cap”) on CO2 emissions from power plants
 - Covers new and existing fossil fuel-fired generators with capacity 25MW and above
 - Covered power plants in each state must hold allowances equal to their CO2 emissions during a three-year control period
 - Three-year control periods starting with 2009-2011, currently in third control period (2015-2017)
- Allowances—up to the amount of the cap—are distributed by the states, primarily through quarterly allowance auctions
- Proceeds from the sale of allowances are strategically invested by each state in consumer benefit programs
- RGGI maintains an emissions and allowance tracking system (RGGI COATS) to track RGGI market & program data



RGGI Emissions Cap

- CO₂ Cap: 86.5 million short tons in 2016, and declines 2.5 percent each year until 2020
 - Two interim adjustments to the cap (2014-2020) to account for banked allowances accrued prior to 2014
 - 2016 RGGI adjusted cap is 64.6 million short tons
 - Cost containment reserve (CCR) of 10 million allowances triggered if prices rise above certain levels



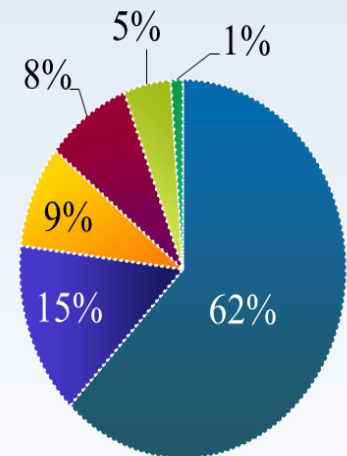
Distribution of Allowances

- In original RGGI MOU, states aspired to auction at least 25% of their allowances.
- Today, more than 90% of RGGI allowances are distributed through auction.
- States offer their allowances for sale in one regional auction held on quarterly basis; single clearing price
 - Prospective bidders file qualification application and notices of intent to bid in accordance with auction notices
 - Auctions are open to all qualified applicants (including non-compliance entities)
 - CO₂ allowances are fungible across the multi-state region: CO₂ allowances issued by any participating state can be used for compliance in any of the participating states
- 32 successful auctions since September 2008; over 830 million CO₂ allowances sold
- Market monitor has identified no evidence of anti-competitive conduct
- CO₂ allowance auction clearing prices have ranged from \$1.86 to \$7.50.
- Allowances may also be purchased on the secondary market

Reinvestment of Proceeds

- More than \$2.4 billion in net proceeds since 2008
- Each individual state determines how to distribute proceeds from their portion of allowance sales
- Reinvestment of proceeds helps to mitigate the impact to consumers of RGGI compliance requirements in energy market prices
 - Analysis Group (2015): \$1.3 billion in net economic benefit, \$460 million in energy bill savings from RGGI's second three years
 - Analysis Group (2012): \$1.6 billion in net economic benefit, \$1.3 billion in energy bill savings from RGGI's first three years
- Energy efficiency investments a significant driver of net economic benefits
 - Reduced individual consumption lowers bills
 - Reduced load puts downward pressure on overall prices

Chart 1: RGGI Investments by Category
Cumulative-to-Date (2008-2013)



- Energy Efficiency
- Direct Bill Assistance
- GHG Abatement
- Clean & Renewable Energy
- Administration
- RGGI, Inc.

