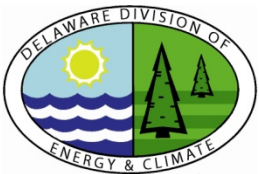


Delaware Clean Power Plan State Plan Development

Clean Power Plan Workshop

March 1, 2016



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DNREC

Overview

- * What is the CPP?
- * What affected EGUs must be addressed?
- * What is RGGI's Role in the CPP?
- * What are the components of Delaware's State Plan?

What is the CPP?

Clean Power Plan

- * Federal Regulation that requires states to reduce CO₂ emissions from existing power plants.
 - * Proposed by the EPA in June 2014.
 - * Finalized in August 2015.
- * It is a national plan that sets standards for power plants, and customized goals for states to reduce carbon pollution.
- * It provides national consistency, accountability and a level playing field while reflecting each state's energy mix.

What affected EGUs must be addressed?

Applicability

Section 60.5845 specifies applicability.

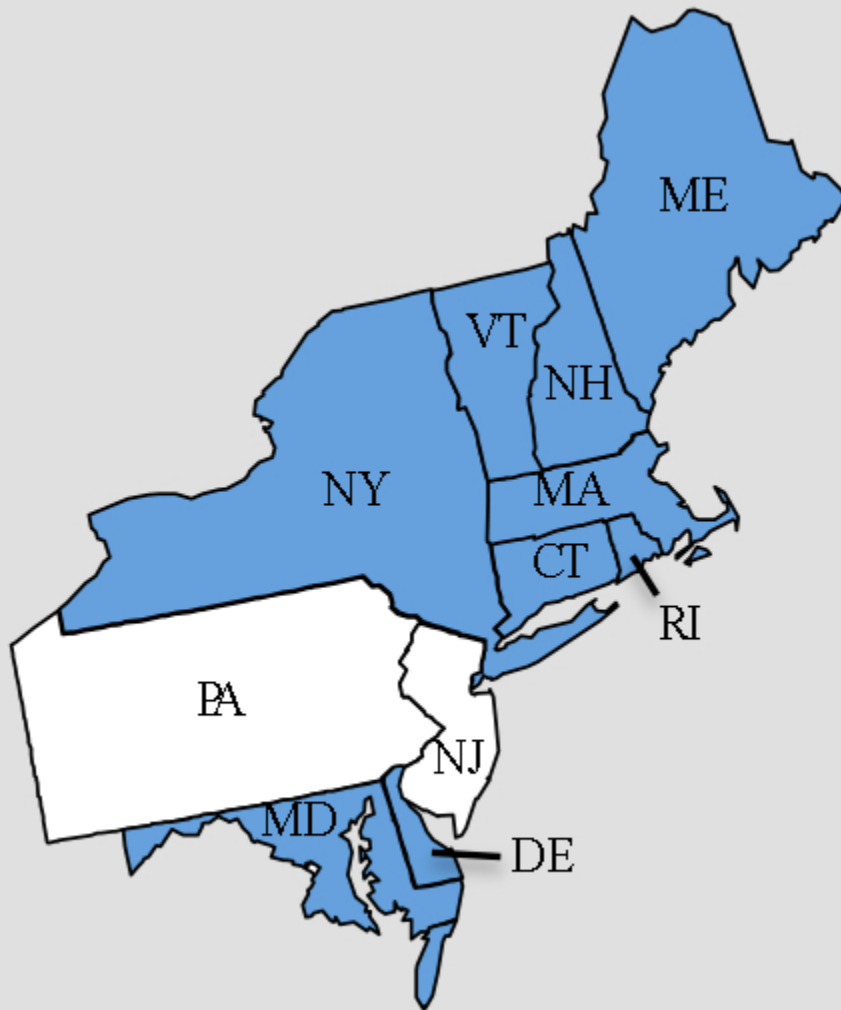
- * An affected EGU is a steam generating unit, IGCC or stationary combustion turbine.
- * Has a name plate capacity greater than 25 MW.
- * Has a base load rating (design heat input capacity) greater than 250 MMBtu/hr.
- * Is a combined cycle or combined heat and power combustion turbine.

Affected EGUs

EGU	Category	Name Plate Capacity (MW)	Design Heat input (MMBtu/hr)
Edge Moor (units 3, 4, 5)	OGST	698	7,679
Hay Road (units 1-8)	NGCC	798	10,506
Garrison Energy (unit 1)	NGCC	309	2,183
McKee Run (unit 3)	OGST	110	1,180
Indian River Power Station (unit 4)	Coal/Steam	420	5,091

How is RGGI related to the CPP?

