

ATTACHMENT D

COMMENT AND RESPONSE DOCUMENT

**Regarding a
Reasonably Available Control Technology Analysis under the
2008 8-Hour Ozone National Ambient Air Quality Standard Reclassification to
Serious Nonattainment and the
2015 8-Hour Ozone National Ambient Air Quality Standard Initial Classification;
Certification of Adequacy of the Connecticut State Implementation Plan to Satisfy the
Nonattainment New Source Review Requirements of the Clean Air Act for the
2008 8-Hour Ozone National Ambient Air Quality Standard Reclassification to
Serious Nonattainment and the
2015 8-Hour Ozone National Ambient Air Quality Standard Initial Classification**

**Prepared by
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On August 10, 2020, the Commissioner of the Department of Energy and Environmental Protection (DEEP) published a notice of intent of two revisions to the State Implementation Plan (SIP). The first SIP revision addresses sections 182 and 184 of the Clean Air Act (CAA) with respect to reasonably available control technology (RACT) for the reclassification of Connecticut to serious nonattainment for the 2008 ozone national ambient air quality standard (NAAQS) and the initial nonattainment designations for the 2015 ozone NAAQS. The second SIP revision certifies the adequacy of the SIP to satisfy the nonattainment new source review (NNSR) permitting requirements of the CAA for the reclassification to serious nonattainment for the 2008 ozone NAAQS and the initial nonattainment designations for the 2015 ozone NAAQS.

The notice indicated that a hearing would be held on September 29, 2020, only if a request for a hearing was received on or before September 10, 2020. As no hearing request was received, the public hearing scheduled for September 29, 2020 was cancelled. The public comment period closed on September 30, 2020.

I. Hearing Report Content

This document describes the two proposed SIP revisions, identifies principal reasons in support of and in opposition to the proposed SIP revisions, and summarizes and responds to all comments on the proposed SIP revisions.

The proposed and final SIPs will be available on DEEP's RACT web page at <https://portal.ct.gov/DEEP/Air/Planning/Ozone/RACT-under-the-2008-Ozone-NAAQS>

II. Summary of Proposals

RACT Analysis. On August 3, 2018, Connecticut's designations as marginal (Greater Connecticut area) and moderate (Connecticut portion of the New York- Northern New Jersey- Long Island area) for the 2015 8-hour ozone NAAQS became effective.¹ Under CAA section 182(a)(2)(A), the marginal

¹ Additional Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards. 83 FR 25776 (4 June 2018).

nonattainment designation obligates DEEP to correct pre-1990 RACT requirements (the RACT fix-up). Under CAA section 182(b)(2), the moderate nonattainment designation obligates DEEP to implement RACT for all major volatile organic compound (VOC) sources and for all sources covered by a Control Techniques Guideline (CTG).

In addition, Connecticut is a member of the Ozone Transport Region (OTR) and is required under CAA section 184(b)(1)(B) to implement statewide RACT for all VOC sources covered by a CTG. CAA Section 184(b)(2) adds that any stationary source that has the potential to emit at least 50 tons per year of VOC is considered a major stationary source and is subject to the requirements that would apply to a major stationary source in a moderate nonattainment area.² Under CAA Section 182(f), states must apply the same requirements to major stationary sources of nitrogen oxides (NO_x) as are applied to major stationary sources of VOC in ozone nonattainment areas. As a result, DEEP is required to adopt RACT for (1) all VOC sources covered by a CTG; and (2) all major non-CTG sources of NO_x and VOC.

Furthermore, effective September 23, 2019, the entire State of Connecticut was reclassified as serious nonattainment for the 2008 ozone NAAQS, which requires the submission of a revised SIP to address (1) an evaluation of controls for sources emitting 100 tons per year or more that may have become available since January 1, 2017 and (2) an evaluation of controls for sources emitting between 50 and 100 tons per year of NO_x or VOC.³

The RACT SIP revision for the 2008 and 2015 ozone NAAQS is an analysis of how Connecticut has addressed such RACT requirements and includes an overview of RACT implementation in Connecticut under previous ozone NAAQS; a description of state, regional and federal measures to reduce ozone precursor emissions; a review of Connecticut's requirements for CTG sources; and an analysis of Connecticut's major sources of NO_x and VOC.