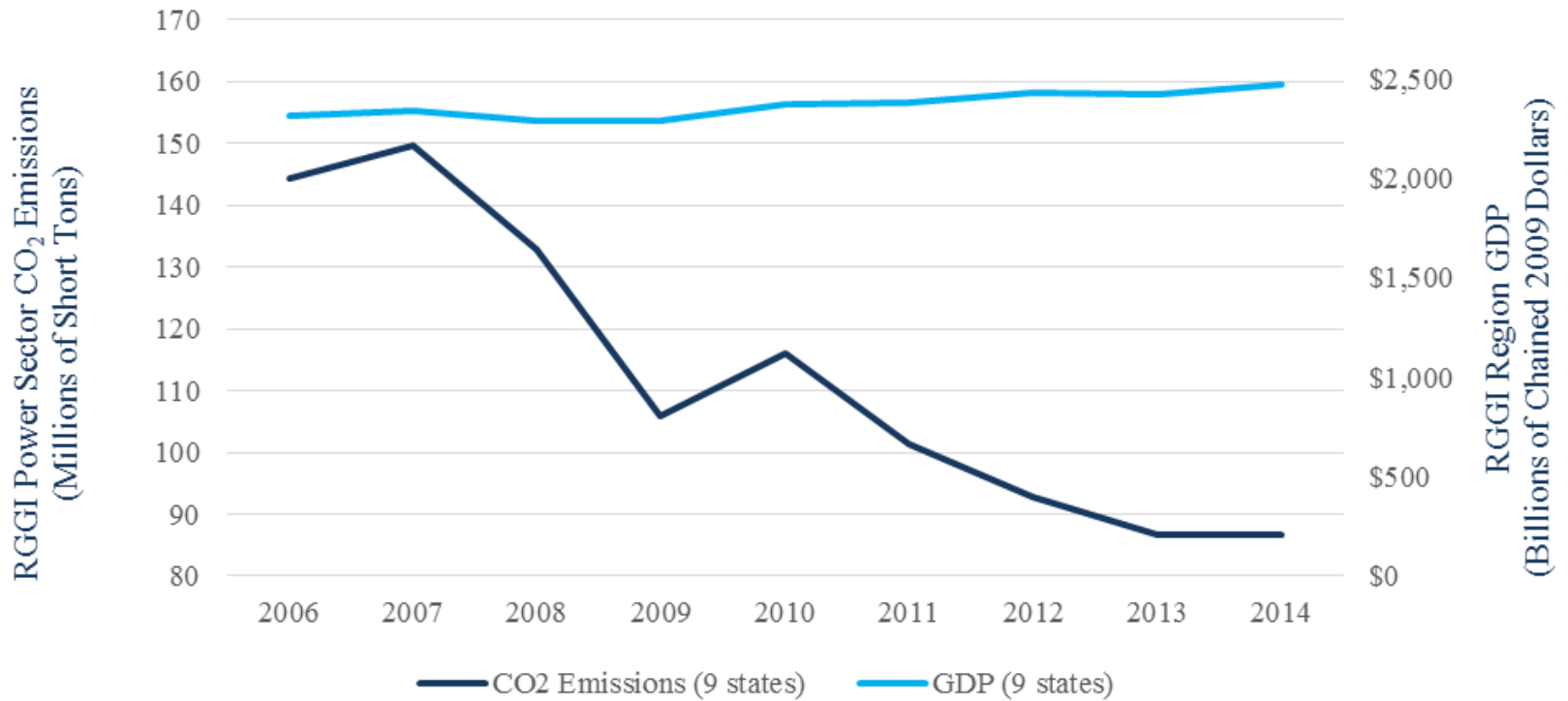
Flexibility Mechanisms

RGGI program incorporates various cost containment/flexibility mechanisms to limit volatility and compliance cost increases

- **Multi-year compliance period:** Three year period to acquire allowances, to reduce uncertainty and exposure to price volatility
- **Banking:** Compliance entities may use allowances purchased today to cover emissions in the future
 - Limits uncertainty related to future compliance costs
 - Borrowing not allowed in RGGI
- **Offsets:** RGGI allows for limited use of offsets (emissions reductions from outside the electricity sector)
 - Limited access to these (offset) allowances increases supply and mitigates price
 - Compliance entities may utilize offsets for up to 3.3% of their emissions
 - In practice, unused: offset prices > than RGGI allowance prices
- **Cost Containment Reserve (CCR)**
 - Fixed supply of allowances available if auction price exceed certain price level (\$4 in 2014, \$6 in 2015, \$8 in 2016, \$10 in 2017 and rising by 2.5% every year after thereafter
 - The CCR is replenished at the start of every calendar year (more is not added if not triggered). The CCR was 5 million tons in 2014, and is 10 million every year thereafter

