



Tackling Climate Change

Considerations for Massachusetts' Environmental Justice Communities

Regional Greenhouse Gas Initiative and Other Efforts Stakeholder Meetings

November 9, 2016
Springfield, MA

November 15, 2016
Dartmouth, MA

Agenda

- Welcome
- Goals for Climate Change & Energy Programs: What are we trying to accomplish?
- Regional Greenhouse Gas Initiative & the Clean Power Plan
- Energy Efficiency & Renewable Energy Investment in Massachusetts
- Discussion of Topics of Interest

Climate Change in Massachusetts

- Average warming across Northeast states between 1895-2011 = almost 2° F (0.16° F per decade)
- Since 1970:
 - Massachusetts has been +2.0° F warmer annually, +3.0° F warmer in winter
 - Annual precipitation has varied: > than 10% wetter or drier than normal in 22 years, and > 25% wetter or drier than normal in 7 years (average = 44.64 inches)

Source: <http://www.nrcc.cornell.edu/climate/resources/resources.html>

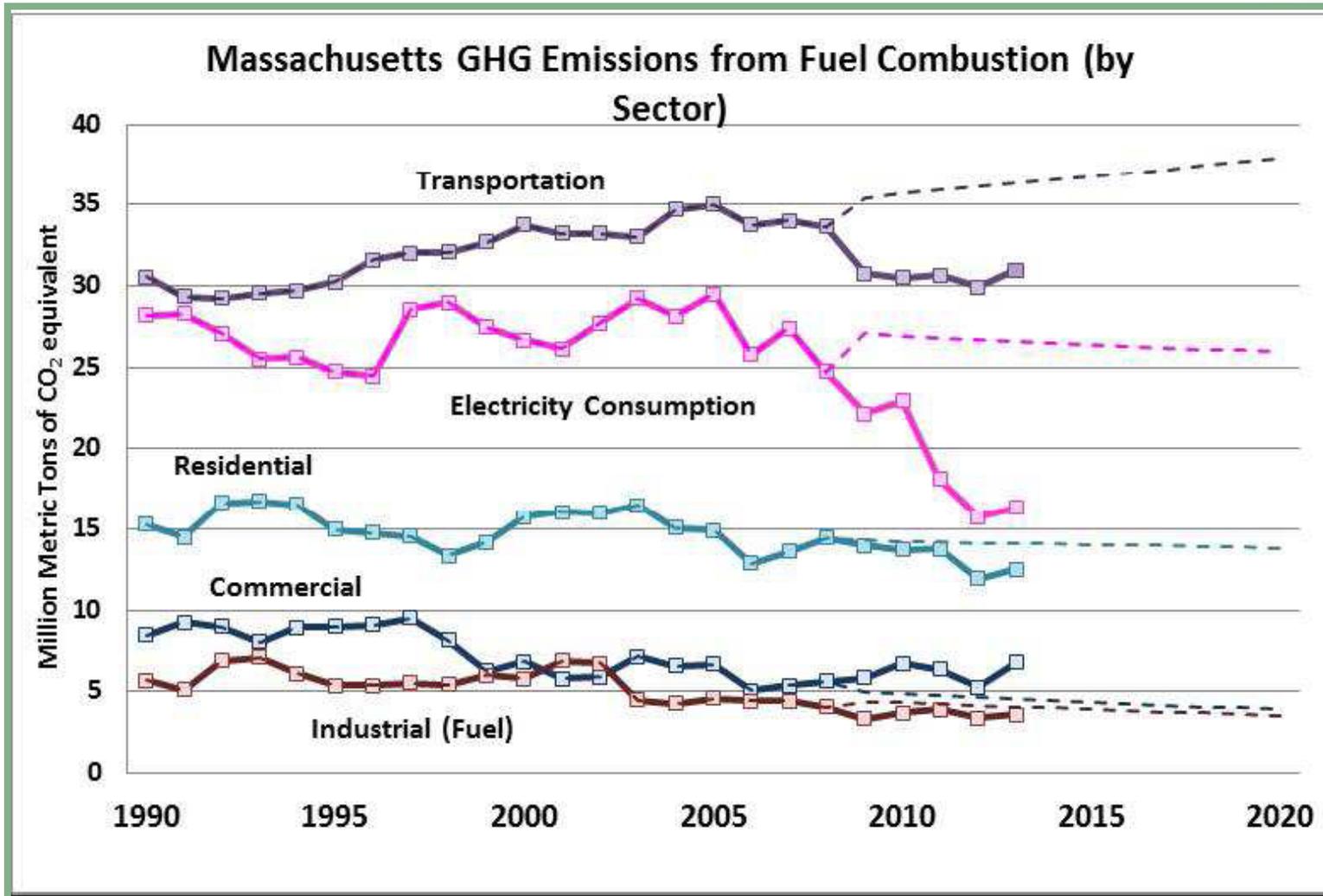
Climate Change Impacts

- In Massachusetts, we will likely have increases in:
 - Coastal storm surge from sea level rise
 - Extreme heat and heat waves (more days with temps > 90° F)
 - Downpours and inland flooding
 - Drought
- EJ communities are among the most vulnerable to heat and storm impacts

Source: <http://www.nrcc.cornell.edu/climate/resources/resources.html>

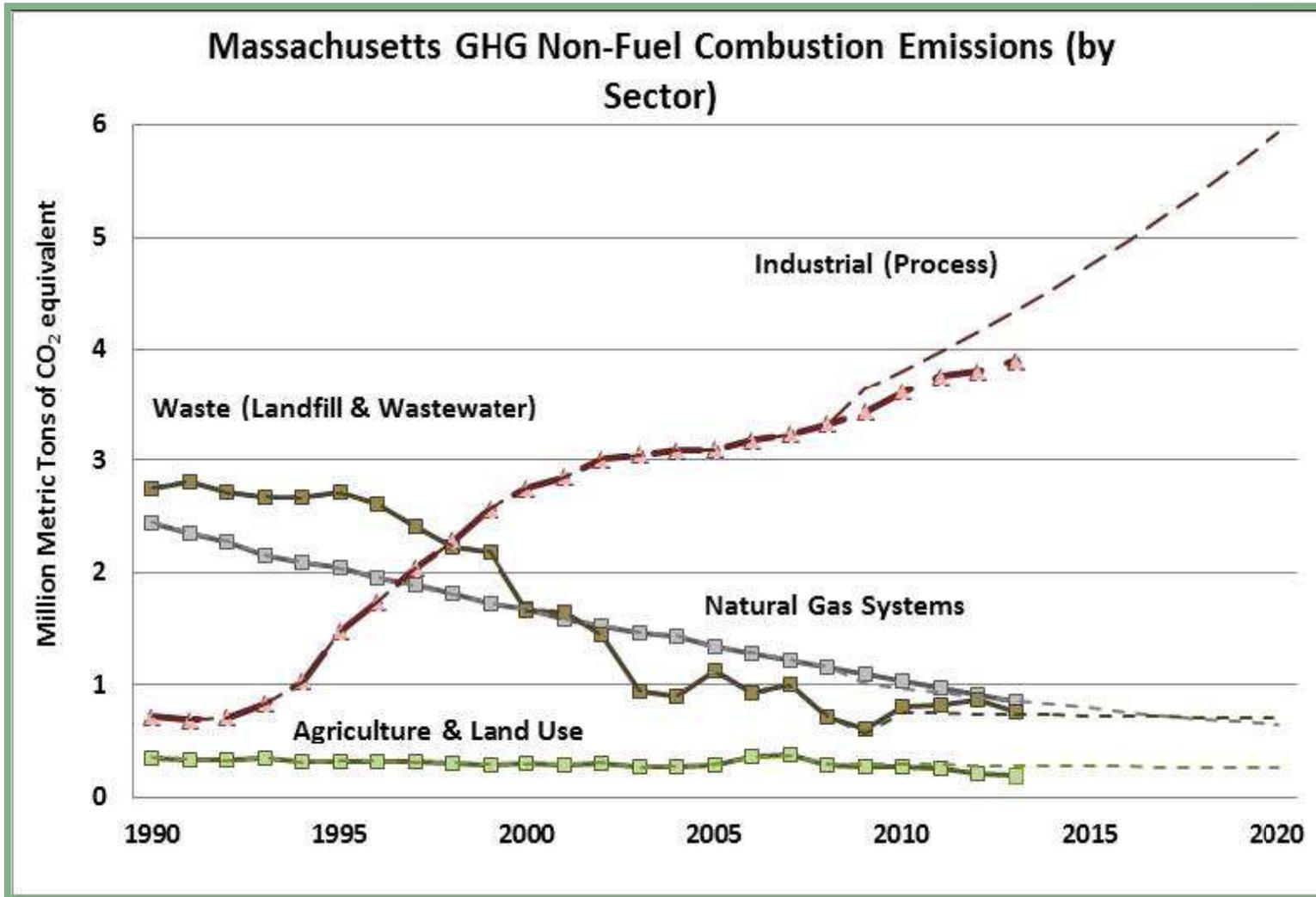
What Produces Most GHG Emissions?

