
Regional Greenhouse Gas Initiative (RGGI; “Reggie”)

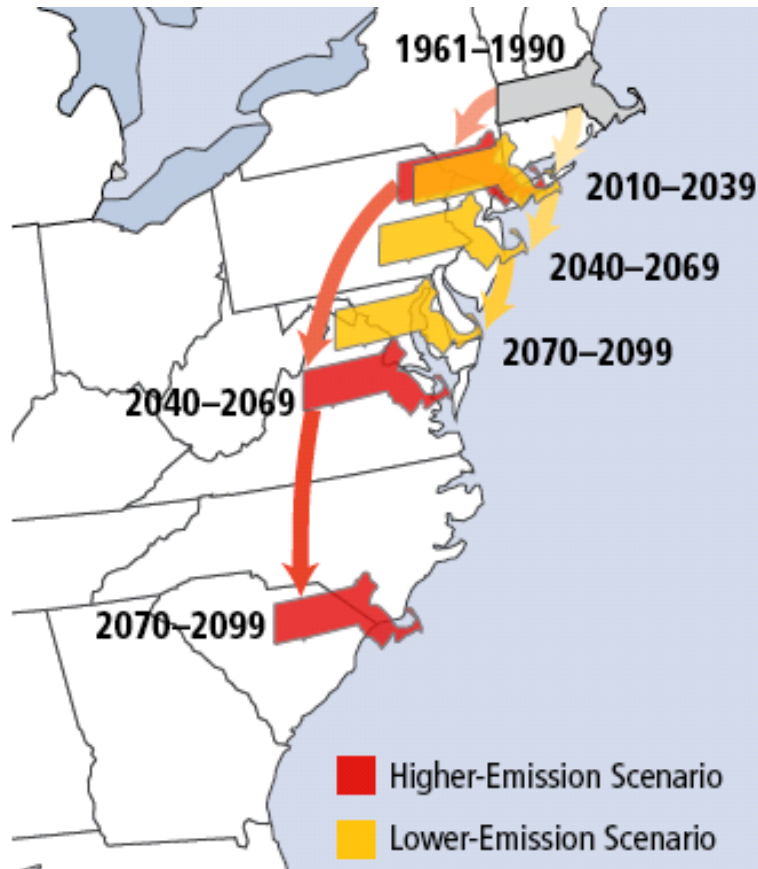
Will Space

Massachusetts Department of Environmental Protection

February 1, 2016



Climate Change: Massachusetts Impacts



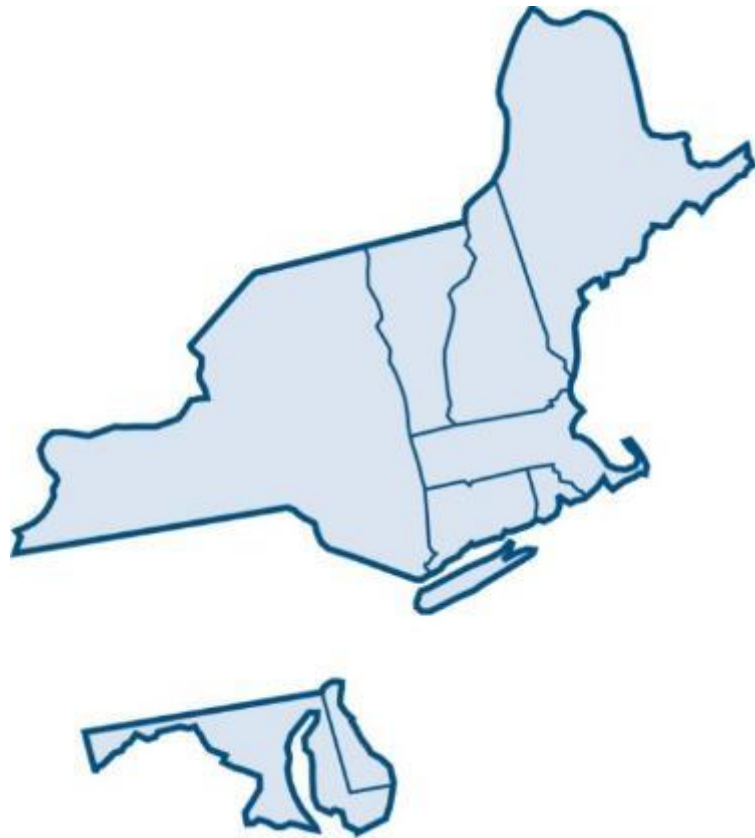
Sources: Union of Concerned Scientists, Boston Harbor Association



