

# THE REGIONAL GREENHOUSE GAS INITIATIVE

An Initiative of the Northeast and Mid-Atlantic States of the U.S.

## RGGI Program Review

Stakeholder Meeting - November 20, 2012

[www.rggi.org](http://www.rggi.org)



# Program Review Status and Stakeholder Meeting Overview

- Agenda
  - Initial results of the 2012 IPM potential scenario modeling
  - First draft of a proposed Model Rule
  - Update on economic analyses of IPM potential scenarios currently underway
- The RGGI states are sharing information as quickly as it becomes available.
- Stakeholder Webinar: November 28<sup>th</sup>, 1:00-3:00 PM ET
  - Review economic analyses of IPM potential scenarios 106\_Cap and 97\_Cap
  - Additional IPM potential scenario results: 101\_Cap and 91\_Cap



## Program Review Schedule

- Comments are requested following today's stakeholder meeting by December 6<sup>th</sup>.
- On December 11<sup>th</sup> and throughout December, the state agencies plan to meet and continue discussion of program review and the Model Rule.
- All stakeholder comments are considered by the states and there will be additional opportunities to provide comments throughout December.
- The final modeling will reflect the proposed changes for the 2012 program review.
- States will begin their individual state rulemaking processes based on the model rule; with updated rules expected to take effect January 1<sup>st</sup>, 2014.



## The Draft Model Rule

- The draft model rule, which will guide the states as they amend their CO<sub>2</sub> Budget Trading Programs, is presented today for stakeholder review.
- Modeling and stakeholder input will inform further state discussion of:
  - Size and structure of the cap
  - How to account for the banked allowances in consideration for a potential cap change
  - The size of and price triggers for the Cost Containment Reserve to be available in addition to the cap
  - The percentage to be required for annual interim compliance
  - Timing of decisions on unsold allowances



## IPM Modeling and the Draft Model Rule

- The IPM modeling uses assumed values for an interim adjustment for banked allowances and the Cost Containment Reserve (see Slides 11-13).
- The actual interim adjustment for banked allowances will be made in 2014 when emissions and the amount of banked allowance are known.
  - The framework for this calculation (methodology and timing) is in the Model Rule language.
- Similarly, the states may decide upon a different size for the CCR or different price trigger values than assumed in the modeling.



# **2012 Proposed IPM Potential Scenarios**

November 20, 2012

# DRAFT RGGI Potential Scenario Analysis

## *Purpose*

- The following slides present projections from the latest 2012 RGGI Reference Case and draft potential scenarios.
- These projections are draft and may change as ICF makes refinements based on state review and stakeholder input.
- This analysis provides information for the overall program review process. The scenario specifications do not reflect a preference for or selection of any specific policy.

## DRAFT RGGI Potential Scenario Analysis

### *Assumptions Development*

- The IPM Reference Case was updated in August 2012 and projected emissions were significantly lower than previous modeling.
  - Cumulatively emissions dropped about 17% from the previous reference case.
  - The 2012 IPM Reference Case emissions at RGGI affected plants are projected to be 91 M tons in 2012.



## 2012 Emissions from Affected Sources (Millions)

- 2012 Q1-Q3 emissions from RGGI COATS
- 2012 Q4 emissions projection based upon RGGI COATS 2011 Q4 emissions

	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Total
Emissions	18	22	31	20 (est.)	<b>91 (est.)</b>

## DRAFT RGGI Potential Scenario Analysis

### *Assumptions Development*

- The IPM potential scenarios released in March 2012, using the 2011 reference case, analyzed three alternative cap levels in 2014: 106 M Tons, 115 M Tons, and 120 M Tons.
- Based on the updated reference case (released August 2012), the states analyzed the March 2012 potential cap scenarios.
- Analysis demonstrated that:
  - The 115 and 120 cap levels and assumptions would result in prices at the reserve price; cumulatively, allowances would exceed emissions because emissions have fallen so significantly.
  - For 106 cap level, analysis indicated need to address the projected private bank of allowances carried into 2014 and beyond (projected year of the cap change); otherwise no cumulative scarcity occurs in the model.
- Current potential scenario modeling with the updated 2012 reference case uses a 106 cap and a 97 cap. Both caps reflect the interim adjustment for banked allowances from 2014-2020 to account for the projected bank.

# DRAFT RGGI Potential Scenario Analysis

## *Scenario Assumptions*

Scenario Name	Cost Containment Reserve	Results of Interim Adjustment for Banked Allowances	2012-2013 Projected Banked Allowances	First Control Period Banked Allowances
<b>2009-2011 9-state Average Emissions</b>  <b>106 Cap</b>	Up to 10 M allowances annually	2014: 88 M Tons 2020: 76 M Tons	68 M allowances	47 M allowances
<b>Projected 2014 Reference Case Emissions</b>  <b>97 Cap</b>	Up to 10 M allowance annually	2014: 80 M Tons 2020: 68 M Tons	68 M allowances	47 M allowances

The modeling assumes that market participants do not bank allowances in 2012. In 2013, the modeling assumes the market is aware of program changes and assumes 100% banking of available allowances.

# DRAFT RGGI Potential Scenario Analysis

## Assumptions Development

### Interim Adjustment for Banked Allowances

- Adjusts the 106 and the 97 caps for the maximum projected 2009-2013 private bank of allowances.
- For the modeling, we assume the projected 2009-2013 private bank of allowances is 115 M.
- 115 M represents an estimated 47 M first control bank and projected bank for 2012 and 2013 (market is made aware of policies in 2013, so there is banking in 2013 but not in 2012).
- 115 M adjustment is spread across 2014-2020.