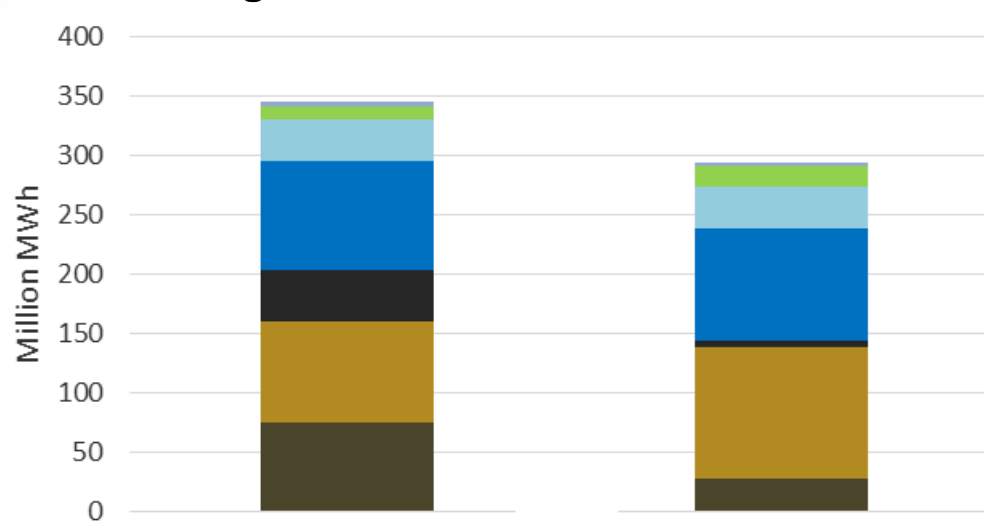
RGGI Experience: Emissions Reductions

RGGI Power Sector Pollution Reductions



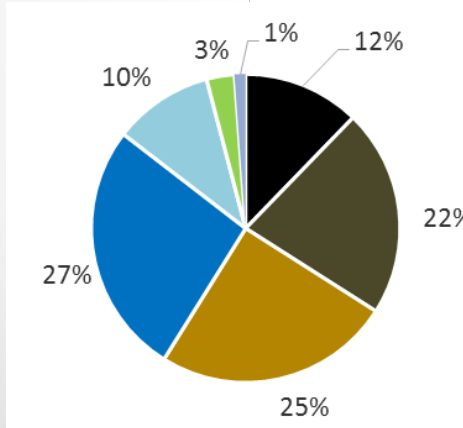
RGGI Experience: Total Generation Mix

Total generation mix in RGGI states

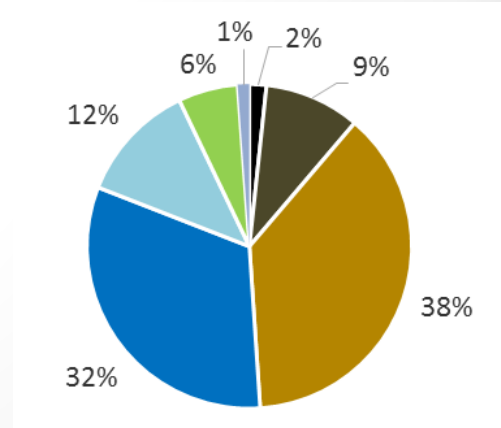


2005

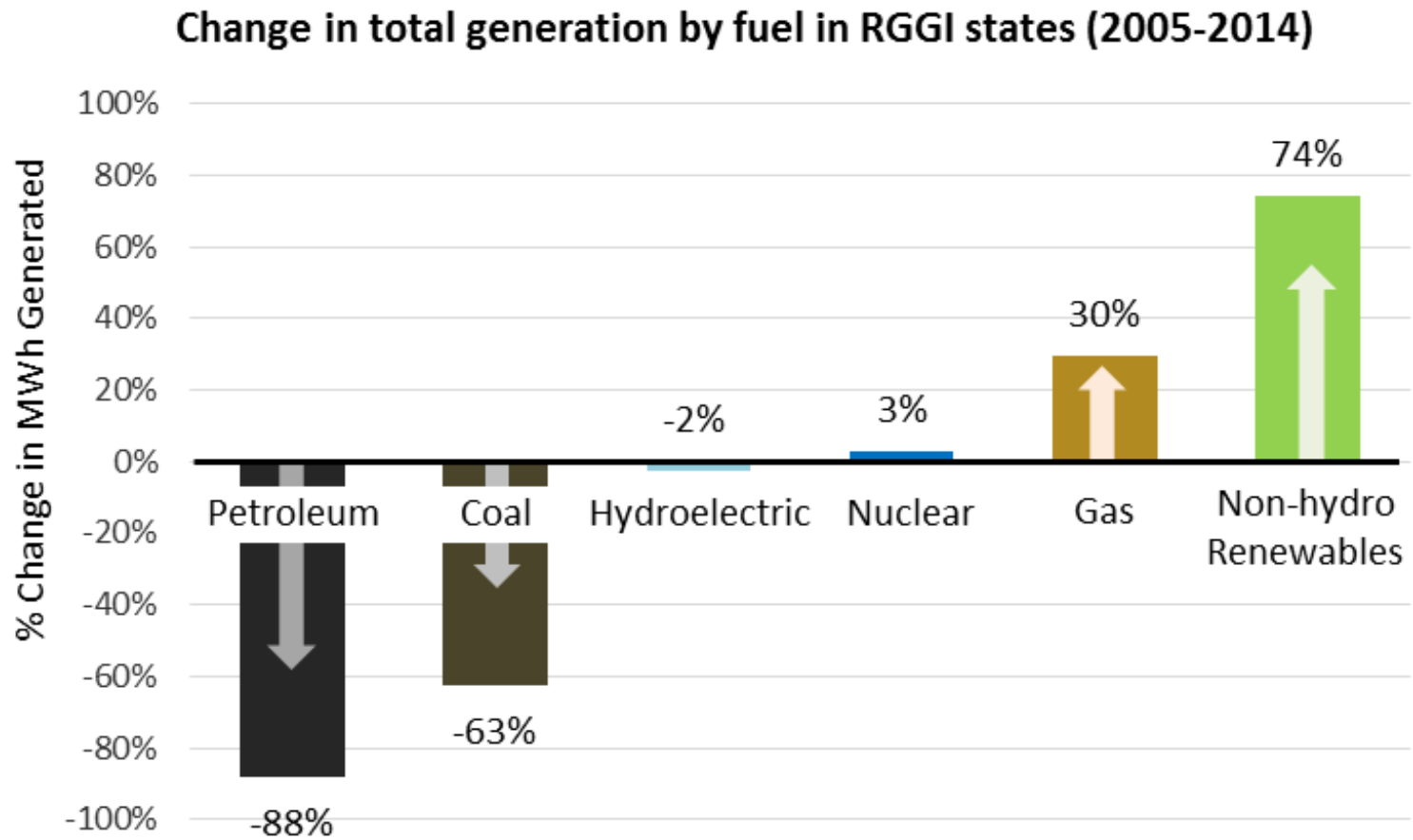
2014



- Coal
- Gas
- Petroleum
- Nuclear
- Hydro
- Renewables
- Other

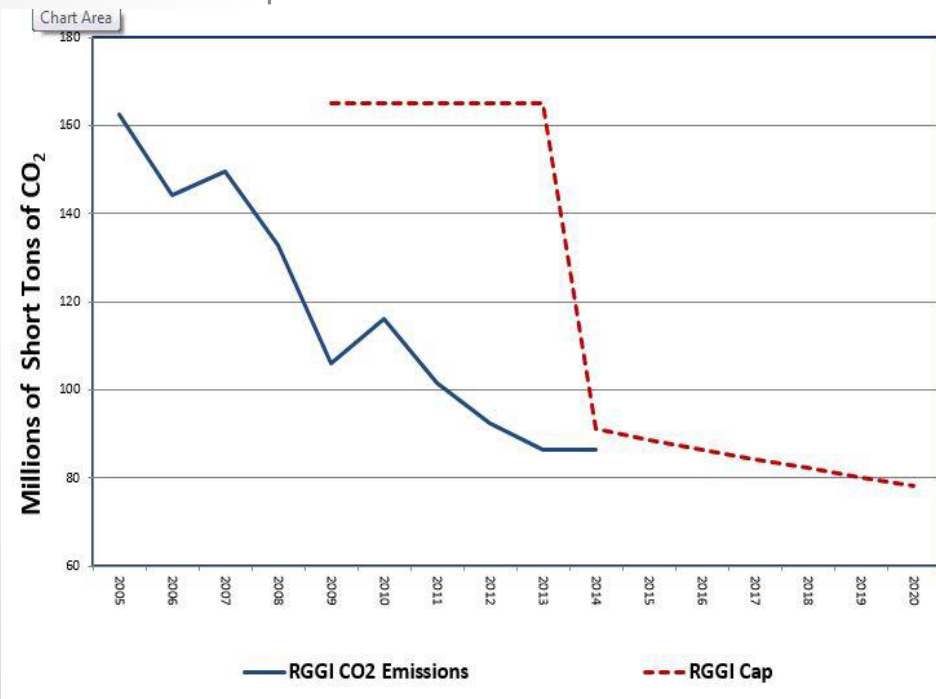