Global Warming Solutions Act



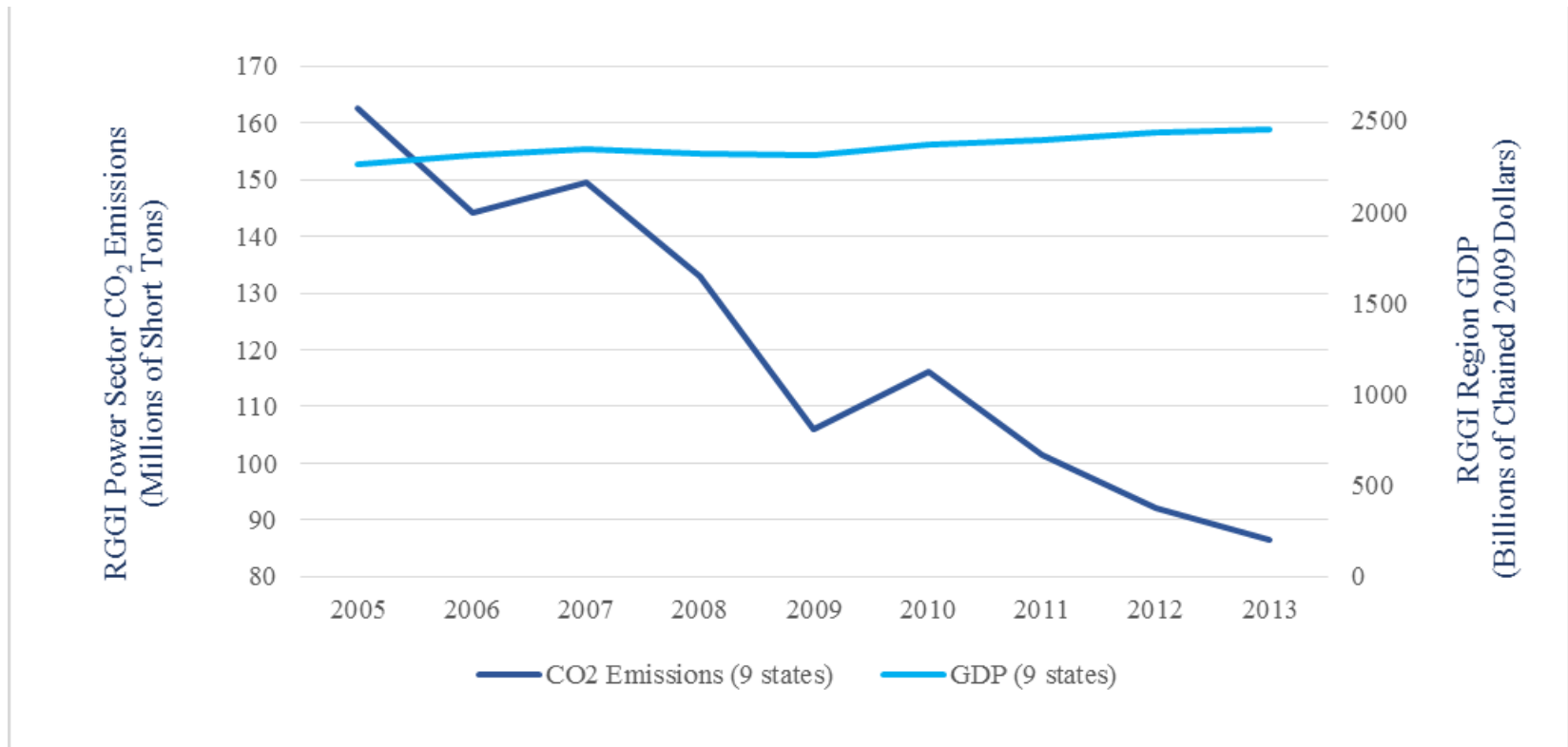
Regional Greenhouse Gas Initiative



- Cap and trade for carbon dioxide emissions from power plants in 9 US states
- Cap will fall by 2.5% per year 2015 – 2020
- Program reviews in 2012 and 2016



