Update on Climate Change Efforts

Clean Power Plan and RGGI Program Review

Discussion with Stakeholders

Tracy Babbidge, Bureau Chief
Energy Policy
December 10, 2015

Connecticut Department of Energy and Environmental Protection
CT Climate Action Timeline

2001
CT signs the NEG/ECP 2001 Climate Change Action Plan

2002
Creation of Governor's Steering Committee (GSC) on Climate Change

2004
9-month stakeholder dialogue process develops the 2004 Connecticut Stakeholder Recommendations

2005
Governor's Steering Committee (GSC) on Climate Change finalizes the CT Climate Change Action Plan and submits to the General Assembly

2008
An Act Concerning Climate Change (Public Act 04-252) establishes CT-specific GHG goals that align with the NEG/ECP regional goals

2010
CT Global Warming Solutions Act (Public Act 08-98) reaffirms CT’s commitment to GHG targets for 2020 and 2050

2013
CT and northeastern states participate in the first auction of the Regional Greenhouse Gas Initiative (RGGI), the first cap and trade program in the nation.

2013
GSC Adaptation Subcommittee issues the Impacts of Climate Change on Connecticut Agriculture, Infrastructure, Natural Resources and Public Health

2013
CT Greenhouse Gas Emissions: Mitigation Options Overview and Reduction Estimates is published by NESCAUM

2013
2013 Comprehensive Energy Strategy released

Review timeline details
Executive Order 46 (April 22, 2015)

Governor’s Council on Climate Change

Examine the efficacy of existing policies and regulations designed to reduce greenhouse gas emissions and identify new strategies to meet reduction targets.

Monitor greenhouse gas emission level in CT annually.

Recommend interim statewide greenhouse gas reduction targets to ensure meeting the 2050 target.

Recommend policies, regulations, or legislative actions to achieve targets.

Report findings to the Governor and the Office of Policy and Management.
Guiding Principles
Governor's Council on Climate Change

Commitment to Analysis
Use technical expertise and analytical rigor to inform the GC3’s policy deliberations and recommendations.

Commitment to Leadership
Cultivate climate leadership in state government, in the business community, in non-governmental organizations, and in municipal government.

Commitment to Accountability
Assure the effectiveness of climate programs by monitoring progress, proposing course corrections as needed, engaging stakeholders, and making the GC3’s deliberations transparent.

Informed by the executive order, three overarching principles will serve as lenses for Council’s deliberations and outcomes.

Connecticut Department of Energy and Environmental Protection
Governor’s Council on Climate Change (GC3) Members

Melody Currey
Organizer
Connecticut Roundtable on Climate and Jobs

Bryan Garcia
Chief Executive Officer
Connecticut Green Bank

Arthur House
Chairman
Public Utilities Regulatory Authority

John Humphries
Organizer
Connecticut Roundtable on Climate and Jobs

Scott Jackson
Under Secretary, Intergovernmental Policy Division,
Office of Policy and Management

Rob Klee [Council Chair]
Commissioner
Department of Energy and Environmental Protection

Evonne Klein
Commissioner
Department of Housing

James O’Donnell
Executive Director
Connecticut Institute for Resilience and Climate Adaption

James Redeker
Commissioner
Department of Transportation

David Robinson
General Counsel
The Hartford

Catherine Smith
Commissioner
Department of Economic and Community Development

Don Strait
Executive Director and President
Connecticut Fund for the Environment

Lynn Stoddard
Director
Institute for Sustainable Energy at Eastern Connecticut State University

Katherine Wade
Commissioner
Connecticut Insurance Department
Stakeholder engagement on policy actions to analyze within the following sectors:
- Transportation
- Electric
- Buildings

(policy selection criteria: quantity of emissions reduction, economic cost/savings, & feasibility of implementation)

Stakeholder engagement on voluntary actions and strategic programming

- Analyze selected policies and scenarios
- From analysis results, identify scenario packages for achieving GHG reductions
- Analyze macro-economic benefits of identified scenarios using REMI

Stakeholder engagement on GHG reduction scenario packages

Draft “CT Climate Strategy”

Stakeholder engagement and comment on draft “CT Climate Strategy”

December 2016 – January 2017

Incorporate stakeholder comments and finalize “CT Climate Strategy”

February 2017 – beyond

Implementation of “CT Climate Strategy”
Connecticut Department of Energy and Environmental Protection

Clean Power Plan
Key Elements
What is the Clean Power Plan?

