

# *The Regional Greenhouse Gas Initiative*



CO<sub>2</sub> Budget Trading Program  
Amendments to 7 DE Admin C. 1147  
09/25/2013 Public Hearing

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## *Timeline of Activities*

- Workgroup meeting – May 15, 2013
- Workgroup meeting – June 18, 2013
- Public Workshop – July 24, 2013
- Amendments published in the DE Register–September 1, 2013
- Public Hearing –September 25, 2013



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## ***RGGI 2012 Program Review***

- RGGI was established in 2005 as the nation's first mandatory market based program to limit CO<sub>2</sub> emissions from power plants.
- RGGI states developed a Model Rule as the template for states to craft their individual state regulations. (Delaware: **7 DE Admin. Code 1147 - CO<sub>2</sub> Budget Trading Program**)
- RGGI states committed to a 2012 Program Review.
- During the Program Review process RGGI participating states:
  - Conducted electricity sector, CO<sub>2</sub> emissions, and macro economic analyses; and
  - Consulted extensively with stakeholders and market experts.



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## ***RGGI Program Review Results***

The states found:

- Current emissions are approximately 40% below 2005 levels.
- To maintain a working market, the cap needs to be adjusted.
- Investment of auction proceeds from the first three years of the program generated \$1.6 billion in net economic benefit region-wide through the end of the decade.
- Additional opportunities to improve the success of RGGI for a more effective and efficient program.



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# Model Rule Amendments ***2012 PROGRAM REVIEW***



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# ***Model Rule Amendments***

- Size and Structure of the Cap
- Interim Adjustments for Banked Allowances
- Undistributed and Unsold Allowances
- Cost Containment Reserve (CCR)
- Flexibility Mechanisms
- U.S. Forests Offset Protocol
- Interim Control Periods
- Reserve Price
- Administrative and Minor Technical Amendments



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## ***Size and Structure of Cap (7 DE Admin. Code 1147-5.1)***

- The Updated Model Rule contains language for the CO<sub>2</sub> allowance base budget for allocation years 2014-2020, with the regional RGGI cap set at 91 million short tons in 2014.
- The Updated Model Rule continues to maintain the original 2.5% per year reduction to the RGGI regional cap for the years 2015-2020.
- The states commit to conduct a program review by 2016, including potential reductions to the cap post-2020.



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## ***Interim Adjustments for Banked Allowances (7 DE Admin. Code 1147-5.3)***

The Updated Model Rule contains language to address the private bank of allowances held by market participants via two Interim Adjustments for Banked Allowances.

- A reduction to the budget will be made for 100% of the first control period private bank of allowances over a 7 year period (2014-2020), as determined on January 1, 2014.
- A reduction to the budget will be made for 100% of the second control period private bank of allowances over a 6 year period (2015-2020), as determined on March 15, 2014.
- Interim Adjustment for Banked Allowances formula:  $(\text{bank} / \text{adjustment period}) \times (\text{ratio of each state's annual base budget to total regional annual cap})$ .
- Market participants may continue to bank allowances.



# Interim Adjustments for Banked Allowances (7 DE Admin. Code 1147-5.3 – Example)

- As an illustrative example only, the following chart assumes that the first control period private of allowances (2009-2011) is 49 million and second control period private bank of allowances (2012-2013) is 60 million.
- In the example below:
  - A reduction to the budget is made for 100% of the first control period private bank of allowances over a 7 year period (2014-2020).
  - A reduction to the budget is made for 100% of the second control period private bank of allowances over a 6 year period (2015-2020).