Nonattainment New Source Review Certification. In this document, DEEP certifies that its existing NNSR requirements in sections 22a-174-1 and -3a of the Regulations of Connecticut State Agencies (RCSA) satisfy the requirements of CAA section 182 and 40 Code of Federal Regulations (CFR) 51.165 for the 2008 ozone NAAQS reclassification to serious nonattainment and the 2015 ozone NAAQS initial classifications of marginal/moderate nonattainment.

III. Opposition to the Proposals

No submitted comments oppose adoption of the proposed SIP revisions.

IV. Summary of Comments

Written comments were received only concerning the RACT SIP revision and from a single person:

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² Section 302(j) of the CAA defines "major stationary source" as any stationary facility or source of air pollutants which directly emits, or has the potential to emit, one hundred tons per year or more of any air pollutant.

³ Determinations of Attainment by the Attainment Date, Extensions of the Attainment Date, and Reclassification of Several Areas Classified as Moderate for the 2008 Ozone National Ambient Air Quality Standards, 84 FR 44241 (23 August 2019).

All comments submitted are summarized below with DEEP's responses. If the proposed SIP narrative is revised in response to a comment, DEEP states this in the response to the comment.

Comment 1:

Phase 1 emission limits within Connecticut's NO_x RACT regulation, Section 22a-174-22e, began on June 1, 2018, and Phase 2 contains more stringent limits for some equipment types beginning on June 1, 2023. Consent Order No. 8377 allows seven turbines and engines operated by NRG to remain uncontrolled during Phase 2 of Connecticut's NO_x RACT requirements which will result in NO_x emissions beyond what is allowed by Phase 2 emission limits for these units. Consent Order No. 8377 allows NRG to demonstrate that the "net air quality" benefit obligation for these units required by Section 22a-174-22e(h)(1)(C) will be achieved by the installation of SNCR NO_x controls on 3 boilers that will enable them to operate well below the current, Phase 1 NO_x emission limits, several years in advance of the Phase 2 compliance date. The amount of overcontrol achieved by the three boilers during Phase 1 is expected to produce enough surplus reductions to account for the excess emissions that NRG's seven turbines and engines will produce due to their not being able to meet their respective Phase 2 NO_x limits. The technical support document (TSD) Connecticut DEEP prepared for Order 8377 contains two sets of emissions projections, one based on potential emissions and another based on actual emissions that both showed the above strategy will ensure that a net air quality benefit is achieved. However, given the vagaries of how electrical generators are dispatched and the magnitude of the potential emissions for the uncontrolled units shown within Table 9, it is possible that the excess emissions from the seven uncontrolled units could exceed the bank of surplus emission reductions built up by the three overcontrolled boilers during Phase 1. How will Connecticut monitor this to ensure that a net air quality benefit is maintained once Phase 2 emission limits are in effect?

Additionally, given that the ten turbines, engines, and boilers subject to this Order are spread across both of Connecticut's two nonattainment areas, how will Connecticut ensure that the net air quality benefit is maintained within each of these areas, and that the requirement of Section 22a-174-22e paragraph (g)(10)(B) regarding use of discrete emission reduction credits (DERCs) within 5 years of creation is met?

Response:

Consent Order No. 8377 meets all the requirements of RCSA section 22a-174-22e(h), which is a SIP-approved rule. The calculations of projected emissions were based on five years (2014 – 2018, inclusive) of operating data. As discussed further in the Response to Comment No. 2, Connecticut's energy policies decrease the likelihood that the seven turbines and engines subject to the Consent Order will operate more frequently in the future. Therefore, the net benefit will likely be preserved through the expiration of the Consent Order in 2028. In addition to installing NO_x controls on three boilers and controlling to the Phase 2 emissions limits during Phase 1, NRG retired 250 unused DERCs as a requirement of the Consent Order. While these retired DERCs are an air quality benefit, this emissions reduction benefit was not included in the net air quality benefit calculations for the Consent Order.

Consent Order No. 8377 contains the requirements necessary to monitor the net air quality benefit created by the Consent Order. Paragraph C.10, requires NRG to record the actual hours of operation and the actual quantity of fuel combusted during the preceding day and calculate and record the NO_x emissions for each of the seven turbines or engines subject to the Consent Order. For each of the boilers subject to the Consent Order, NRG must record daily the 24-hour average NO_x emission rate as well the type and quantity of fuel used.

Paragraph C.10 also requires NRG to submit an annual report to DEEP that includes all the records required by the Consent Order. DEEP will review each annual report to confirm that the units are being operated in continued compliance with the Consent Order.