	2014	2015	2016	2017	2018*	2019	2020
<b>106 Cap</b>	106	103	101	95	95	95	91
<b>Interim Adjustment for Banked Allowances</b>	88	86	84	79	79	79	76
<b>97 Cap</b>	97	95	92	88	88	88	83
<b>Interim Adjustment for Banked Allowances</b>	80	77	75	72	72	72	68

\* The 2018 model run year is representative of 2017-2019. The averaged 2018 input represents potential policy (same as current policy) of a 2.5% per year reduction to the cap.

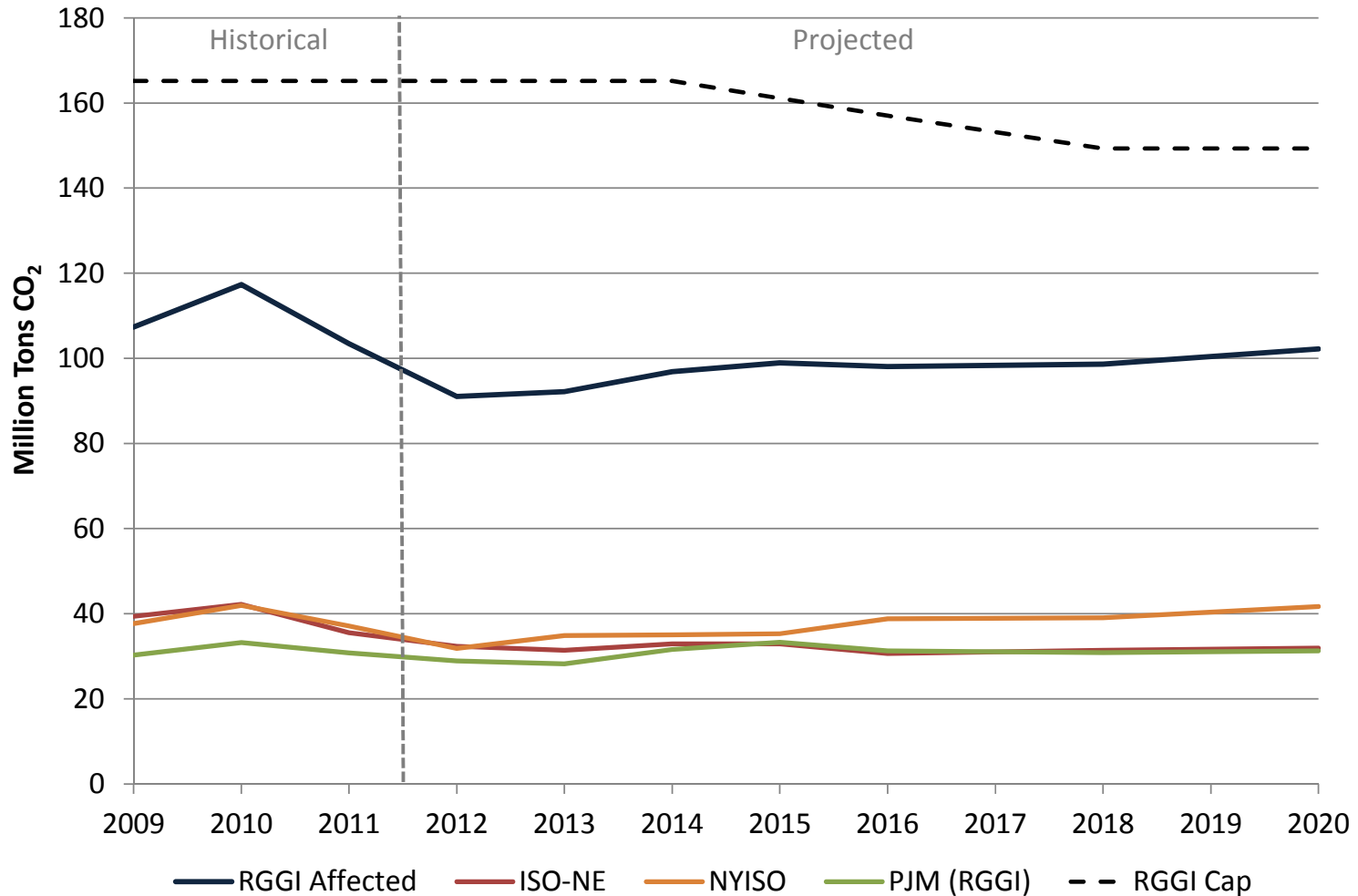
## **DRAFT RGGI Potential Scenario Analysis** *Scenario Assumptions*

- All scenarios include a CCR. The CCR trigger price in 2014 is \$5/ton; 2015-17 is \$7/ton; 2018-20 is \$10/ton. The 10 M Tons available annually in the CCR is in addition to the adjusted caps shown in the previous slide.
- Model run years are 2012, 2013, 2014, 2015, 2016, 2018 (representing 2017-2019), 2020.