Source: <http://www.mass.gov/eea/docs/dep/air/climate/gwsa-update-16.pdf>



What Else Produces GHG Emissions?

Source: <http://www.mass.gov/eea/docs/dep/air/climate/gwsa-update-16.pdf>



Massachusetts' Climate Change Goals

- Reduce GHG emissions (Global Warming Solutions Act of 2008)
 - 25% less by 2020 (over 1990 levels)
 - 80% less by 2050 (over 1990 levels)
- Adapt/manage impacts of changing climate through a Climate Adaptation Plan (Executive Order No. 569, 9/16/2016):
 - Make communities more resilient
 - Prepare for the impacts of climate change
 - Prepare for/mitigate damage from extreme weather events

How is Massachusetts Reducing CO₂ Emissions from the Power Sector?

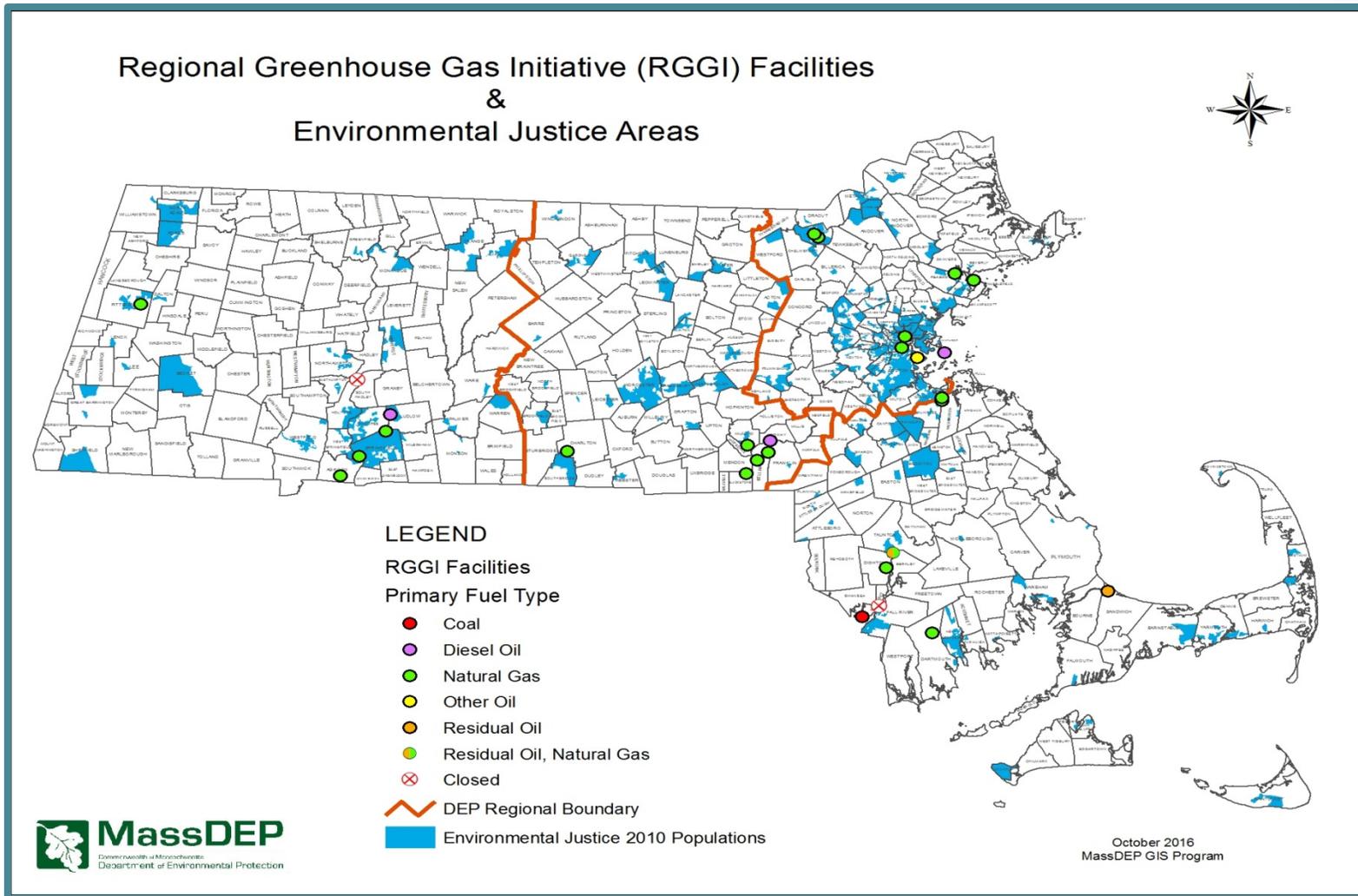
- Regional Greenhouse Gas Initiative (RGGI)
- Renewable Portfolio Standard
- 3-year plans by “investor-owned” gas & electric utilities/energy providers for:
 - ✓ Cost-effective energy efficiency
 - ✓ Power demand reductions