As the entire state of Connecticut is designated nonattainment for both the 2008 and 2015 ozone NAAQS, any reductions in NO_x emissions in the state theoretically can only help to lower ozone levels. Furthermore, the requirements of RCSA section 22a-174-22e do not include geographical restrictions within the state of Connecticut on the net air quality benefit associated with a case-by-case RACT determination.

Regarding DERC use, as EPA notes, RCSA section 22a-174-22e(g)(10)(B) requires that NO_x DERCs used to comply with RCSA section 22-174-22e are used within five years of generation. Trading Agreement and Order (TAO) No. 8365 controls DERC generation and use pursuant to RCSA section 22a-174-22e for Middletown Unit 4 and Montville Units 5 and 6. Paragraph B.3 of TAO No. 8365 is a vintage restriction that allows a DERC generated to remain valid for five calendar years from the date of generation. DERCs older than five years may not be used for compliance with RCSA section 22a-174-22e.

Consent Order 8377 further restricts the use of DERCs generated in Phase 1 of RCSA section 22a-174-22e by Middletown Unit 4 and Montville Units 5 and 6. For instance, paragraph C.13 of Consent Order 8377 requires that NRG retire prior to use all DERCs generated on and after January 1, 2020 by Middletown Unit 4, Montville Unit 5 or Montville Unit 6. Thus, the installation and operation of controls in Phase 1 on the three boilers will not result in the generation of DERCs that may be used. DERCs may not be used for compliance with RCSA section 22a-174-22e in Phase 2.

No revisions were made to the proposed SIP in response to this comment.

Comment 2:

The TSD Connecticut DEEP prepared for Order 8377 indicates that, “All of the turbines and engines are fast-start peaking units that are typically dispatched in response to very high electric demand or abnormal conditions where grid reliability is at risk.” Additionally, although the data within Table 2 of the TSD indicates these units have operated infrequently during the five-year period of 2014-2018, the data within Table 9 indicates the potential excess emissions for the turbines and engines may be as high as 622 tons for any given year. Although operated infrequently in the recent past, these units could be dispatched during days that Connecticut experiences poor air quality in the future. Given this, has Connecticut confirmed with the ISO New England that these units are needed for reliability through 2028, the year this compliance mechanism will expire?

We also note that Connecticut has other energy policies, such as caps on CO₂ emissions from the power sector (RGGI) and increasing renewable energy requirements that put further pressure on the ability of these units to operate in the future. Given that environment, we would recommend that Connecticut explore other viable options for the replacement of these units that would allow the state to meet its obligations for NO_x emissions under this RACT order in a manner consistent with its other energy and environmental goals. In that spirit, we note that New York has undertaken an ambitious program to target high emitting resources for replacement with cleaner alternatives within its recently initiated Energy Storage Deployment Program (see: <https://www.nyscrda.ny.gov/All-Programs/Programs/Energy-Storage>).

Response:

RCSA section 22a-174-22e is a SIP-approved rule. Consistent with EPA's policies and guidance for RACT, RCSA section 22a-174-22e allows for the owner or operator of an emission unit to request a case-by-case RACT emission limitation if the RACT emission limit designated in the regulation is not economically or technically feasible. NRG Connecticut has satisfied all the requirements in RCSA section 22a-174-22e in requesting a case-by-case RACT limitation, including the requirement to create a net air quality benefit, a requirement in excess of EPA's requirements for a case-by-case RACT determination. In addition, Connecticut uses a cost effectiveness threshold that is higher than that of neighboring states in establishing economic feasibility. Given NRG's compliance with the requirements of RCSA section 22a-174-22e(h), DEEP and NRG entered into Consent Order No. 8377.

EPA is concerned about a possible increase in potential emissions from the operation of the units subject to the Consent Order, and DEEP would like to provide clarification concerning the level of potential emissions allowed by the Consent Order. The potential emissions calculations in Table 9 of the TSD, which is included as part of this SIP revision, do not represent the decrease in potential emissions achieved from operation of the seven emission units in compliance with Consent Order No. 8377 compared with potential emissions if operating in compliance with the emissions limits of RCSA section 22-174-22e(d). The potential emissions in Table 9 are a result of RCSA section 22a-174-22e(h)(8), which requires the calculation of potential emissions absent any limitation on potential emissions requested concurrent to the case-by-case RACT application.