Regional Greenhouse Gas Initiative (RGGI)



- * Nine State power sector cap
- * Mass-based
- * New Sources
- * Allowance Auctions
- * Proceed Reinvestment
- * Flexibility Mechanisms
 - * Offsets
 - * Cost-Containment Reserve

Economic Impact

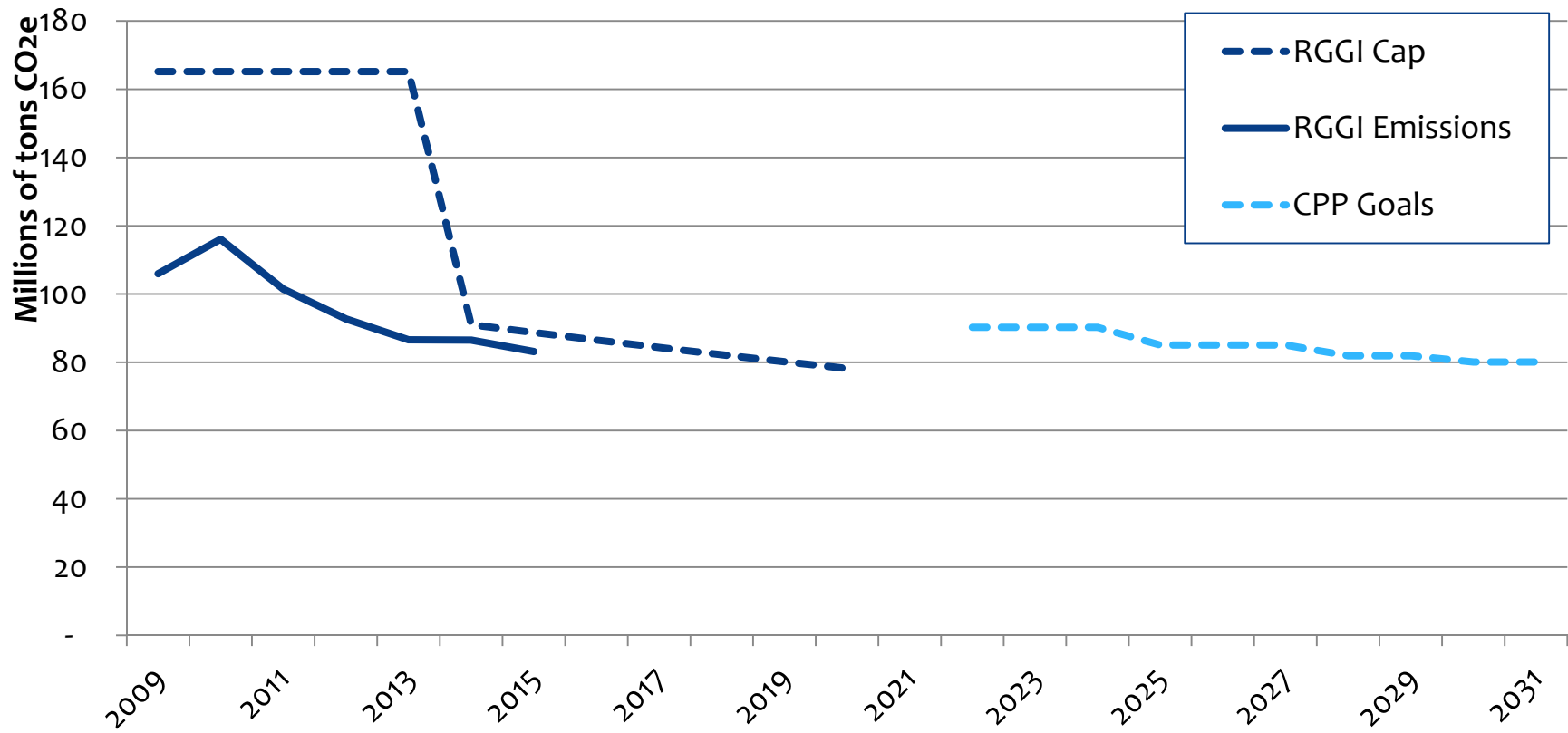
- * RGGI has generated net economic benefit¹:
 - * \$1.6B from 2009-2011
 - * \$1.3B from 2012-2014
- * Proceed reinvestment has been positive²:
 - * e.g. \$1.30 to \$6.80 in benefit per dollar spent in 2010