What is RGGI?

- 9 Northeast & Mid-Atlantic states cap and reduce (CO₂) emissions from the power sector
- Covers all power plants 25 MW or more
- Each power plant must hold one RGGI CO₂ allowance for each ton of CO₂ emitted over three year compliance periods
- Allowances are auctioned quarterly
- Auction proceeds are invested in clean energy projects



What Massachusetts Power Plants Does RGGI Regulate?



How Does RGGI Work?

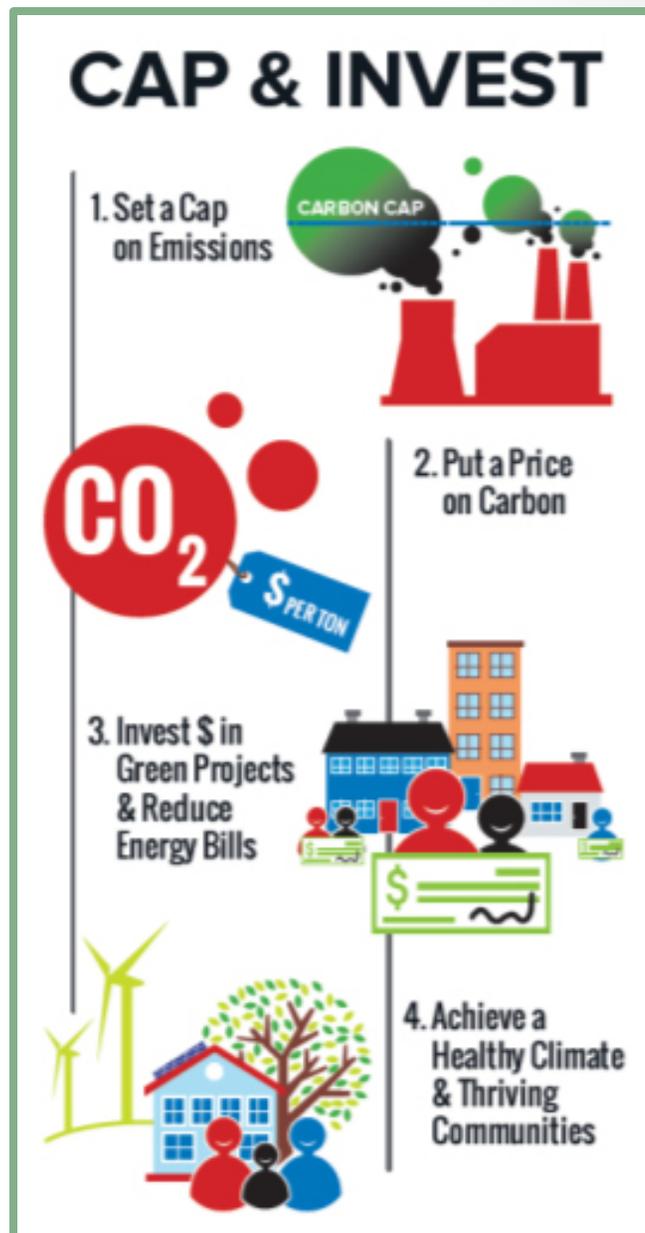
- Cap on total CO₂ emissions from power plants in the RGGI region.
- State power plant rules include state caps on CO₂ emissions.
- Power plants buy or trade “allowances”
- Region’s cap tightens emission limits over time.
- Region’s cap is adjusted when needed