# Reference Case Projections

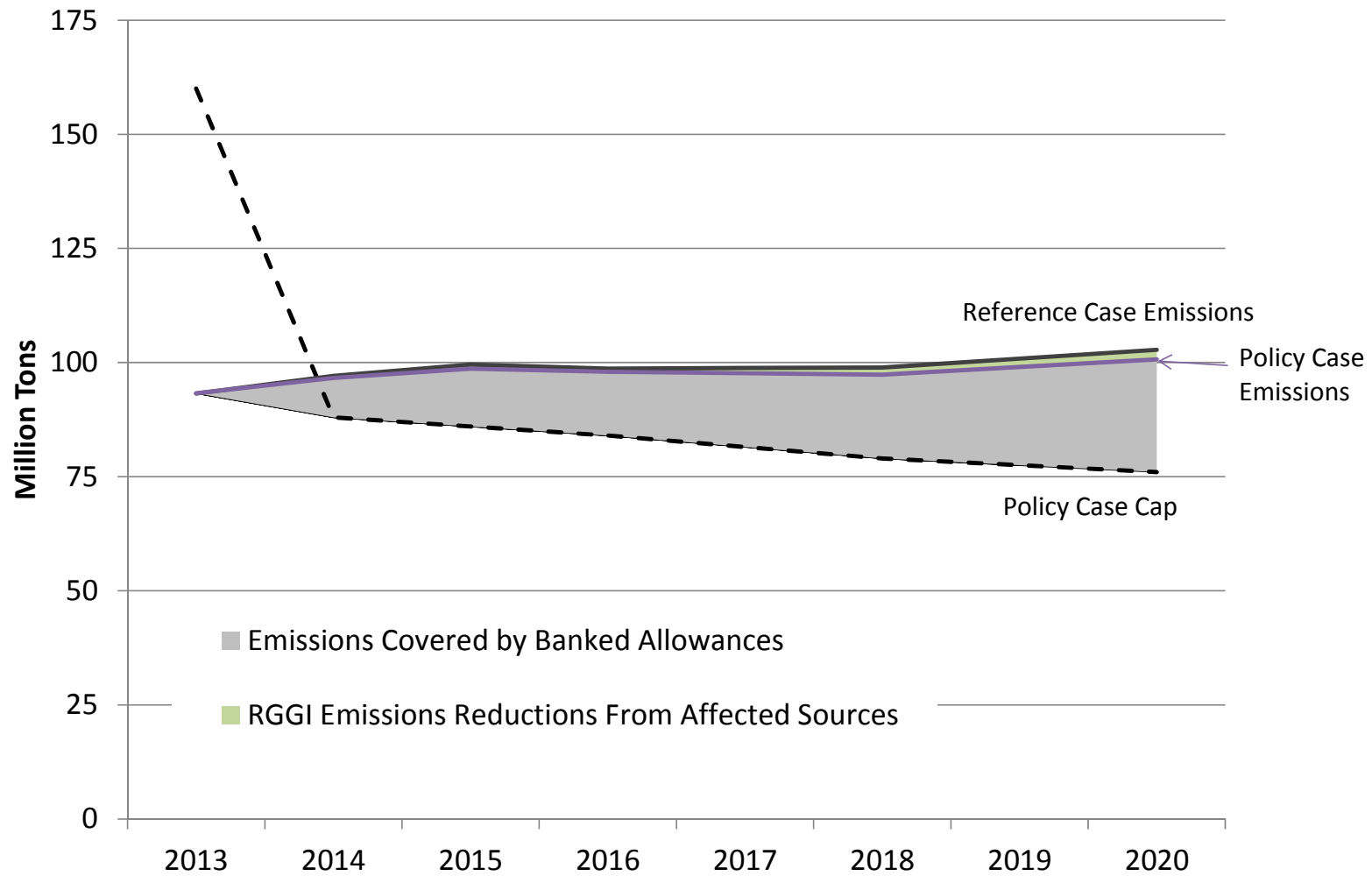
## CO<sub>2</sub> Emissions

- The chart shows historical and projected CO<sub>2</sub> emissions for the RGGI states and by ISO.