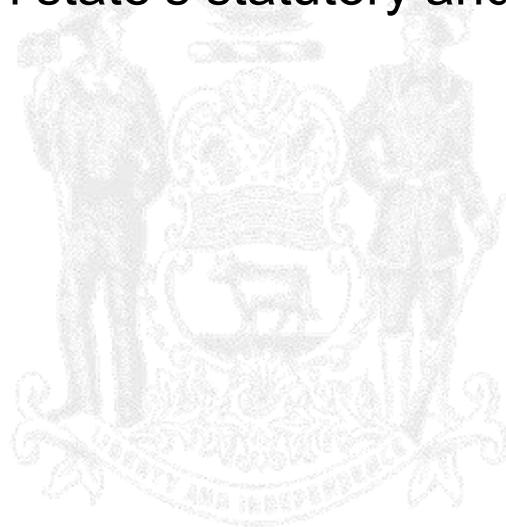
Interim Adjustments for Banked Allowances							
	2014	2015	2016	2017	2018	2019	2020
<b>Regional CO<sub>2</sub> Budget</b>	91 M	89 M	87 M	85 M	82 M	80 M	78 M
<b>Interim Adjustment (49 M)</b>	7 M	7 M	7 M	7 M	7 M	7 M	7 M
<b>After First Adjustment</b>	84 M	82 M	80 M	78 M	75 M	73 M	71 M
<b>Second Control Period Interim Adjustment (60 M)</b>		10 M					
<b>After Second Adjustment</b>	84 M	72 M	70 M	68 M	65 M	63 M	61 M



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## ***Undistributed and Unsold CO<sub>2</sub> Allowances (7 DE Admin. Code 1147-5.2)***

- The Updated Model Rule contains language to provide the ability to retire undistributed and unsold allowances at the end of each control period, subject to each state's statutory and/or administrative process.



# ***Cost Containment Reserve (CCR)*** ***(7 DE Admin. Code 1147-5.3 and 9.0)***

The updated Model Rule contains language for the adoption of a CCR as a cost containment flexibility mechanism, with the following design elements:

- The CCR allowances will be sold at any auction if demand for allowances at prices above the CCR trigger price exceeds the supply of non-CCR allowances, until all CCR allowances available for the year are sold.
- CCR allowances will only be sold at or above the CCR trigger prices of: \$4 in 2014, \$6 in 2015, \$8 in 2016, \$10 in 2017, and the trigger price will be adjusted by 2.5% each calendar year thereafter.
- The CCR allowances will be in addition to the cap and be fully fungible.
- A fixed annual quantity of 5 M CCR allowances in 2014 and a fixed annual quantity of 10 M CCR allowances thereafter, with annual replenishment as needed, up to the fixed quantity to ensure availability of allowances each year.



# ***Flexibility Mechanisms***

## ***(7 DE Admin. Code 1147-1.2, 6.5, 10.3)***

To prevent undesirable market behavior caused by an overlap in flexibility mechanisms and to simplify the use of offsets, the updated Model Rule:

- Retains a 3.3% offset limitation for compliance.
- Removes international offsets.
- Removes control period extension to 4 years.
- Replaces the price triggers and the resultant offset expansion with the CCR.



# ***U.S. Forests Offset Protocol (7 DE Admin. Code 1147-10.0)***

- The states have developed a RGGI U.S. Forests Offset Protocol, with the intent that the Updated Model Rule incorporates the protocol by reference.
- For those states that adopt this new protocol, it includes: Forestry Management, Avoided Conversion, and Reforestation.
- The new RGGI U.S. Forests Offset Protocol is based on the California Air Resources Board (CARB) U.S. Forest Offset Protocol.<sup>1</sup>
  - States that adopt this new protocol may accept projects that have been registered with the Climate Action Reserve.
  - The RGGI Protocol uses a discounting approach to address reversals and ensure performance.
- The states will require compliance with general offset requirements contained in the Model Rule, including additionality, verification, and the application process, as appropriate.



# ***Interim Control Periods***

## ***(7 DE Admin. Code 1147- 1.3, 1.5, 4.1, 6.5, 7.2)***

The updated Model Rule contains language to establish:

- A new requirement for sources to acquire allowances for 50% of annual emissions over each of the first 2 years of a control period.
- Maintains final compliance reconciliation for the balance of allowances at the end of the 3-year control period.



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## **Reserve Price**

### **(7 DE Admin. Code 1147-1.3)**

- The minimum reserve price in calendar year 2014 will be \$2.00. Each calendar year thereafter, the minimum reserve price shall be 1.025 multiplied by the minimum reserve price from the previous calendar year, rounded to the nearest whole cent.
- The updated Model Rule contains language to remove provisions in state regulations for a “current market reserve price”, where applicable.