MA's Share of RGGI Auction Proceeds since 2009

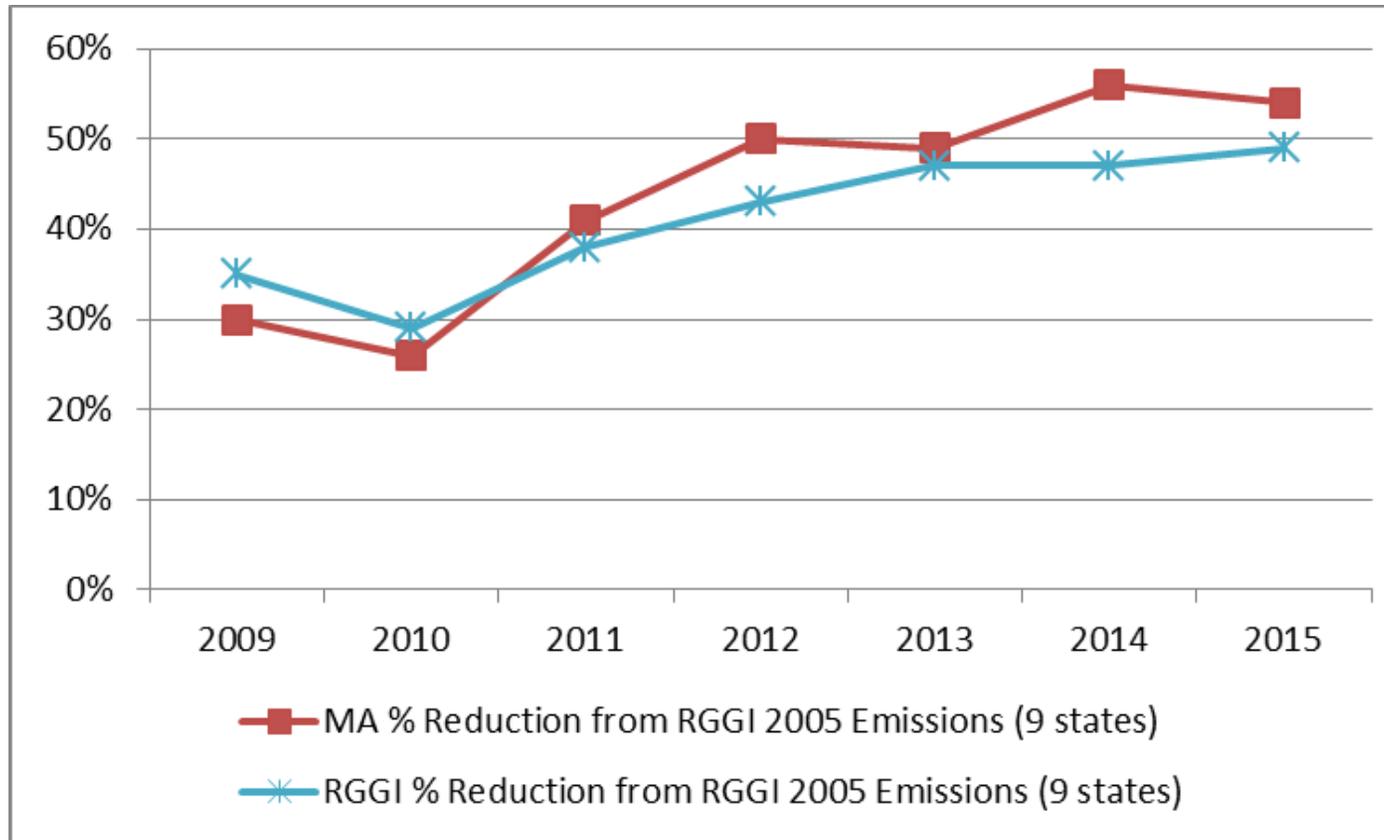
- 138.2M allowances have been sold for MA power plants (16% of all allowances)
- MA total auction proceeds = \$427.3M (16% of all proceeds)
- 80% of MA's auction proceeds must be invested in energy efficiency measures

Source: Data from the RGGI web site:
http://rggi.org/market/co2_auctions/results

Graphic from a presentation by NY Dept. of Environmental Conservation, August 2016