RGGI: Emissions and Economic Growth



Note: Primary causes of emission reductions include changes in relative fuel prices (gas vs. coal), and energy efficiency investments.



RGGI: Cap Setting and Allocation

- Cap set based on emissions targets and power sector and macro-economic modeling
 - 2008 – 2013 caps set to stabilize emissions
 - 2014 – 2020 caps adjusted to account for reductions (~ 45%) and banked allowances
 - Cost containment reserve reduces price volatility
- Nearly all allowances sold at auction
 - Provides revenue for energy efficiency, clean energy, direct bill assistance, and other uses
 - Avoids windfall profits for generators

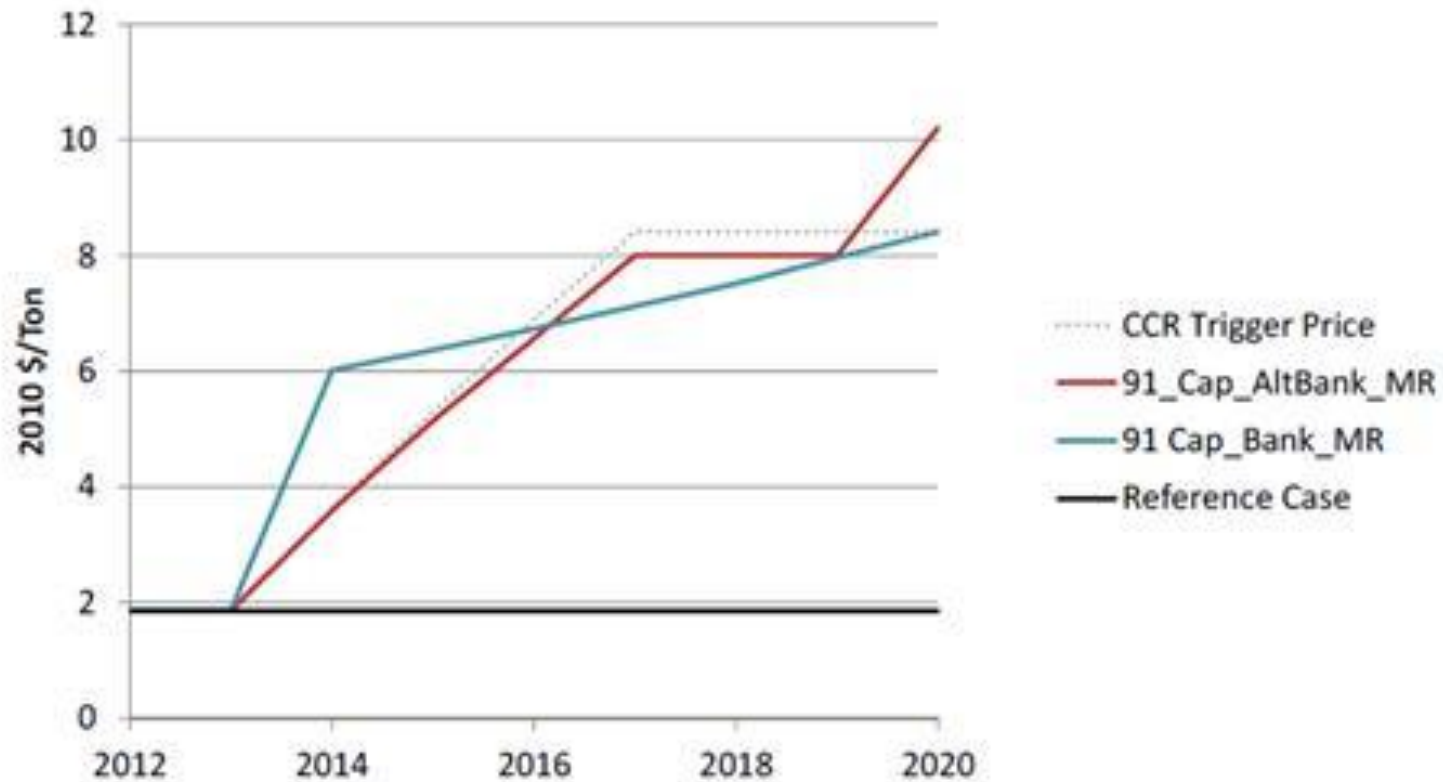


Modeling Proposed Changes (2013)

- Electric sector modeling to estimate allowance and wholesale electricity prices for various caps
 - Using IPM, an electric sector model also used by EPA to model SO₂ and NO_x trading programs
- Bill impacts analysis (retail prices)
 - by Analysis Group, considering allowance pass-through costs and savings from EE investment
- Macroeconomic modeling to estimate impacts on economic output, jobs, etc.