1. Hibbard, Paul J., Andrea M. Okie, Susan F. Tierney, and Pavel G. Darling. 2015. The Economic Impacts of the Regional Greenhouse Gas Initiative on Nine Northeast and Mid-Atlantic States. *The Analysis Group*. July 14,

2015. http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/analysis_group_rggi_report_july_2015.pdf

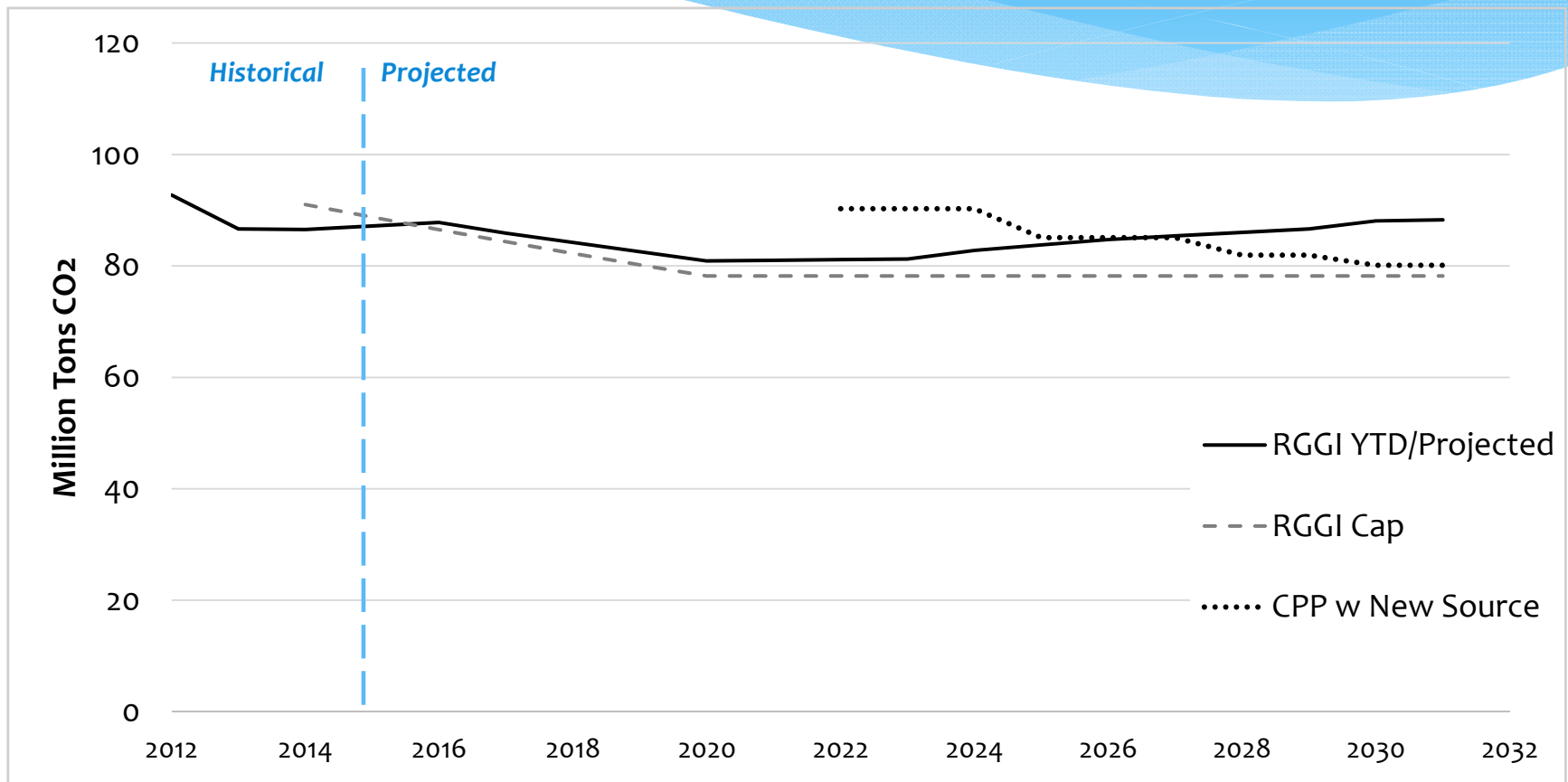
2. Chang, Max, David White, Patrick Knidhgt, and Bruce Biewald. 2012. Energy Benefits Resulting from the Investment of 2010RGGI Auction Revenues in Energy Efficiency. *Synapse Energy Economics, Inc.* February 28, 2012. http://www.synapse-energy.com/sites/default/files/SynapseReport.2012-02.RAP_.RGGI-Energy-Efficiency-Benefits.10-027A.pdf