• EPA is taking three actions to reduce carbon pollution from the power sector
  – Clean Power Plan (CPP) – existing sources
  – Carbon Pollution Standards – new, modified and reconstructed sources
  – Federal Plan proposal and model rule

• These are the first-ever national standards that address carbon pollution from power plants.

• The Clean Power Plan recognizes the effectiveness of mass-based, multi-state emission reductions programs, such as RGGI
How Does the Clean Power Plan Work?

• The Clean Air Act – under section 111(d) – creates a partnership between EPA and states – with EPA setting a goal and states choosing how they will meet it.

• EPA is establishing interim and final carbon dioxide (CO₂) emission performance rates for:
  – Fossil fuel-fired electric steam generating units (generally, coal- and oil-fired power plants)
  – Natural gas-fired combined cycle generating units
Category-Specific Performance Rates

Power plants are subject to the same standards no matter where they are located.

Emission Performance Rates (application of BSER) × Unique State Generation Mix = Unique State Goal Rates → Mass Equivalents

EPA established carbon dioxide emission performance rates for two subcategories of existing fossil fuel-fired electric generating units (EGUs):

1. Fossil fuel-fired electric generating units (generally, coal-fired power plants)
2. Natural gas combined cycle units
Emission performance rates have been translated into equivalent state goals

EPA is providing state goals in three forms:

- rate-based goal measured in pounds per megawatt hour (lb/MWh);
- mass-based goal measured in short tons of CO₂;
- mass-based goal with a new source complement (for states that choose to include new sources) measured in short tons of CO₂.
Clean Power Plan Timeline

- August 3, 2015 - Final Clean Power Plan
- September 6, 2016 - States make initial submittal with extension request or submit Final Plan
- September 6, 2018 - States with extensions submit Final Plan
- January 1, 2022 - Compliance period begins
- January 1, 2030 - CO₂ Emission Goals met
STATE Plan Approaches
State Plans: More State Options, Lower Costs

- This chart shows some of the compliance pathways available to states under the final Clean Power Plan. Ultimately, it is up to the states to choose how they will meet the requirements of the rule.
- EPA’s illustrative analysis shows that nationwide, in 2030, a mass-based approach is less-expensive than a rate-based approach ($5.1 billion versus $8.4 billion).
- Under a mass-based plan, states that anticipate continuing or expanding investments in energy efficiency have unlimited flexibility to leverage those investments to meet their CPP targets. EE programs and projects do not need to be approved as part of a mass-based state plan, and EM&V will not be required.
- For states currently implementing mass-based trading programs, the “state measures” approach offers a ready path forward.
- Demand-side energy efficiency is an important, proven strategy that states are already widely using and that can substantially and cost-effectively lower CO2 emissions from the power sector.
Two State Plans Designs

- States are able to choose one of two state plan types

**Emission Standards Plan** – state places federally enforceable emission standards on affected electric generating units (EGUs) that fully meet the emission guidelines
- can be designed to meet the CO₂ emission performance rates or state goal (rate-based or mass-based goal)

**State Measures Plan** - state includes, at least in part, measures implemented by the state that are not included as federally enforceable emission standards
- designed to achieve the state CO₂ mass-based goal
- includes federally enforceable measures as a backstop
RGGI Program Review
Co$_2$ Emission Reductions & Flexibility Mechanisms
How is the Clean Power Plan Different From RGGI?

- Emission Reductions

- Flexibility Mechanisms
  - Cost Containment Reserve
  - Offsets
  - Three Year Control Periods
# RGGI Program Elements

## States:
Connecticut, Delaware, Maryland, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, Vermont

## Coverage:
Fossil fuel-fired power plants 25 megawatts or greater in size (currently 163 facilities region-wide)

## CO₂ Emissions Cap:
88.7 million short tons in 2015, and declines 2.5% each year until 2020; two interim adjustments to the cap (2014-2020) to account for banked CO2 allowances.