## ***Administrative Amendments***

- Early Reduction CO<sub>2</sub> Allowances (7 **DE Admin. Code** 1147- 5.3): The updated Model Rule deletes language related to the ERA provisions, as they are no longer applicable to the program.
- Offset Protocols (Section 10): The updated Model Rule contains updates for all outdated documents incorporated by reference for use by offset project developers.



## ***Delaware Specific Amendments***

- Direct Allocation (7 **DE Admin. Code** 1147-5.3.1): The updated Regulation eliminates language that allocates allowances to units. 100% of allowances will be offered at auction starting from 2014.
- Limited Industrial Set Aside Allocations: (7 **DE Admin. Code** 1147-5.3.4): The updated regulation eliminates language that set aside allowances for limited industrial exemptions.
- Auction Frequency (7 **DE Admin. Code** 1147-11.5.2): The updated regulation eliminates the language “quarterly”. Auctions will be held as often as practical.



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# 91 Cap – Two Scenarios

## ***IPM ANALYSIS***



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# ***RGGI Model Rule Scenario Analysis Assumptions***

## ***Revised IPM Modeling to Reflect Program Features in the Model Rule . . .***

- The regional cap beginning at 91 million tons in 2014
- The Interim Adjustment for Banked Allowances
- The revised CCR triggers and the modified CCR size for 2014

## ***Continued to use 2 scenarios related to the potential use of banked allowances . . .***

To examine different assumptions for how market participants might use banked allowances for compliance purposes, the states used alternate banking usage scenarios:

### **1) 91 Cap Bank MR**

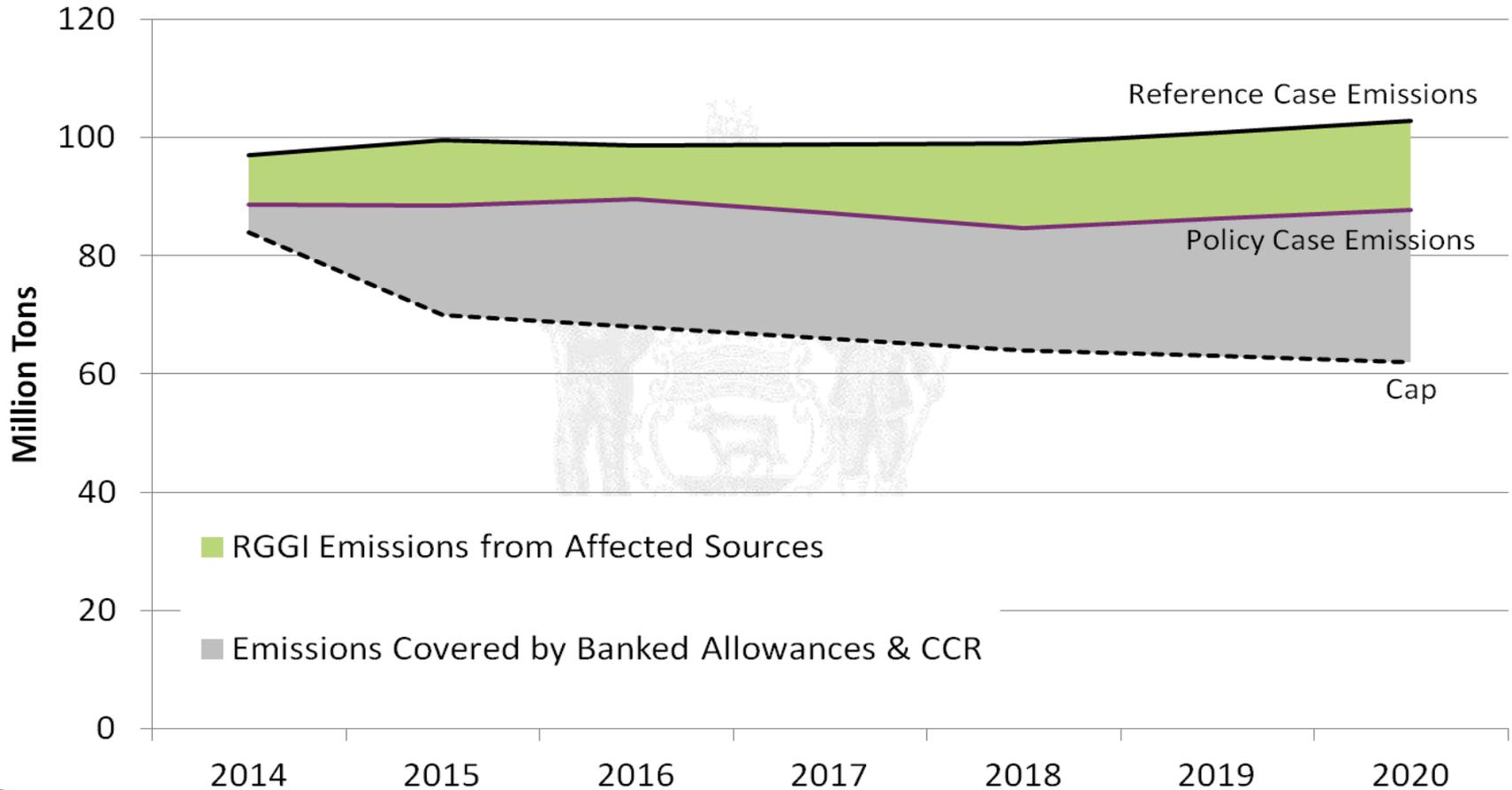
The IPM model inherently has perfect foresight (*i.e.*, knows all future market outcomes, including allowance prices and how to maximize use of the bank with perfect certainty ).