 - Using REMI (Regional Economic Models, Inc.)



IPM Modeling Results (2013)



Bill Impacts (2013 Projections)

RGGI Average Monthly Bill Impact for years 2012-2020

Customer Class	Reference Case	91 Alt Cap	
	Average Monthly Bill (\$2010)	Monthly Difference (\$2010)	Percent Difference
Residential	\$ 79.68	\$ 0.23	0.3%
Commercial	\$ 593.15	\$ 5.01	0.8%
Industrial	\$ 6,600.67	\$ 64.66	1.0%



REMI Modeling Results

Summary of Regional Economic Impacts, 2012-2040

Scenario	91 Cap Bank
Cumulative Change in Gross State Product (\$2010)	\$8.2 Billion
Percent Change from Business-As-Usual	0.0%
Business-As-Usual Regional GSP:	\$48,000 Billion
Cumulative Change in Employment (Job-Years)	124,800
Percent Change from Business-As-Usual	0.0%
Business-As-Usual Regional Employment:	941,000,000
Cumulative Change in Real Personal Income (\$2010)	\$6.8 Billion
Percent Change from Business-As-Usual	0.0%
Business-As-Usual Regional Real Personal Income:	\$43,000 Billion



Economic Impacts of EE Investments



The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States

Review of the Use of RGGI Auction Proceeds from the First Three-Year Compliance Period