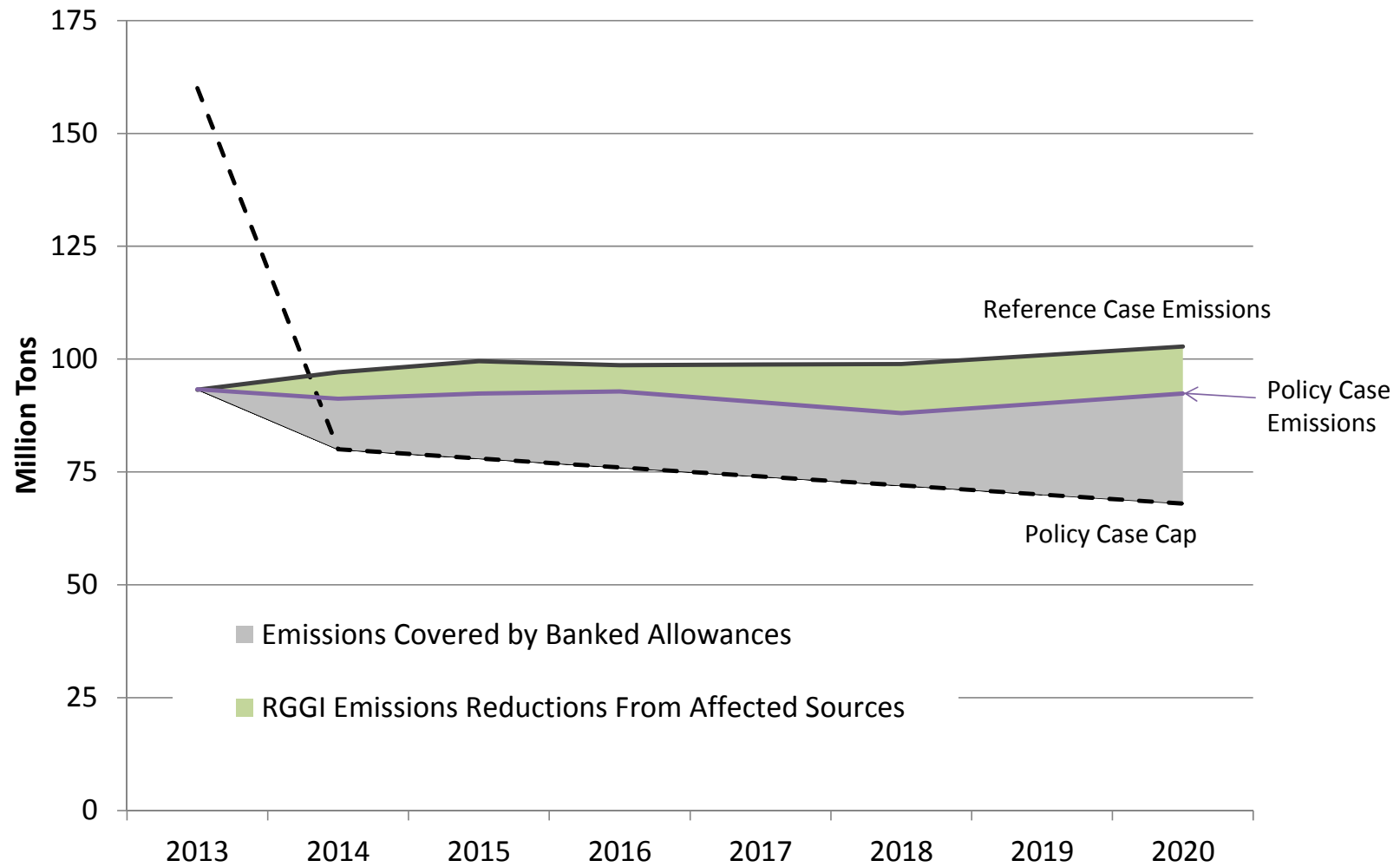
# 2012 RGGI Draft IPM Potential Scenario Results