### **2) 91 Cap Alt Bank MR**

Assumes that market participants make decisions related to use of banked allowances for compliance on a shorter time horizon than projected by IPM using perfect foresight (*i.e.*, due to uncertainty, more likely to defer emissions reductions and rely more heavily on banked allowances in the short-term.

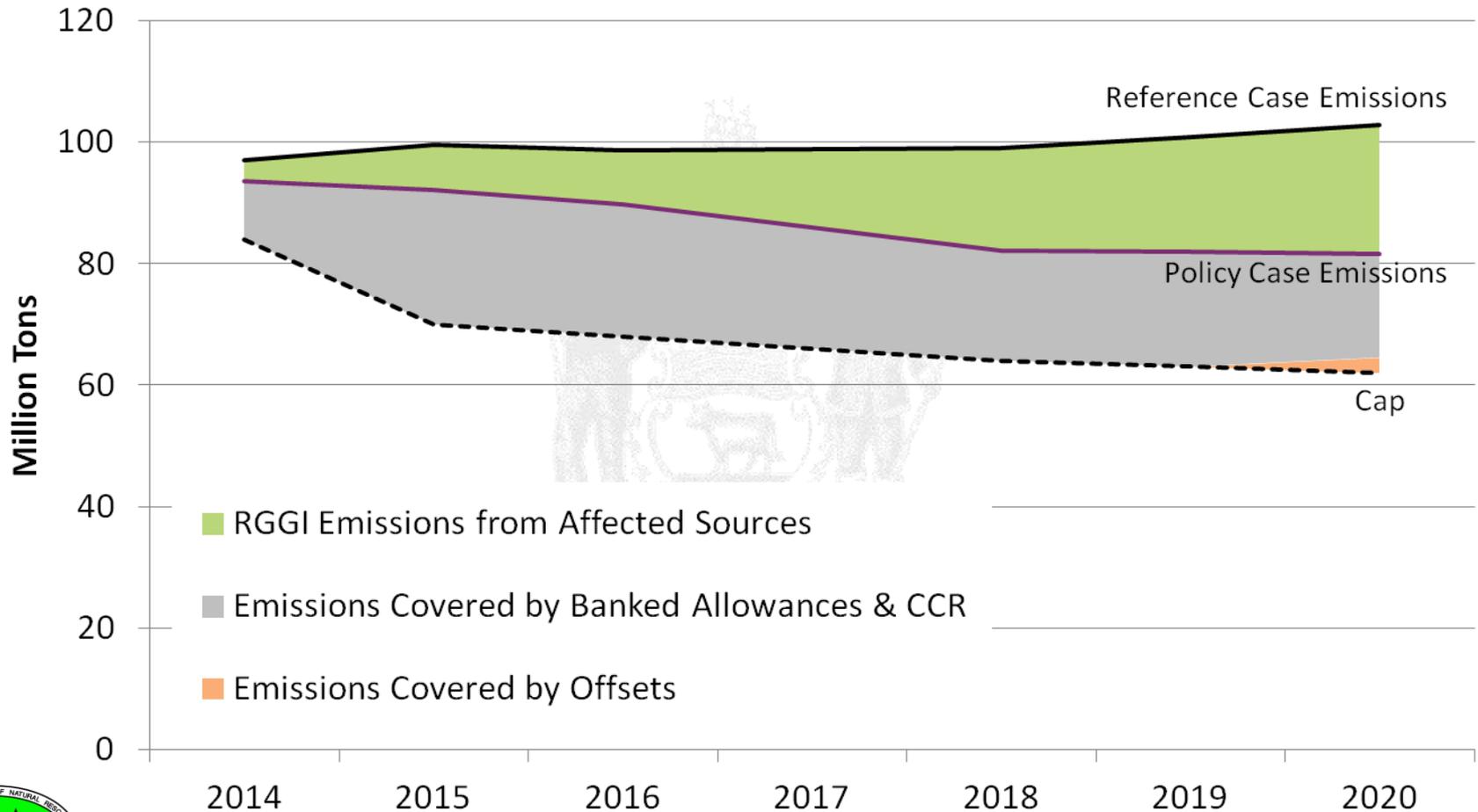


# ***RGGI Model Rule Scenario Results Sources of Emission Reductions 91 Cap\_Bank\_MR***



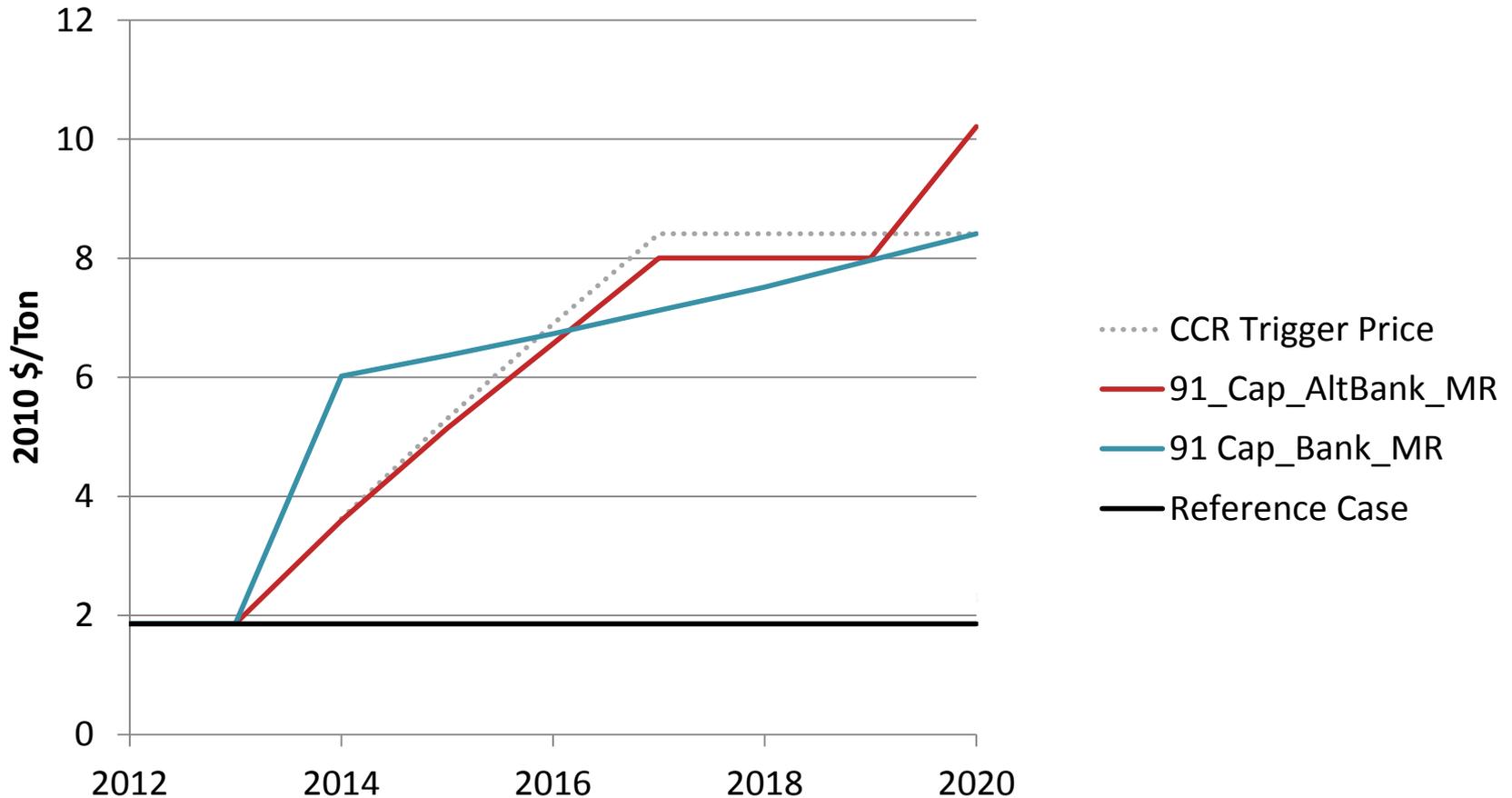
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# ***RGGI Model Rule Scenario Results Sources of Emission Reductions 91 Cap\_AltBank\_MR***