RGGI Results #1: CO₂ Emissions Reduced



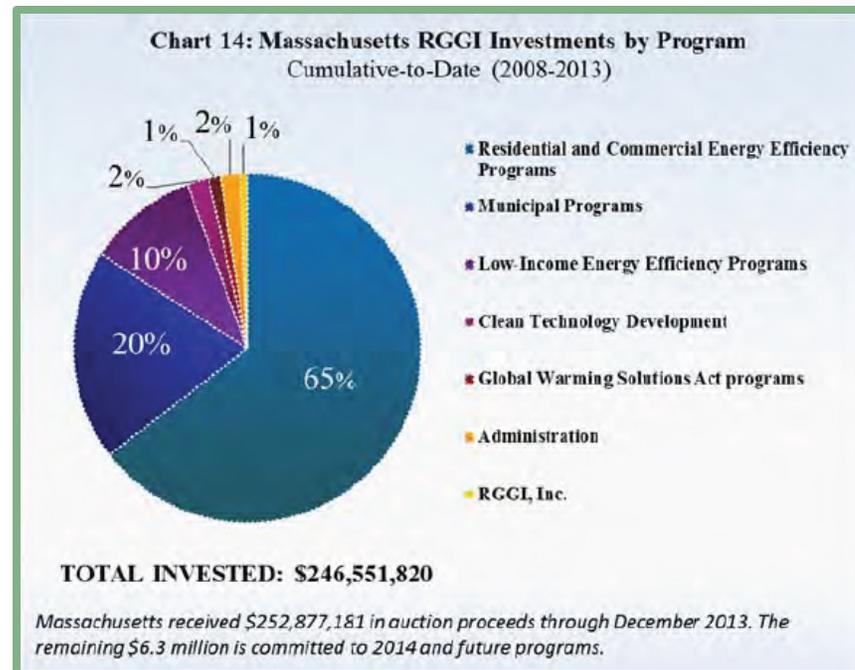
RGGI Results #2: Helping Communities

Member states invest auction income locally in:

- Energy Audits
- Efficiency Improvements
- Clean Energy Development
- Green Jobs Training

Source for chart:

<http://rggi.org/docs/ProceedsReport/Investment-RGGI-Proceeds-Through-2013.pdf>



RGGI Results #3: Cleaner Air, Healthier Communities

- Moving to cleaner fuel and energy sources:
 - Much lower GHG emissions from the RGGI Region
 - Local & regional improvement in traditional pollutant emissions (nitrogen oxides, sulfur dioxides, particulates) reduces asthma attacks, hospital visits, medical expenses
- Efficiency investments deliver \$2 - \$4 in benefits for every dollar invested, the best economic return from all investments of RGGI funds
- Energy efficiency is our “1st fuel”

RGGI Results Over the Long-Term

1. **Reduce greenhouse gases (GHGs)** through renewable energy and energy efficiency
2. **Build capacity** for long term CO₂ reduction
3. **Empower communities** to reduce CO₂ and transition to cleaner energy
4. **Stimulate entrepreneurial growth** of companies focused on clean energy and CO₂ reduction
5. **Create new financing solutions** to encourage CO₂ reduction and clean energy adoption

What's Next for RGGI?

- 2016 Program Review is underway. Tightening the regional cap is being discussed.
- Agency heads will set new regional cap and cost-containment reserve requirement
- RGGI will revise model rule for implementation
- Each member state will propose and adopt its own rule for implementation
- Goal: Revised rules in effect by January 2018

Red: public will have opportunity to comment

U.S. Clean Power Plan

- **U.S. EPA's Clean Power Plan:**
 - Would regulate CO₂ from large power plants (same as RGGI)
 - EPA has set CO₂ emission reduction goals for each state – MA's goals are similar to RGGI goals
 - States can decide how to meet their goal – RGGI would be allowed
- **Current status:**
 - U.S. Supreme Court has stayed implementation pending resolution of law suits
 - If EPA is allowed to proceed with the Clean Power Plan, Massachusetts would use RGGI to comply and meet our state goal

Questions/Comments?

- RGGI.org web site: <http://rggi.org/>
- GHG emission inventory:
<http://www.mass.gov/eea/agencies/massdep/climate-energy/climate/ghg/greenhouse-gas-ghg-emissions-in-massachusetts.html>

Comments on 2016 RGGI Program Review:

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Technical questions about RGGI:

- Bill Lamkin, Environmental Engineer
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