Paul J. Hibbard
Susan F. Tierney
Andrea M. Okie
Pavel G. Darling

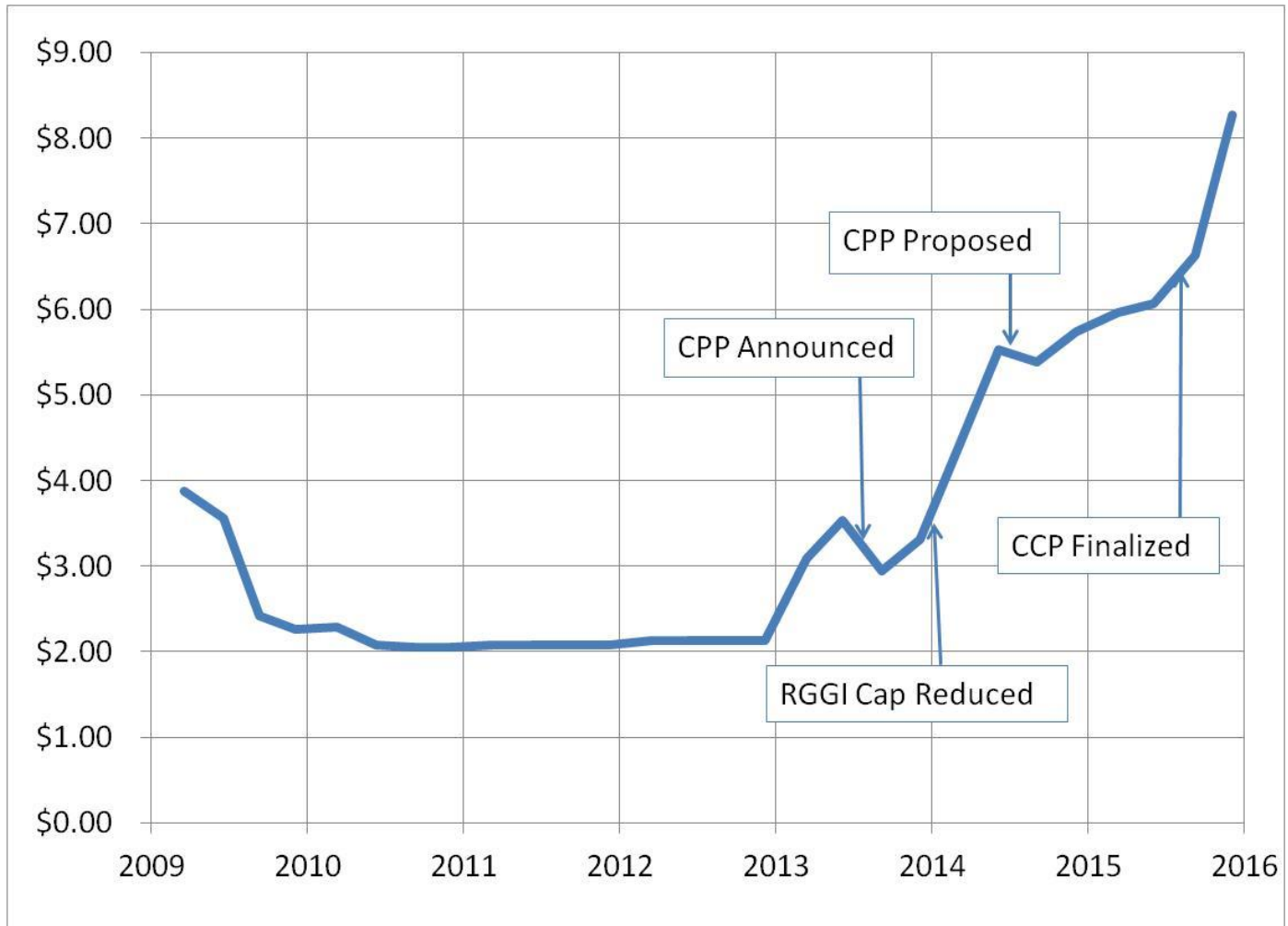
1.3
BILLION
in energy bill savings across the region¹

1.6
BILLION
in net economic benefit to region¹

16
THOUSAND
job-years created¹



RGGI Auction Prices (per Metric Ton)



Stakeholder Materials (for 2016 Review)