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# ***RGGI Model Rule Scenario Results Allowance Prices 91\_Cap\_MR Cases***



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# ***RGGI Model Rule Scenario Results 91\_Cap\_Bank\_MR & 91\_Cap\_Alt Bank\_MR – Results Summary***

<b>Scenario Name</b>	<b>Allowance Price (2010\$) Projection (2014-2020)</b>	<b>Cumulative CCR Allowances Released</b>	<b>Offsets</b>	<b>Cumulative Emissions Reduction</b>
<b>91_Cap_Bank_MR</b>	\$6.00 - \$8.40	17.6 M	0 M	86 M
<b>91_Cap_AltBank_MR</b>	\$3.60 - \$10.20	10 M	2.7 M	91 M



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# 91 Cap Bank Scenario ***REMI ANALYSIS***



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## ***RGGI Program Review REMI Analysis***

- Analysis projects potential macroeconomic impacts for the 9-state RGGI region due to potential changes in the RGGI program.
- Analysis **does not** project macroeconomic benefits due to carbon emissions reductions (e.g., value of avoided GHG emissions).
- Analysis projects the macroeconomic impacts of the incremental changes between the current RGGI program (REMI Reference Case) and potential changes to the RGGI program (91 Cap Bank IPM Potential Scenario).



## ***RGGI Program Review REMI Analysis***

- The benefits are in addition to the macroeconomic benefits due to the current RGGI program.
- The analysis makes **no** projections for RGGI allowance prices or RGGI proceeds after 2020.
- The analysis **does not** include impacts of investing RGGI proceeds generated after 2020.



## ***REMI Assumptions***

- No changes are made to the REMI Reference Case inputs and assumptions.
- Inputs to REMI are developed using two sources of data which describe economic impacts resulting from potential changes to the RGGI program:
  - 1) **States' Investments of RGGI Allowance Proceeds**
  - 2) **IPM Output on Electricity Market Changes**



## ***REMI Assumptions - States' Investments of RGGI Allowance Proceeds***

- States' investments generate *incremental* changes in regional economic activity (e.g., spending, prices, labor availability).
- REMI model quantifies changes in the 91 Cap Bank Potential Scenario including the incremental investment of additional projected proceeds from 2012-2020.
- Examples of proceed investments include: energy efficiency programs, GHG abatement projects, direct bill assistance.



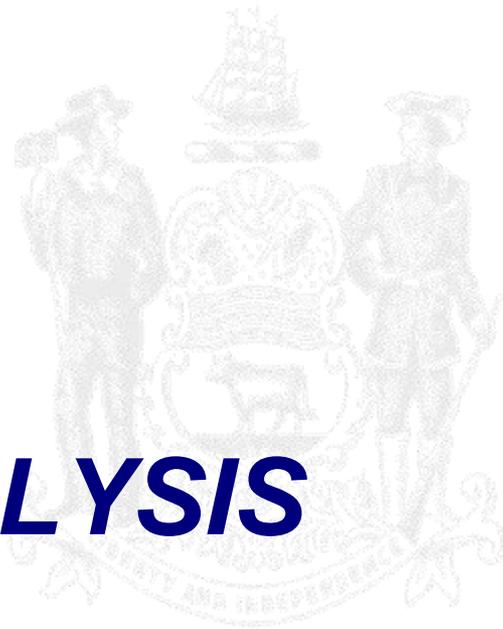
## ***REMI Assumptions - States' Investments of RGGI Allowance Proceeds***