RGGI Experience: Total Generation Change

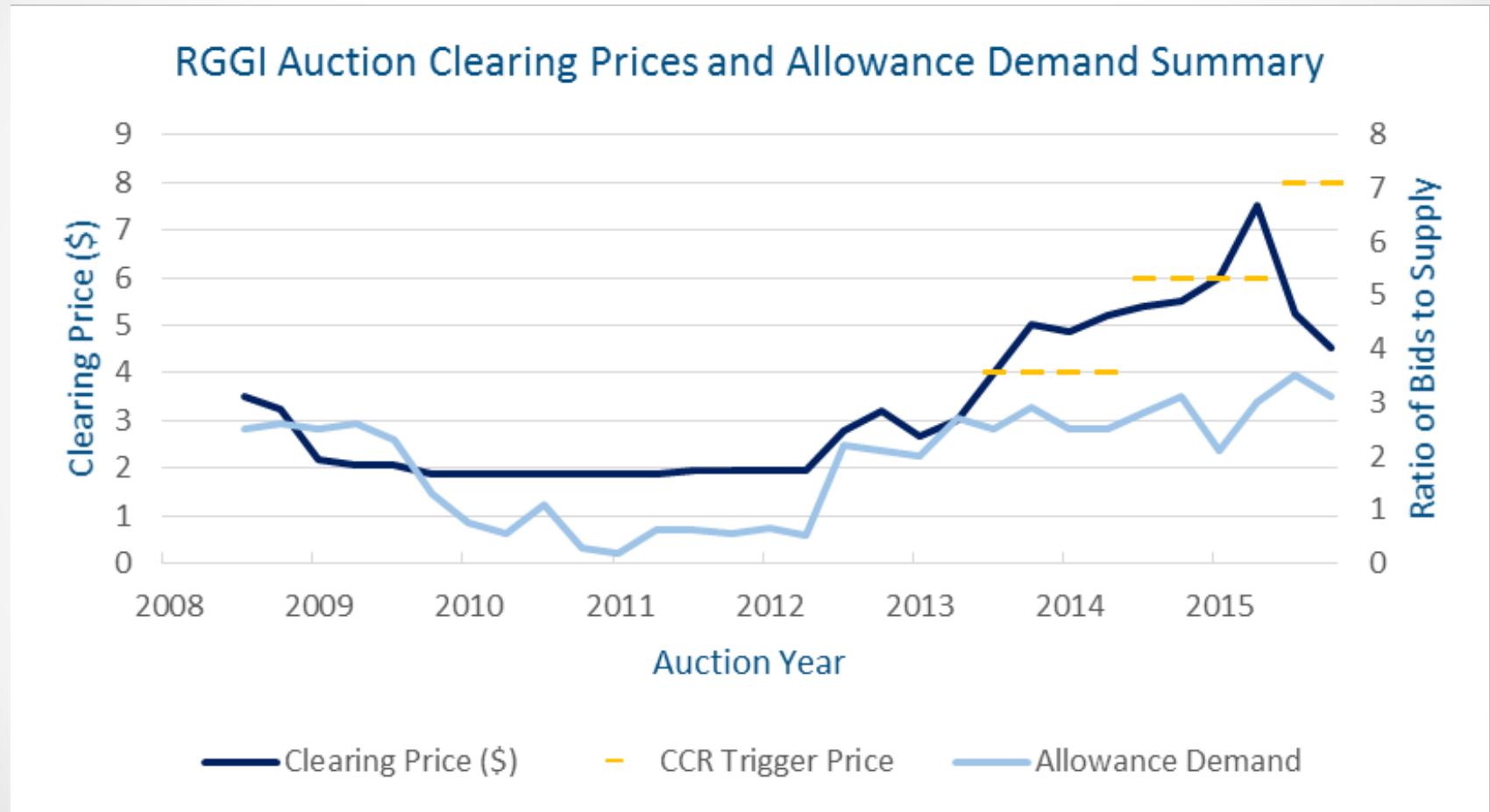


RGGI 2012 Program Review

- Regular program review has been key to RGGI's success
 - Improvements implemented in previous (2012) program review included 45% reduction in the RGGI cap, interim cap adjustments, the creation of the Cost Containment Reserve (CCR), and added requirement that compliance entities hold allowances for 50% of annual emission