RGGI CAP v. CPP GOALS



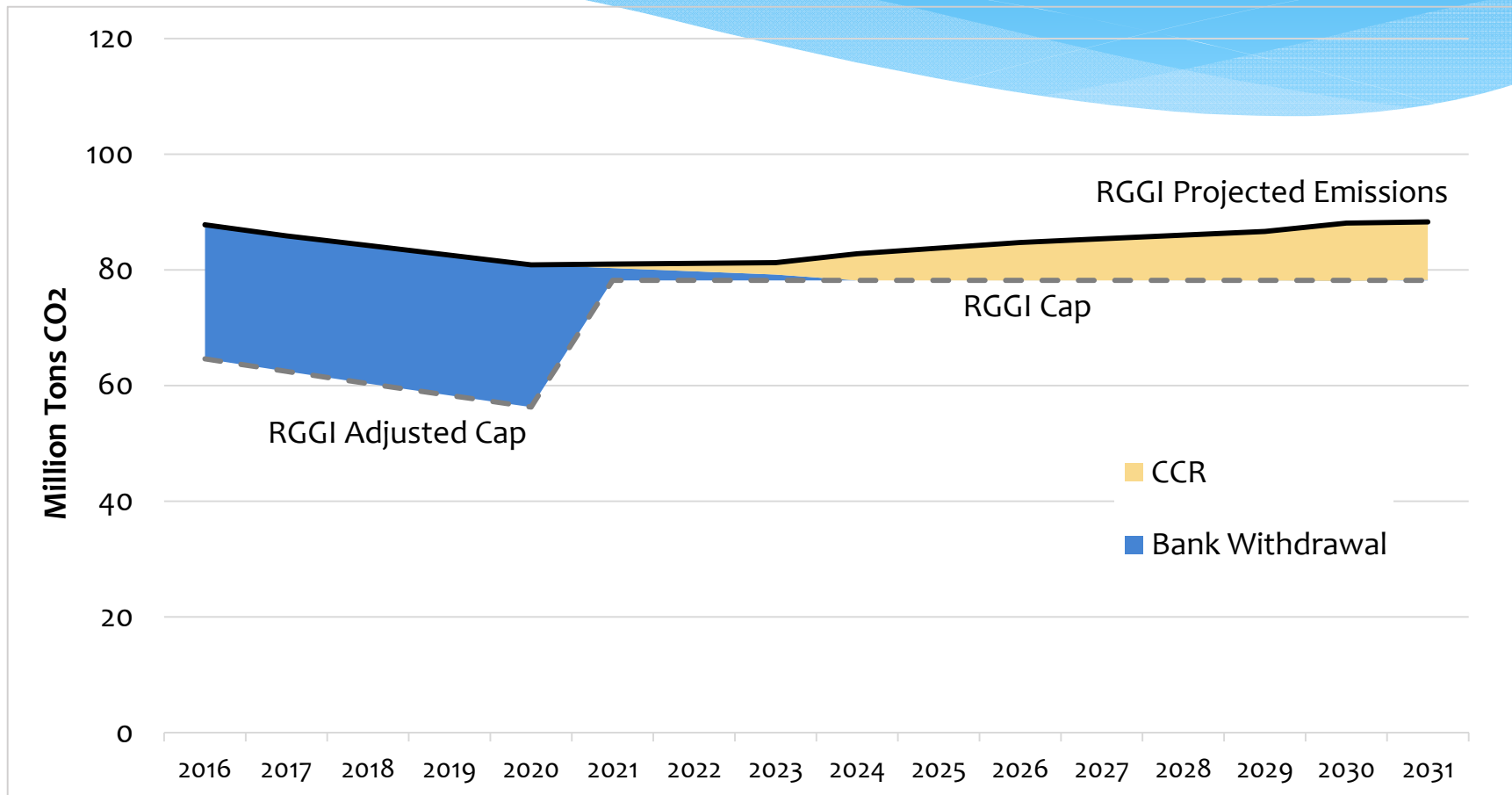
2016 RGGI Program Review Reference Case: Projected CO₂ Emissions

- Emissions exceed the RGGI Cap when allowances are withdrawn from the bank or purchased at the CCR trigger price.