# Sources of Emission Reductions *106\_Cap*

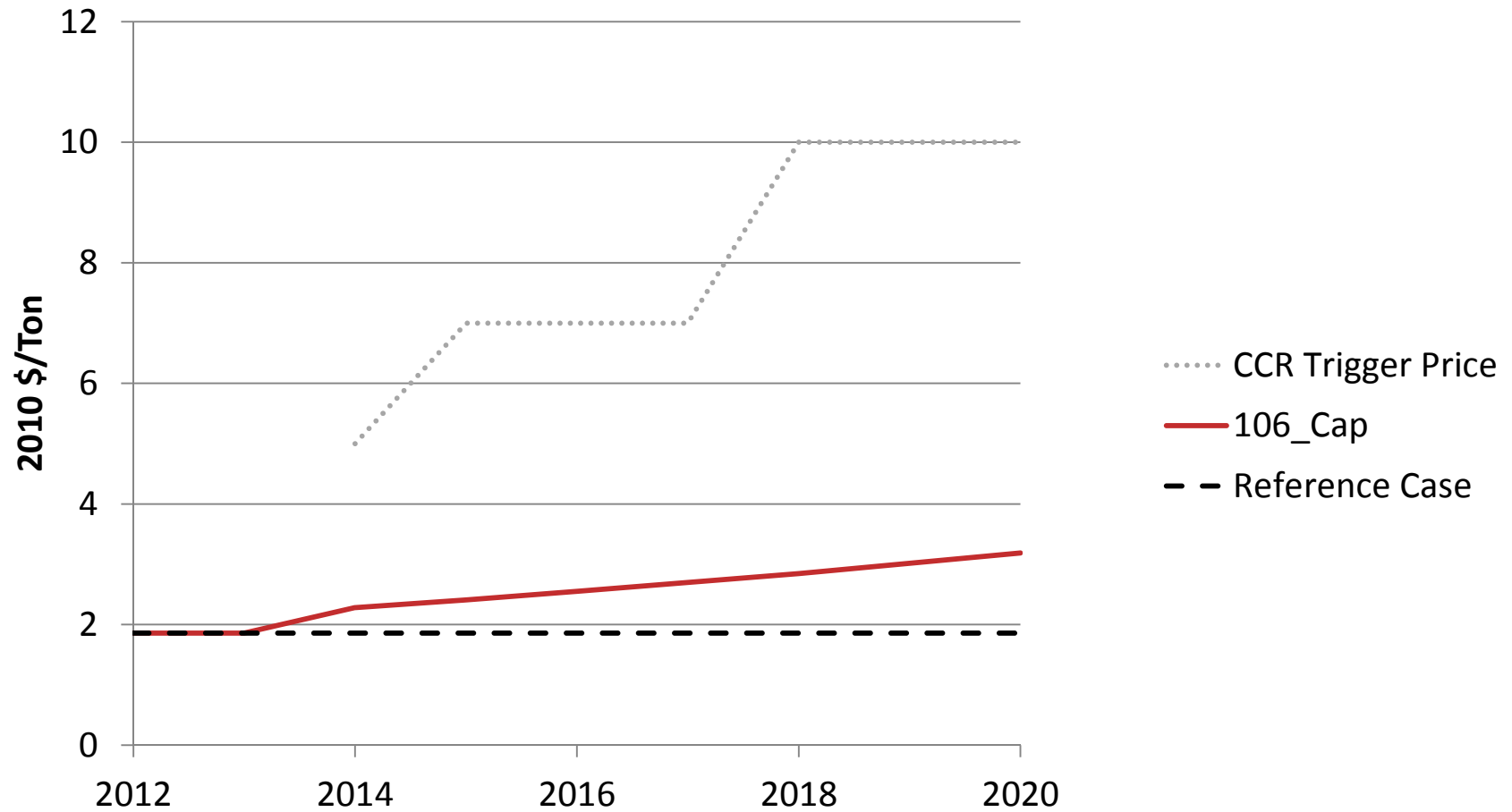




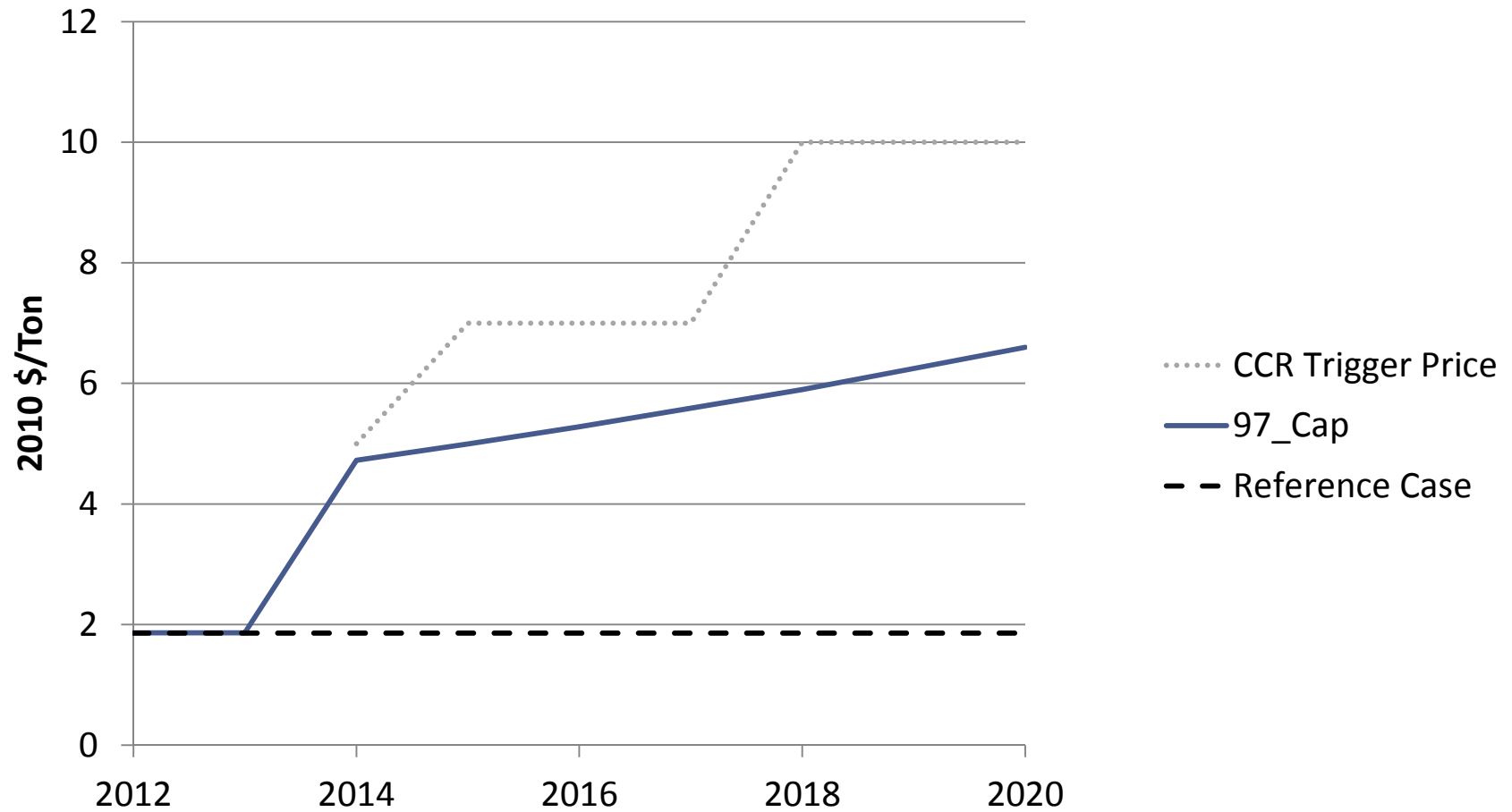
# Sources of Emission Reductions 97\_Cap