RGGI Auction Clearing Prices Summary



RGGI 2016 Program Review

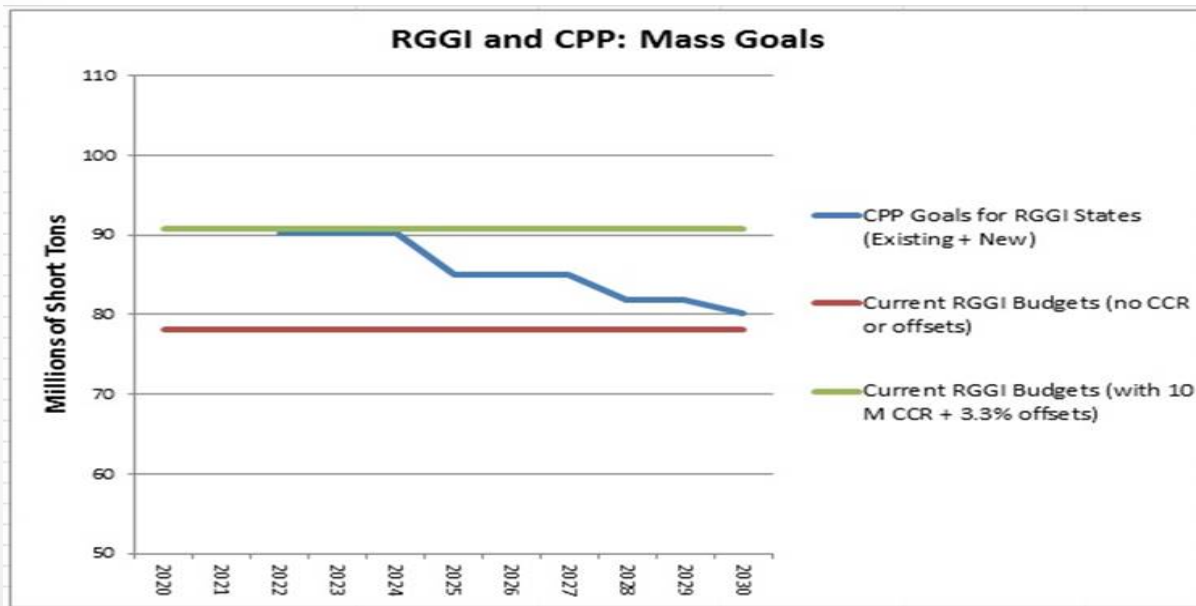
- 2016 Program Review
 - RGGI, Inc., on behalf of the RGGI states, is facilitating public meetings to gather stakeholder input for the states' 2016 Program Review
 - First regional stakeholder meeting was held in November 2015
 - Four stakeholder meetings held, with more tentatively planned
 - States anticipate that any proposed program changes may be implemented starting in the fourth control period (2018-2020)
 - ISO-NE Environmental Advisory Group has been tracking 2016 Program Review and GHG Update slides are available at <http://www.iso-ne.com/committees/planning/environmental-advisory>

RGGI 2016 Program Review

- RGGI states have identified several key items for discussion with stakeholders
- These include but are not limited to:
 - CO₂ emissions reductions
 - Flexibility mechanisms
 - Offsets
 - Cost Containment Reserve
 - Compliance Periods
 - RGGI regulated sources
 - Promoting renewable energy and energy efficiency
 - Improvements to RGGI CO₂ allowance auctions and RGGI COATS (RGGI emission and allowance tracking system)

EPA Clean Power Plan (CPP)