Projections: CO₂ Emission Reductions

- The chart shows the projected CO₂ emissions relative to the cap and the use of banked allowances and CCR allowances used for compliance.



Delaware's CPP Approach

- * Mass-based Emissions Goal
- * New Source Complement
- * Emissions Standards
- * Multi-State Trading
- * Auction Allowances

What are the components of Delaware's State Plan?

CPP Plan Key Components –

See Preamble Section VIII.D.2.a.(1) – (7) and
60.5740 (a) (1) – (5) / 60.5745 (a) (1) – (13)

- 1) Description of the plan approach and geographic scope.
- 2) Applicability of state plans to affected EGUs.
- 3) Demonstration that a state plan will achieve the CO₂ emission goal.
- 4) Monitoring, reporting and recordkeeping requirements for all affected EGUs
- 5) State reporting and recordkeeping requirements.
- 6) Public Participation and certification of hearing on state plan.
- 7) Supporting documentation.

Plan Organization

- * Part 1 – Federal Enforceable Components
 - * 60.5740 (a) (1) – (5)
 - * EPA will codify these sections in 40 CFR 62.
 - * See Preamble Section VIII.D. 2. and 3.

- * Part 2 – Non-federal Enforceable Components
 - * 60.5745 (a) (1) – (13)

Part 1. Federally Enforceable Elements

Section 1. Identification of Affected EGUs (60.5740(a)(1)).

- *CPP affected EGUs
- *Affected EGUs covered by this plan
- *CY2015 emission inventory of the affected EGUs

Delaware's RGGI EGUs

EGU	Category	2015 Emissions
Edge Moor (units 3, 4, 5)	OGST	383,135
Hay Road (units 1-8)	NGCC	2,056,597
Garrison Energy (unit 1)	NGCC	113,011
McKee Run (unit 3)	OGST	9,558
Indian River Power Station (unit 4)	Coal/Steam	627,478
Christiana Substation 11,14	SC	1,588
Van Sant 11	SC	2,423
Warren Beasley Power Station 1,2	SC	26,570
Delaware City Refinery – CCU 1, 2, TGs	Industrial	169,025
NRG Dover 2,3	SC	129,719
		Total: 3,519,104

Part 1. Federally Enforceable Elements

Section 2. Emission Standards: (60.5740(a)(2), 60.5775(a) through (f)). See Section VIII.D.2.b.(3) p. 64850 of Preamble. Compliance Periods: 60.5770 and Emission Goals: 60.5855.

- * Emission Standards:

- * 7 DE Admin Code 1147 Section 1.5 – Standard Requirements:

- Quantifiable: if it can be reliably measured in a manner that can be replicated;
 - COATS compliance accounts – section 6.0
 - Continuous Emission Monitoring – section 8.0
 - Verifiable: If State and Administrator can independently evaluate, measure and verify compliance due to adequate monitoring, recordkeeping and reporting requirements;
 - COATS compliance accounts – section 6.0
 - Continuous Emission Monitoring – section 8.0

Part 1. Federally Enforceable Elements

Section 2 - Continued

- * Emission Standards – 1147 Section 1.5:
 - Non-duplicative: if it is not already incorporated as an emission standard in another State plan;
 - Holding CO₂ allowances in RGGI COATS compliance accounts is not required by any other Delaware regulation or State Implementation Plan.
 - Permanent: if the emission standard must be met for each compliance period, unless it is replaced by another emission standard in an approved plan revision;
 - COATS compliance accounts – section 6.0
 - Enforceable: if technically accurate limitation or requirement are specified and compliance requirement are clearly defined.

Part 1. Federally Enforceable Elements

Section 2 – Continued.

- * Compliance Periods: 60.5770. 1147 Section 1.3 Definitions
 - * Compliance Periods will need to be amended to comply w/ CPP.