- Cumulative projected proceeds for the **IPM Reference case** are **\$1,550 M (2010\$)**.
- Cumulative projected proceeds for the **91 Cap Bank Potential Scenario** are **\$3,783 M (2010\$)**, representing an **additional \$2,234 M (2010\$)** in proceeds compared to the Reference Case.
- Delaware's proceed Investments: 65% on SEU, 15% on low income weatherization 10% on GHG reduction, 10% on administrative cost



Results

# ***REMI ANALYSIS***



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# Summary of Regional Economic Impacts 2012 -2040

Cumulative Change Scenario	3% Discount rate	7% Discount Rate
Gross State Product	\$8.2 Billion	\$3.9 Billion
Employment	124,800	124,800
Real Personal Income	\$6.8 Billion	\$3.1 Billion



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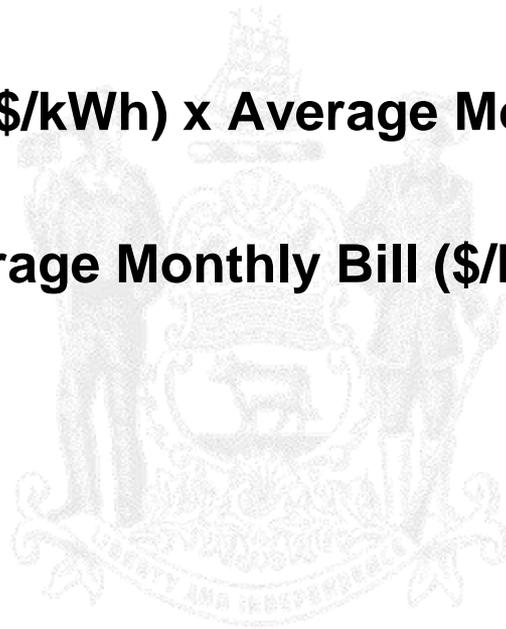
Delaware Specific  
Customer Electricity Bill Analysis  
***REMI ANALYSIS***



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# Methodology – Average Monthly Bill Impact Calculation

$$\text{Electricity Rate (\$/kWh)} \times \text{Average Monthly use (kWh)} \\ = \text{Average Monthly Bill (\$/Month)}$$



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# Model Assumptions – Electricity Rates & Average Monthly Usage

- **Electricity Rate Assumptions (\$/kWh)**
  - **Energy Rates:** IPM model output; prices reflect impact of lower load(GWh) due to investments in energy efficiency
  - **Delivery (T/D) Rate:** 5-year average rates from U.S. Energy Information Association (EIA)
  
- **Average Monthly Usage Assumptions (monthly kWh)**
  - **Historical Usage Data:** 5-year averaged data from EIA Adjustment made to customer average usage (GWh) due to investments in energy efficiency



# State Assumptions-Projected Proceed Investments

- Cumulative projected proceeds for DE in the **IPM Reference case** are **\$70.33 Million** (2010\$).
- Cumulative projected proceeds for DE in the **91 Cap Bank MR Case** is **\$179.26 Million** (2010\$), representing an additional **\$108.93 Million** (2010\$) in proceeds compared to the Reference Case.
- Delaware's proceed Investments: 65% on SEU, 15% on low income weatherization 10% on GHG reduction, 10% on administrative cost



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# DE Average Bill Impacts - IPM 91 Cap Bank Model Rule Scenario Summary Results

DE Monthly Bill Impact for 2012-2020			
	<u>Reference Case</u>	<u>91 Cap Bank MR</u>	
Customer Class	Average Monthly Bill (\$2010)	Average Monthly Difference	Percent Difference
Residential	\$ 66.26	\$ (0.92)	-1.4%
Commercial	\$ 393.25	\$ (1.37)	-0.3%
Industrial	\$13,028.58	\$ 17.63	0.1%