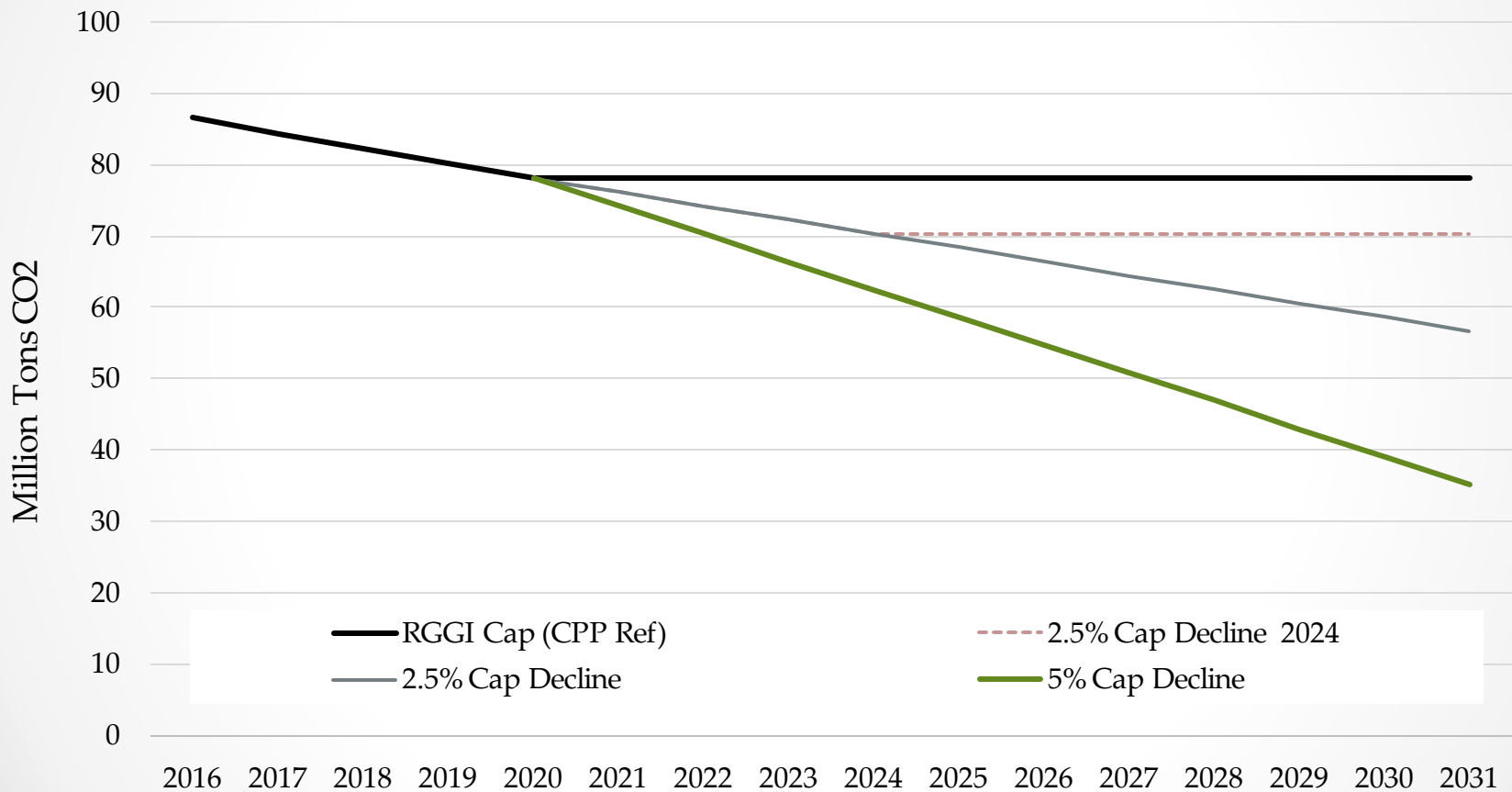
- First-ever national standards that address carbon pollution from existing power plants
- Under the CPP states can choose to use:
 - Performance (national) rate, state blended rate or state mass goal
 - Single-state, multi-state, or trading-ready plans
 - States have option to include mass goal for potential new sources (in addition to existing sources)