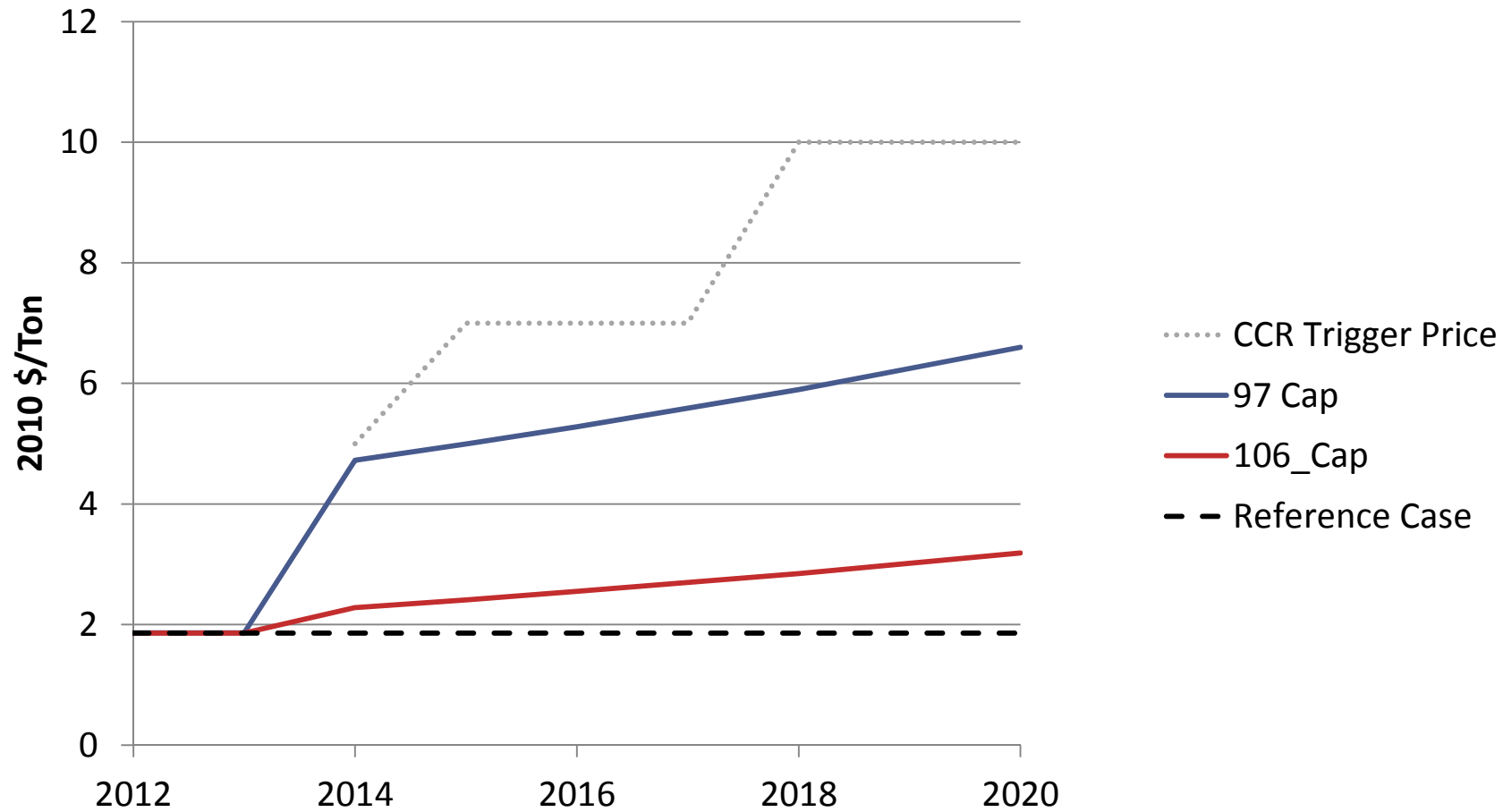
# Allowance Prices 106\_Cap



# Allowance Prices 97\_Cap



# Allowance Prices Summary



## Adjustment for Banked Allowances and Allowance Price Projections

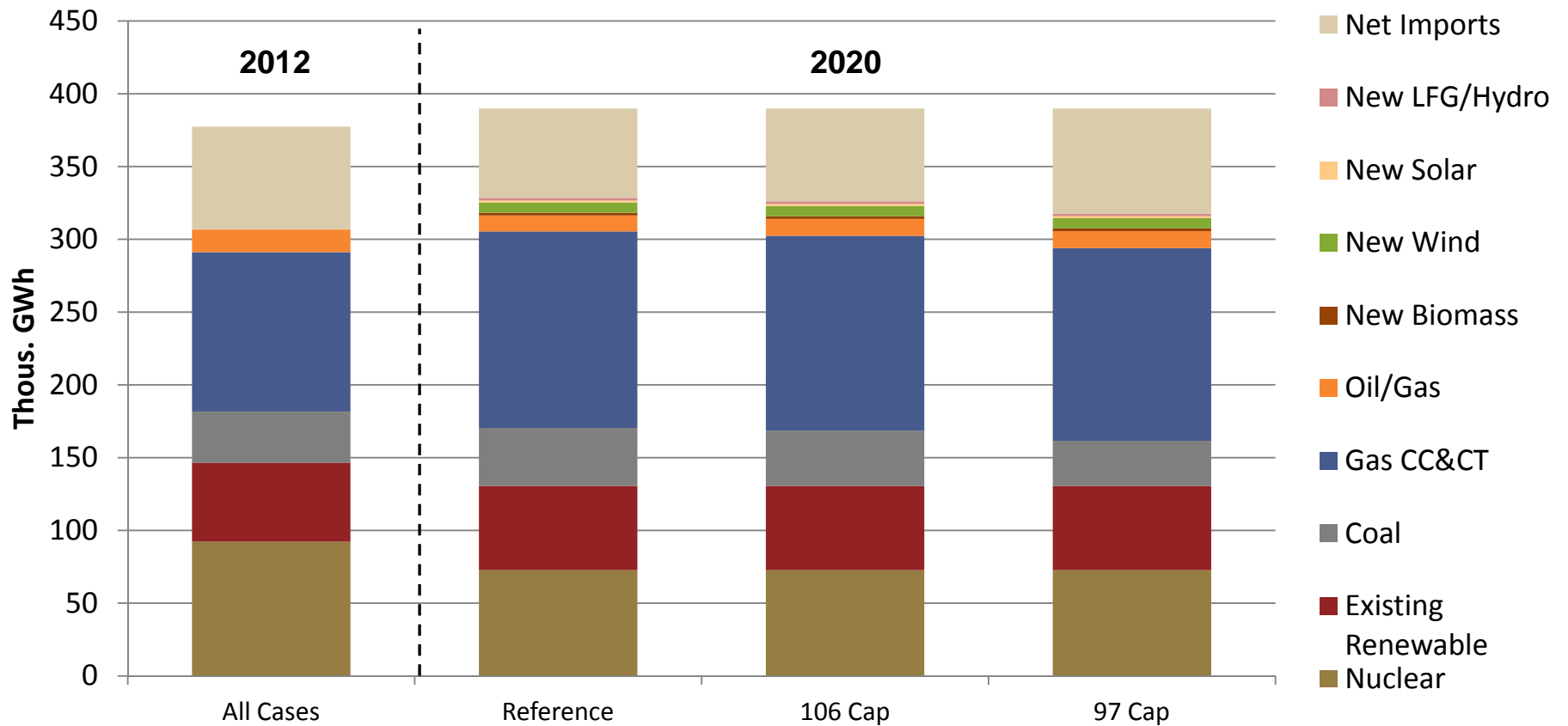
- The modeling assumes a certain number of banked allowances from 2009-2013 and adjusts the 106 and 97 caps perfectly for that amount.
- If the banked allowances from 2009-2013 were a different number, for example 100 M instead of 115 M, and the 106 and 97 caps were adjusted perfectly for that amount, the projected allowance price trajectories would not change.