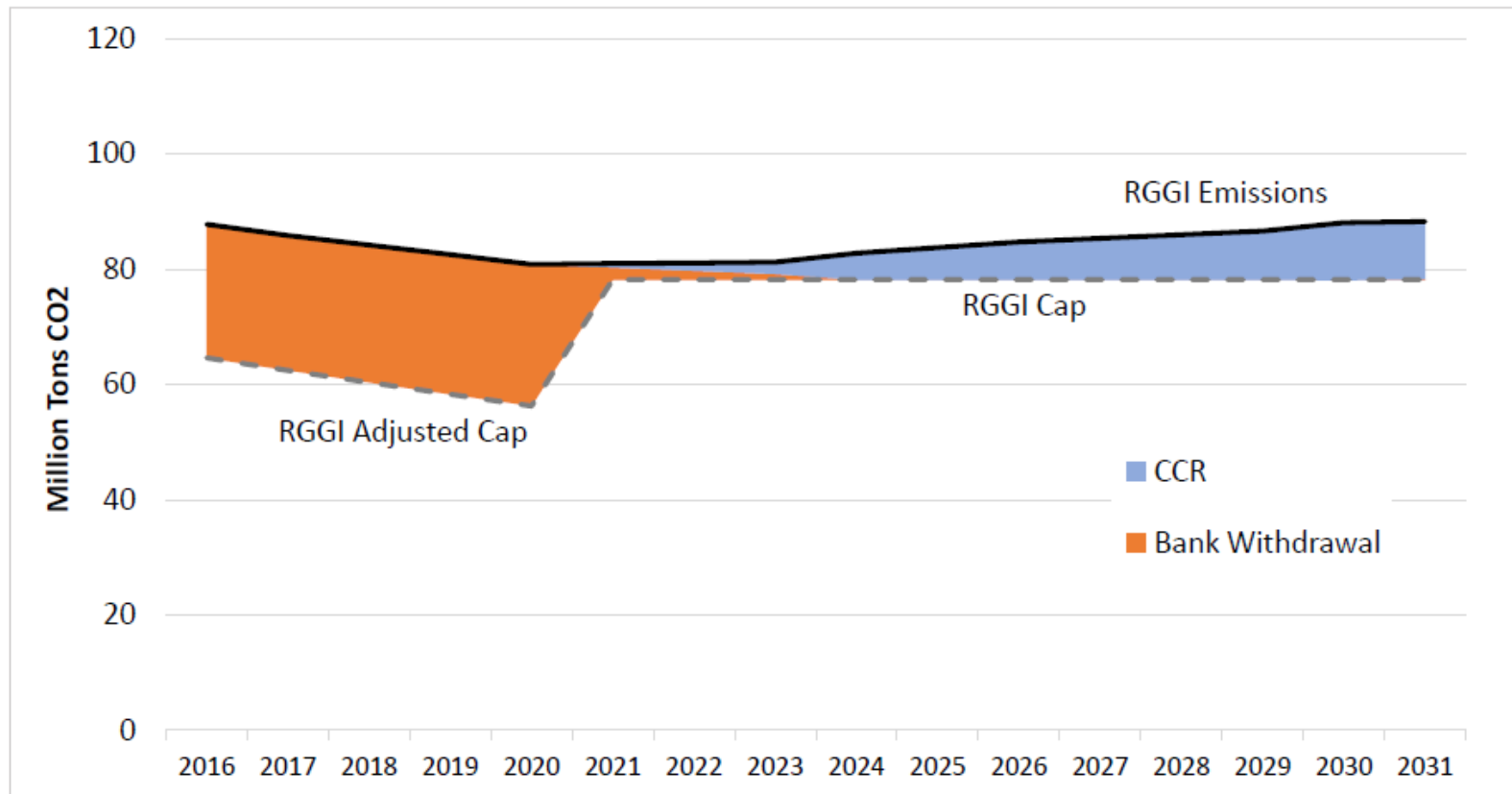
November 17, 2015 Meeting Materials	<u>Format</u>	<u>Released</u>
Meeting Notification	PDF	10.07.15
Meeting Agenda	PDF	11.10.15
Draft Proposed Schedule for 2016 Program Review	PDF	11.10.15
Key Topics for 2016 Program Review Stakeholder Discussions	PDF	11.10.15
IPM RGGI Draft Reference Case Assumption Leanings	PDF	11.16.15
RGGI Draft Reference Case Firm Builds and Retirements Assumptions	XLS	11.20.15
Key Elements for Stakeholder Discussion Presentation Slides	PDF	11.20.15