IPM Modeling & 2016 Program Review

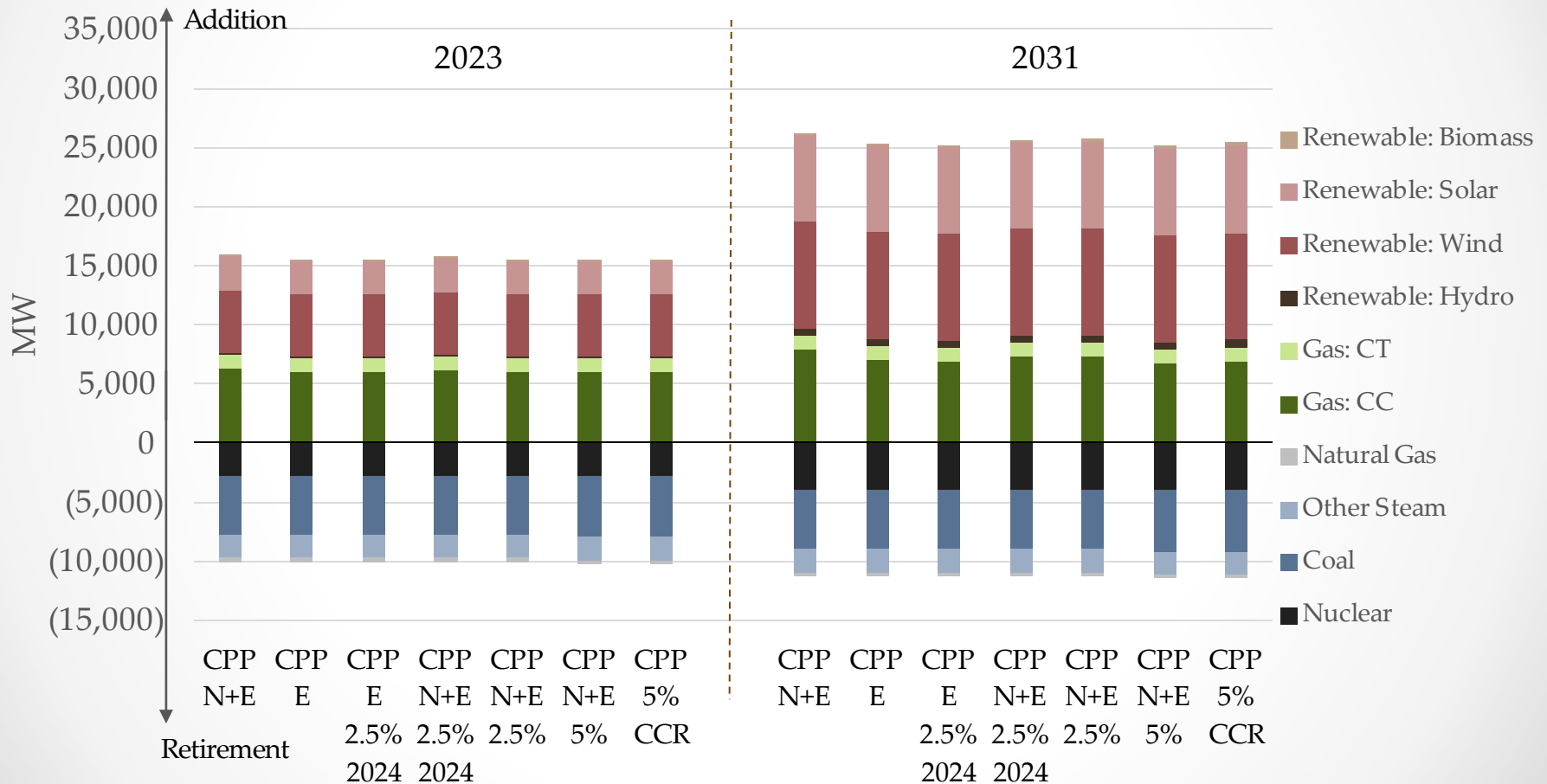
- RGGI States using IPM modeling to inform the future design of RGGI
- Two Reference Cases were prepared
 - Clean Power Plan (CPP) New and Existing (CPP N+E)—Mass-based goals in non-RGGI states for existing sources and new sources complement
 - CPP Existing (CPP E)—Mass-based goals in non-RGGI states for existing sources and information to date on proposed EPA leakage set-aside
- Scenario modeling:
 - Iterative process to analyze potential impacts of changing RGGI design elements and to inform decision making
 - Does not reflect a preference for any specific policy
 - Provides general information on trends, not precise predictions
- Modeling informed by stakeholder comments to date