## ADDITIONAL RESULTS

# Generation Mix for RGGI in 2012 and 2020

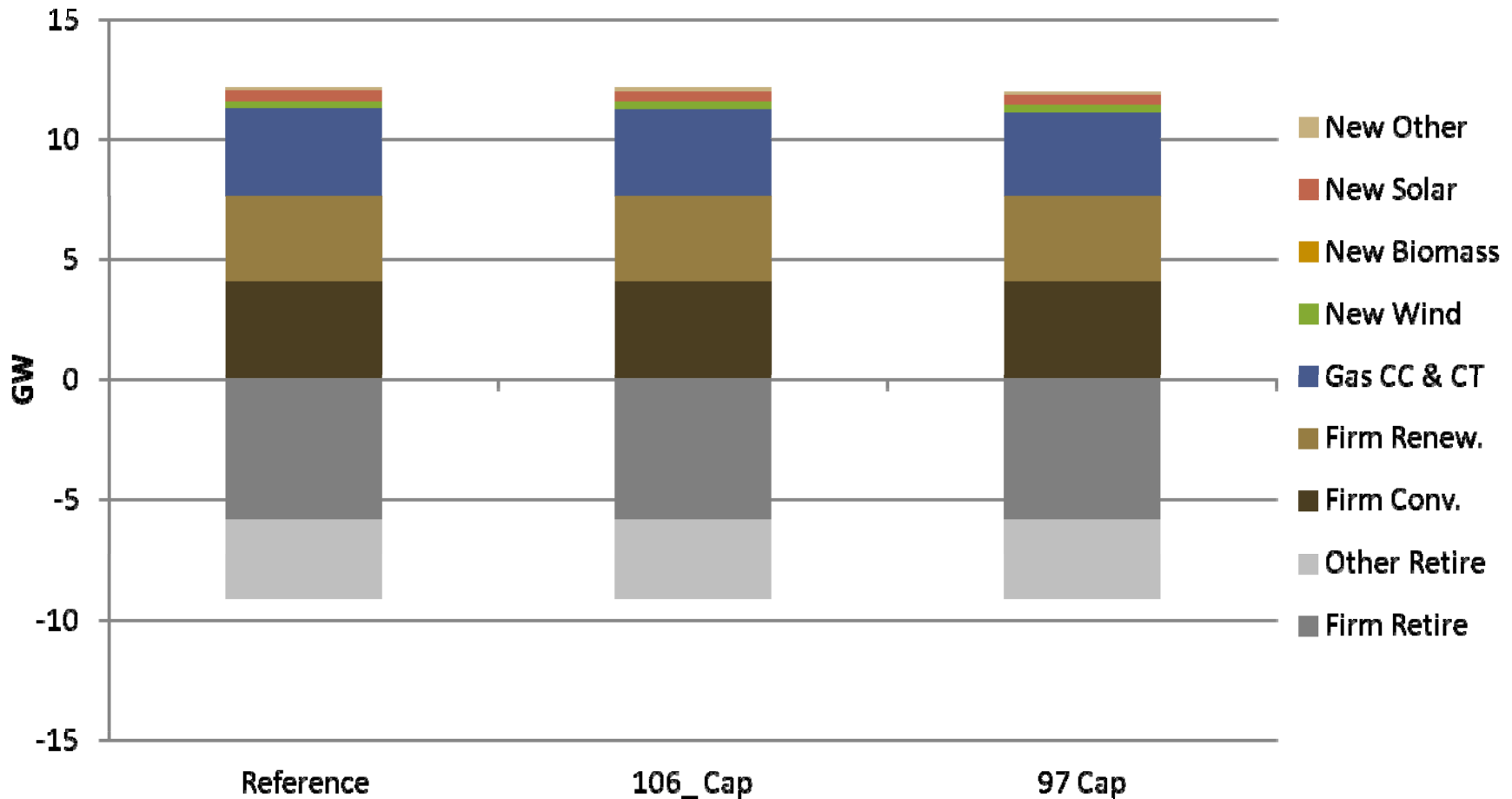
## Reference Demand Growth Cases

- The chart shows projected generation by type in the RGGI-affected states. Existing renewable generation represents units that are currently operating and new renewable generation represents generation from both firm and economic renewable builds.



# Cumulative Capacity Changes through 2020 in RGGI

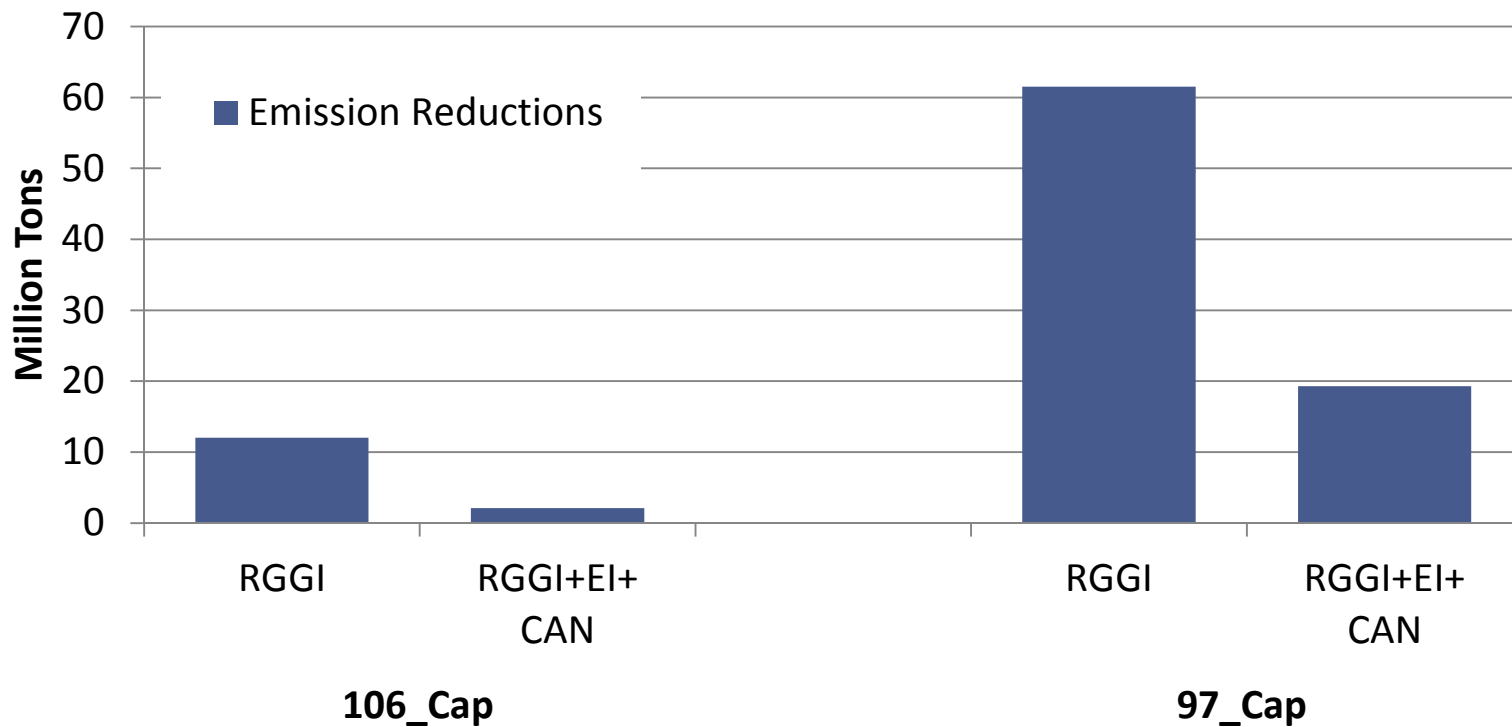
- The chart shows IPM projections for total firmly planned capacity additions (Firm Conv. & Firm Renew); economic capacity additions by type; and total retirements (Firm and Other)





# Cumulative Emission Reductions from RGGI Sources, 2012 to 2020

*Emission reductions from RGGI sources in the RGGI region and the Eastern Interconnect (including RGGI) and eastern Canada (RGGI+EI+CAN)*



- From 2012-2020, Eastern Interconnect emissions are projected to be over 15.2 billion tons
- From 2012-2020, RGGI region emissions are projected to be 879 million tons