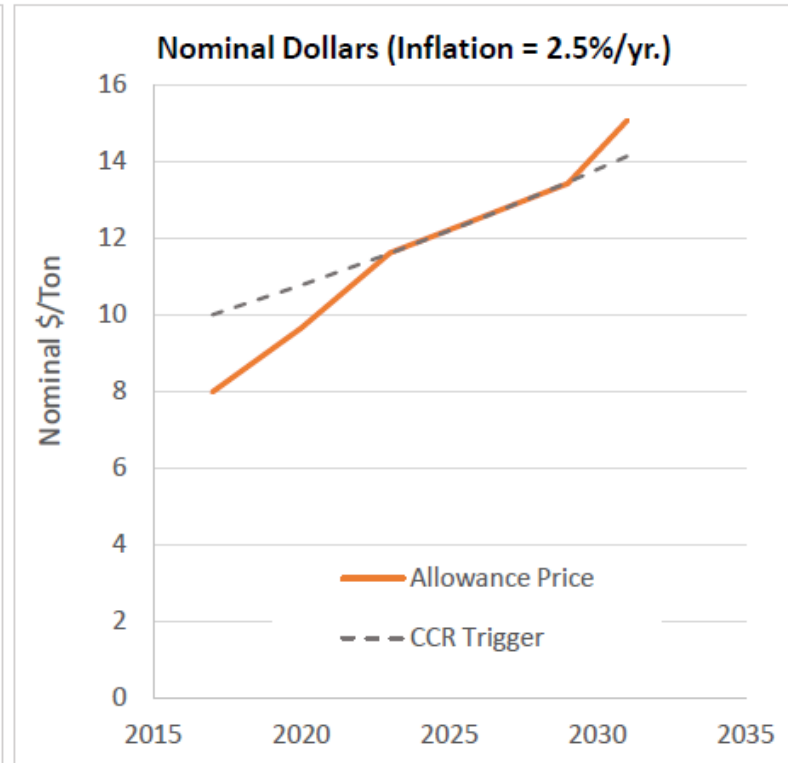
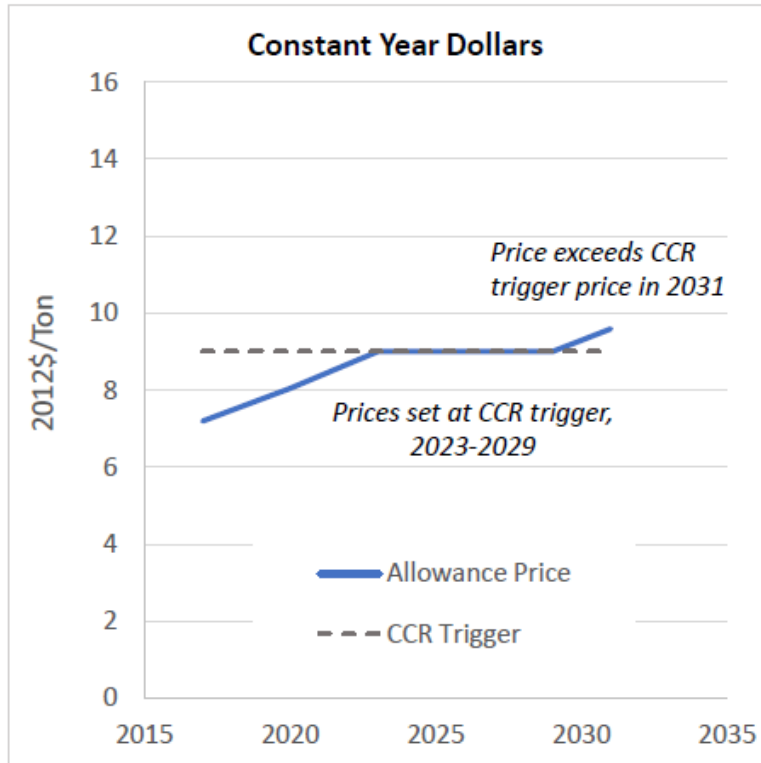
Assumptions for Stakeholders Input

- Regional energy and peak demand
- Cost and performance of new generation
- Coal plant construction in RGGI
- Nuclear plant construction in RGGI
- Firmly planned generation and retirements
- Transmission Capability
- Firmly planned transmission additions
- Reserve margins and local reserve requirements
- Fuel Prices
- Federal environmental policies
- Renewable portfolio standards
- State environmental policies
- RGGI
- Cost and performance of pollution controls and firmly planned control installations

RGGI Emissions (2016 Reference Case)



RGGI Emissions (2016 Reference Case)



RGGI: Additional Information

- RGGI web page: <http://www.rggi.org/>
- Massachusetts RGGI implementation: <http://www.mass.gov/dep/air/climate/rggi.htm>
- Contact: william.space@state.ma.us