Modeled RGGI CO₂ Caps



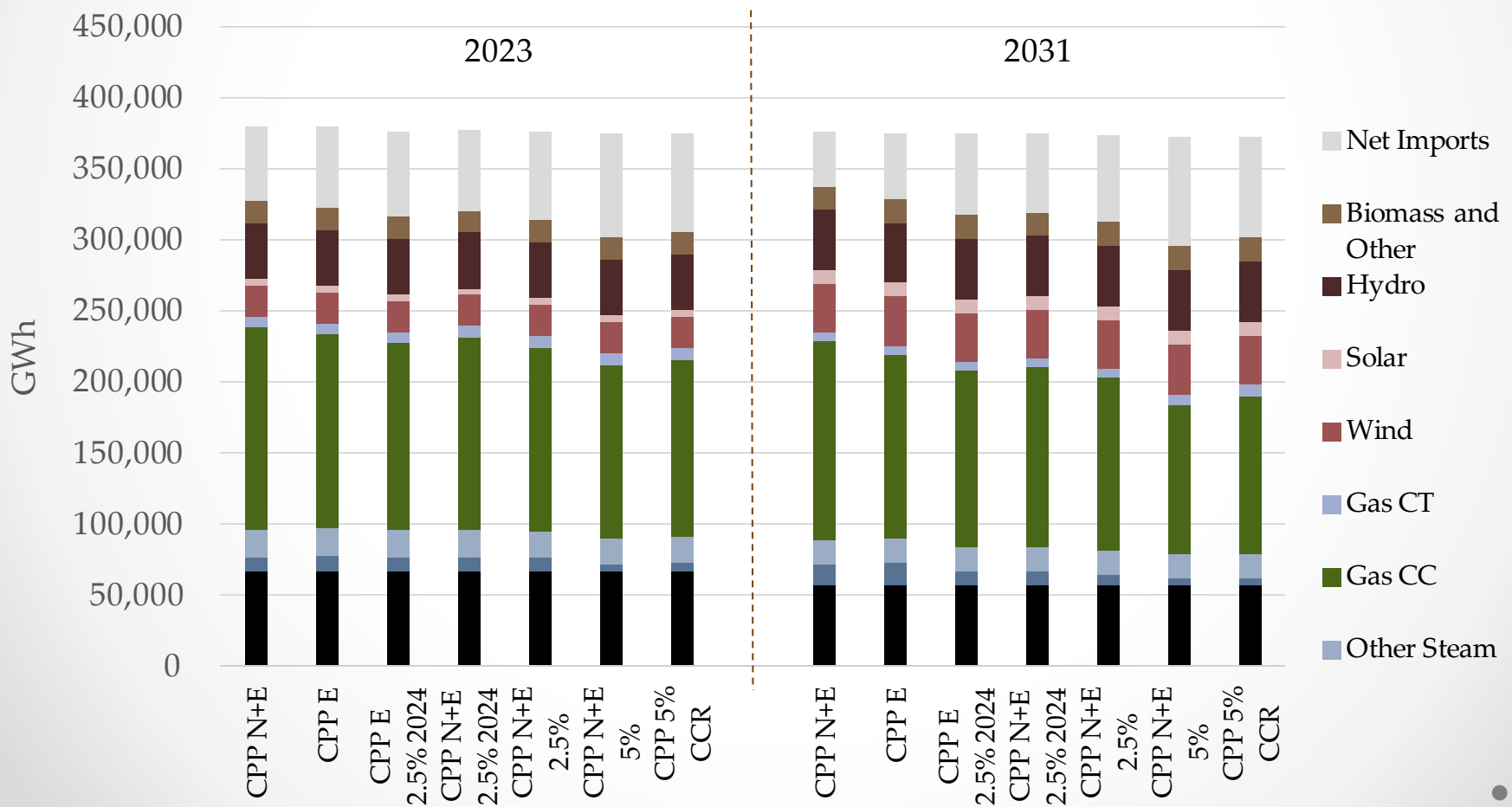
RGGI Cumulative Capacity Additions

- The chart shows the distribution of capacity additions and retirements by capacity type.

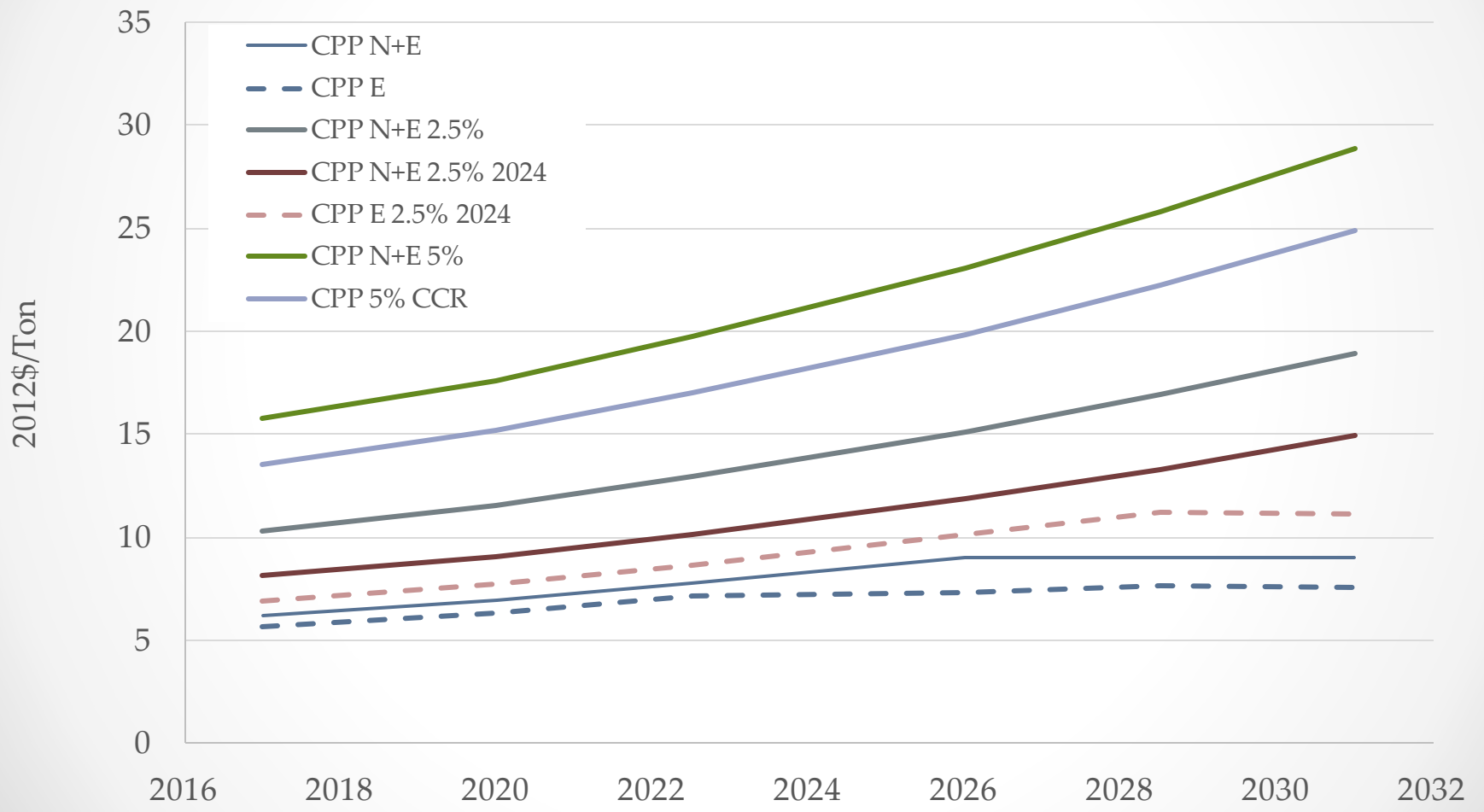


RGGI Generation Mix

- The chart shows generation by type and net imports for the RGGI states.



Projected RGGI Allowance Prices



Projected RGGI Firm Power Prices