## Compliance Period:
- Three years, Jan. 1, 2009 – Dec. 31, 2011;

## CO₂ Emission Offsets:
Qualifying GHG reduction projects outside the electricity sector. Can use to meet 3.3% of compliance obligation.

## Auction Proceeds:
$2.2 billion through Sept. 2015. States reinvest auction proceeds in energy efficiency, renewables, direct bill abatement, and GHG abatement programs.
New England Grid Operations

Deregulated market operated by ISO NE

Heavily reliant on nuclear and natural gas generation

Inherently clean emissions profile in 2012, CT became the largest share of regional gross generation

CT’s nuclear and gas generation fleets are base load

CT’s surplus generating capacity is called to serve load in other states
Final vs. Proposed Clean Power Plan

- Unit based Emission Standards rather than proposed System Based Emission Standards
- Best System of Emission Reduction (BSER) based on 3 building blocks rather than 4 proposed
- Less stringent limits for CT and RGGI states
- Clean Energy Incentive Program – Credit for Early Action
- Requirement to demonstrate adequate outreach conducted with “vulnerable communities”
- Reliability Safeguards

<table>
<thead>
<tr>
<th>Connecticut’s Interim (2022-2029) and Final Goals (2030)</th>
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<tbody>
<tr>
<td><strong>CONNECTICUT</strong></td>
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<tr>
<td>2012 Historic 1</td>
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<td>2020 Projections (without CPP)</td>
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<tr>
<td><strong>Interim Period 2022-2029</strong></td>
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<tr>
<td>Rate-based Goal</td>
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<tr>
<td>Mass-based Goal (annual average CO₂ emissions in short tons)</td>
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<td>Mass Goal (Existing) &amp; New Source Complement</td>
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<td><strong>Interim Step 1 Period 2022-2024</strong></td>
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<tr>
<td>Rate-based Goal</td>
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<td>Mass-based Goal (annual average CO₂ emissions in short tons)</td>
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<tr>
<td>Mass Goal (Existing) &amp; New Source Complement</td>
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<td><strong>Interim Step 2 Period 2025-2027</strong></td>
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<td>Rate-based Goal</td>
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<tr>
<td>Mass-based Goal (annual average CO₂ emissions in short tons)</td>
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<tr>
<td>Mass Goal (Existing) &amp; New Source Complement</td>
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<tr>
<td><strong>Interim Step 3 Period 2028-2029</strong></td>
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<td>Rate-based Goal</td>
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<tr>
<td>Mass-based Goal (annual average CO₂ emissions in short tons)</td>
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<tr>
<td>Mass Goal (Existing) &amp; New Source Complement</td>
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<tr>
<td><strong>Final Goal 2030 and Beyond</strong></td>
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<tr>
<td>Rate-based Goal</td>
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<tr>
<td>Mass-based Goal (annual average CO₂ emissions in short tons)</td>
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<tr>
<td>Mass Goal (Existing) &amp; New Source Complement</td>
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### CT CPP Goals (tons/year)*

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<thead>
<tr>
<th>Year</th>
<th>Emissions (Millions)</th>
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<tr>
<td>2014 Actual Emissions</td>
<td>7</td>
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<tr>
<td>RGGI 2020</td>
<td>5</td>
</tr>
<tr>
<td>Proposed CPP 2030</td>
<td>4</td>
</tr>
<tr>
<td>Final CPP 2030</td>
<td>7</td>
</tr>
</tbody>
</table>

* Existing source + new source complement
Aggregate RGGI CPP Goals (tons/year)*

* Existing source + new source complement
CO$_2$ Emission Reductions

**RGGI and CPP: Mass Goals**

- **CPP Goals for RGGI States (Existing + New)**
- **Current RGGI Budgets (no CCR or offsets)**
- **Current RGGI Budgets (with 10 M CCR + 3.3% offsets)**