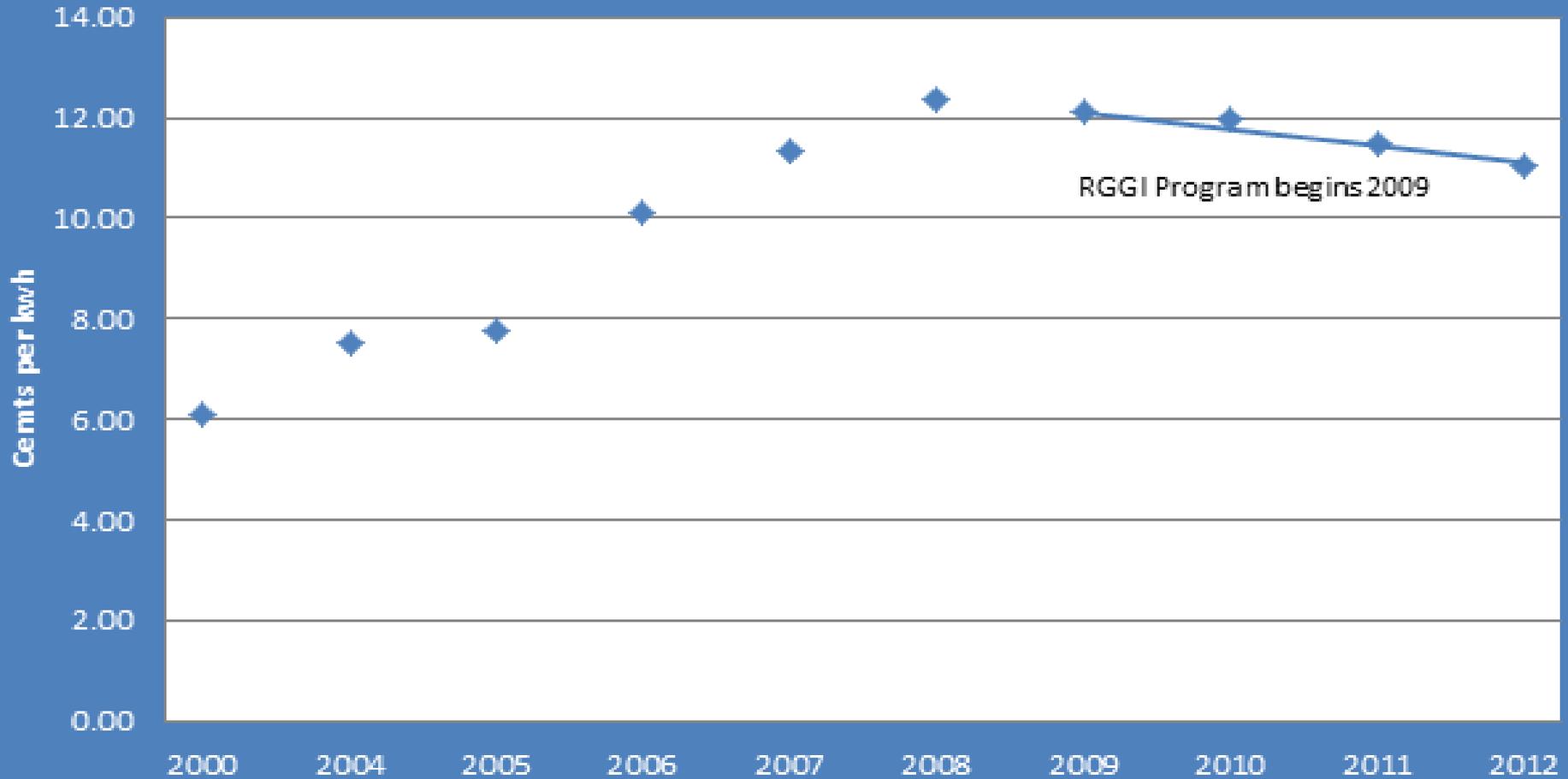


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# DELAWARE Average Retail Price All Sectors:

## Residential, Commercial & Industrial

(Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report.")



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***SUBMIT COMMENTS***



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