2 nd RGGI CP	3 rd RGGI CP	4 th RGGI CP	5 th RGGI?	1 st Interim Period	2 nd Interim Period	3 rd Interim Period	CPP Final Period(s)
2012-2014	2015-2017	2018-2020	2021?	2022-2024	2025-2027	2028-2029	2030 -2031

- * Emission Goals: 60.5790(b)(5) and 60.5855. From Table 4*.
 - * Delaware’s applicability includes new sources. See 1.2.1 and 5.1
 - * Interim Emission Goal (2022-29)
 - * Final Emission Goal (2030-31)

State	2020 (RGGI Budget)	2022-2024 (CPP Budget)	2025-2027 (CPP Budget)	2028-2029 (CPP Budget)	2030 (CPP Budget)
Delaware	3,577,750	5,380,716	5,072,246	4,887,401	4,781,386

*with the New Source Complement

Part 1. Federally Enforceable Elements

Section 3. Identification of applicable monitoring, reporting, and recordkeeping requirements for each affected EGU (60.5740(a)(4), and 60.5860).

- *Monitoring

- * 1147 Sections: 1.5.2 and 8.0

- *Record Keeping & Reporting

- *1147 Sections: 1.5.5 and 8.0

- *NOTE: 60.5860(c) requires records to be maintained for a period of 5 years following the compliance period, occurrence, measurement, maintenance, corrective action, report or record. **1147 requires 10 years** per 1.5.5.1.

Part 1. Federally Enforceable Elements

Section 4. State Reporting process, contents and schedules to the EPA (60.5740(a)(5) and 60.5870)

- * Interim Step Reports;
- * Interim Period Report starts with a report covering interim step 1 due no later than July 1, 2025;
- * Final Period Report start with a biennial report covering the first final reporting period due on July 1, 2032;

Part 1. Federally Enforceable Elements

Section 5. Report on programmatic milestone steps will be submitted in July 2021 (60.5740(a)(5)(i) and 5770).

Section 6. Documentation of mass-based CO₂ goal plus new source CO₂ emission complement to address potential leakage (60.5790(b)(5)(i)).

* 1147 Section 5.1 – Base Budgets

- Leakage to be addressed by the New source complement
- 2016 Program Review in progress
 - Interim adjustments to adjust the surplus bank of allowances
 - Cost Containment Reserve
 - Treatment of Offsets

Part 2. Non-Federally Enforceable Elements

- * Section 1. Identification of Plan approach and Geographic Scope of the plan (60.5745(a)(1));
 - Name the RGGI participating states (CT, DE, MD, MA, ME, NH, NY, RI and VT)

- * Section 2. Identification of CO₂ statewide emission goals of affected EGUs (60.5745(a)(2)(i));
 - Regional Cap
 - Delaware's Base Budget, 1147 Section 5.1

Part 2. Non-Federally Enforceable Elements

- * Section 3. Demonstration that the affected EGUs covered by the plan are projected to achieve the CO₂ emission goals (60.5745(a)(3));
 - o RGGI Cap will show that it meets the CPP targets.
- * Section 4. Demonstration that emission standard is quantifiable, non-duplicative, permanent, verifiable, and enforceable. (60.5745(a)(4));

Part 2. Non-Federally Enforceable Elements

- * Section 5. Demonstration that the reliability of the electrical grid has been considered (60.5745(a)(7));
 - RGGI conducting IPM modeling for 2016 Program Review
 - PJM conducting economic and reliability modeling

- * Section 6. Inclusion of the timeline of the programmatic milestone steps the State will take between Plan submittal and January 1, 2022 (60.5745(a)(8));
 - Anticipate program adoption/effective date – 1/1/2018

Part 2. Non-Federally Enforceable Elements

- * Section 7. Demonstration of State legal authority (regulations or legislation) and funding to implement and enforce each component of state plan (60.5745(a)(9));
- * Section 8. Demonstration with supporting documentation that Interim Step Goals will be met (60.5745(a)(10));

Part 2. Non-Federally Enforceable Elements

- * Section 9. Certification that Public Hearing required under 60.23(c)(1) was held (60.5745(a)(11));
- * Section 10. Documentation of community outreach and community involvement, including engagement (60.5745(a)(12))

Part 2. Non-Federally Enforceable Elements

Appendices

- A. State legal authority and funding to implement and enforce
- B. CO₂ emission goal achievement
- C. Calculations for CO₂ emission goals
- D. Other materials to support the plan

Clean Energy Incentive Program

CEIP

- * Purpose: *“to incentivize early investments in wind and solar renewable energy (RE) generation, as well as demand-side energy efficiency (EE) measures implemented in low-income communities, that generate carbon-free megawatt hours (MWh) or reduce end-use energy demand during 2020 and/or 2021.”*