Connecticut Department of Energy and Environmental Protection
<table>
<thead>
<tr>
<th>State</th>
<th>RGGI 2020 Cap</th>
<th>CPP Final Mass Goal (2030)</th>
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<tbody>
<tr>
<td>CT</td>
<td>5,061,540</td>
<td>7,060,993</td>
</tr>
<tr>
<td>DE</td>
<td>3,577,750</td>
<td>4,781,386</td>
</tr>
<tr>
<td>ME</td>
<td>2,815,382</td>
<td>2,109,968</td>
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<tr>
<td>MD</td>
<td>17,749,162</td>
<td>14,498,436</td>
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<tr>
<td>MA</td>
<td>12,617,227</td>
<td>12,303,372</td>
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<tr>
<td>NH</td>
<td>4,079,725</td>
<td>4,060,591</td>
</tr>
<tr>
<td>NY</td>
<td>30,435,778</td>
<td>31,718,182</td>
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<tr>
<td>RI</td>
<td>1,258,514</td>
<td>3,584,016</td>
</tr>
<tr>
<td>VT</td>
<td>580,137</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>78,175,215</td>
<td>80,116,944</td>
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</tbody>
</table>
Flexibility Mechanisms

• Cost Containment Reserve
  – Comments and feedback on how the CCR has worked to date and the current design of the CCR.
  – Comments on whether any of the CCR design elements should be reviewed and how the CCR and RGGI cap should work together when developing a CPP compliance pathway.

• Offsets
  – Comments and feedback on the RGGI offsets program including potential improvements, additional offset categories, acceptance of offsets allowances not generated from projects located in the RGGI states or listed on offset registries, and the continuation of the offsets program within the bounds of the CPP.
Stakeholder Discussion: Control periods & Additional Key Elements
How is the Clean Power Plan Different From RGGI?

- CPP
  - Compliance Periods
    - Three year
    - Two year
  - Regulated Sources
    - Doesn’t include new units
    - Doesn’t include some simple cycle units
  - Clean Energy Incentive Program

- RGGI
  - Compliance Periods
    - Three year
    - Interim control period
  - Regulated Sources
    - Includes new units
    - Includes simple cycle
  - Reinvestment of auction proceeds – EE/RE programs
Flexibility Mechanisms

• **Control Periods**
  
  - Comments and feedback on the compliance process, including the interim control periods and possible improvements to the compliance process.
  
  - Comments on possibly amending the non-compliance penalty from surrendering CO₂ allowances equal to three times the number of a source’s excess emissions to a CO₂ allowance penalty that may better align with the CPP’s requirements, or other alternatives.
  
  - Comments on whether the RGGI control periods should align with the CPP interim step periods. If so, suggestions for aligning with the CPP?
### RGGI Control Periods and CPP

<table>
<thead>
<tr>
<th>RGGI’s 3-year control periods are:</th>
<th>EPA’s periods are:</th>
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<tbody>
<tr>
<td>2018 – 2020;</td>
<td>2022 – 2024;</td>
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<tr>
<td>2021 – 2023;</td>
<td>2025 – 2027;</td>
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<tr>
<td>2024 – 2026;</td>
<td>2028 – 2029;</td>
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<tr>
<td>2027 – 2029;</td>
<td>2030 – 2031;</td>
</tr>
<tr>
<td>2030 - 2032</td>
<td>2-year periods thereafter</td>
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</tbody>
</table>
RGGI Offsets and CPP?

- EPA will not allow non-power sector reductions
- RGGI allows offsets for 3.3% of compliance

Eliminate use of offsets?
  - State-specific decision?

Adjust goals to account for offsets?
  - If EPA mass-based goal reduced by 3.3%, could EPA accept RGGI program including offsets?
• Given the fact that the RGGI states auction most of the CO$_2$ allowances, seeking stakeholder comments on whether the RGGI states should participate in the Clean Energy Incentives Program or CEIP.
• Seeking comments and suggestions on the broadening the CO$_2$ allowance trading market.

• Seeking comments on how the RGGI states could best pursue this option.
Next Steps-Written Comments

• Written comments are requested by 5:00 PM ET on Friday, December 11, 2015

• Please send comments by e-mail to info@rggi.org

• Written comments have been posted at http://www.rggi.org/design/2016-program-review
Next Steps - Connecticut
Written Comments

• Written comments are requested by 5:00 PM on Friday, December 18, 2015

• Please send comments by e-mail to debra.morrell@ct.gov

• Written comments will be posted on the DEEP Energy Filings webpage: RGGI Program Review
Next Steps-Stakeholder Meetings

- Additional regional stakeholder meetings are anticipated.
- See schedule and other related documents here:

-NS
Questions?