The potential emissions calculations in Table 9 of the TSD do not include the reduction in potential emissions resulting from the fuel use limits for Devon 10 and Middletown 10 that are included in Consent Order No. 8377. The following limits were in place when NRG Connecticut submitted the case-by-case application:

- Devon 10 was limited to no more 1.06 million gallons of fuel consumption over any consecutive 12-month period by Permit #105-0026, which is equivalent to 563 hours/year of full-load operation.
- Branford 10, Franklin Drive 10, and Torrington Terminal 10 are registered to operate under the GPLPE50 (i.e. premises NOx emissions are limited to less than 25 tons/year) which is approximately equivalent to 250 hours/year of full-load operation at each facility.⁴
- Montville 10 and Montville 11 are subject to collateral conditions contained in Permit #107-0012 that limit the total combined fuel use for both engines to no more than 80,000 gallons/year which is equivalent to a combined total of 372 hours/year of full-load operation.
- Middletown 10 was not subject to any operating limits prior to the issuance of the Consent Order.

⁴ The GPLPE50 recently expired and has been replaced by RCSA section 22a-174-33a, which includes similar constraints to the GPLPE50. NRG Connecticut submitted a Notification of Operation under RCSA section 22a-174-33a for each of these three units on November 10, 2020.

Consent Order No. 8377 adds the following limitations:

- Middletown 10's fuel use is limited to no more than 850,000 gallons/year, which is equivalent to 470 hours/year of full-load operation.
- Devon 10's fuel use is limited to no more 874,000 gallons/year, which is equivalent to 465 hours/year of full-load operation.

The calculations in the table below show a 65.4 tons/year decrease in potential NOx emissions for these units operating in compliance with Consent Order No. 8377 compared with the potential emissions if operating in compliance with the emission limits of RCSA section 22a-174-22e(d):

	Heat Rate (MMBtu/hr)	Pre-Order Operating Limit (hr/year)	Sec 22e(d) emissions limit (#/ MMBtu)	Post-Order Operating Limit (hr/year)	Uncontrolled Emissions Rate (#/MMBtu)	Potential Emissions (tons/year)	
						Compliance with §22e(d) limits	Compliance with CO #8377
Devon 10	254	563	0.19	465	0.74	13.6	43.7
Middletown 10	244	8760	0.19	470	0.67	203.1	38.4
Branford 10	245	250	0.19	250	0.8	5.8	24.5
Franklin Drive 10	256	250	0.19	250	0.8	6.1	25.6
Torrington Terminal 10	256	250	0.19	250	0.8	6.1	25.6
Montville 10	29	372	0.5	372	2.61	2.7	14.1
Montville 11	29		0.5		2.61		
						237.3	171.9

As EPA notes, Connecticut has a number of programs in place that promote development of renewable energy sources and reduce the use of fossil fuel units. For instance, in 2019, Governor Ned Lamont signed Executive Order No. 3 that requires DEEP to develop strategies for achieving a 100 percent zero carbon target for the electric sector by 2040. Furthermore, in 2019 the Connecticut legislature enacted Public Act 19-71 that called for the procurement of up to 2,000 MW of offshore wind energy for Connecticut. Pursuant to this Act, Connecticut currently has mandated that utilities enter into two power purchase agreements for a total of 1,108 MW of offshore wind energy for Connecticut.

There is no need for Connecticut to explore other options for the replacement of the turbines subject to the Consent Order since current state policies and the operation of the regional energy market work to limit the hours of operation of these units. Consent Order No. 8377 expires in 2028. At such point, if such units were to continue to operate, NRG would have to install controls that would allow the units to operate in compliance with the emission limits of RCSA section 22a-174-22e. Furthermore, the possible replacement of the turbines has no bearing on the approval of the Consent Order as a case-by-case RACT determination. The Consent Order fully complies with the requirements of RCSA section 22a-174-22e(h), which was approved by EPA and was designed in compliance with EPA's RACT policies and guidance.

Finally, we know of NYDEC's ambitious program to target its high-emitting sources for replacement. DEEP commented positively on the proposed rule since such efforts will benefit Connecticut, which is significantly impacted by transport from New York. This is particularly so since NYDEC establishes a much lower cost threshold to determine what is not economically

feasible for RACT purposes, increasing the likelihood that many more units with case-by-case RACT limits are operating at higher than RACT limits in New York, compared with Connecticut.⁵

No revisions were made to the proposed SIP in response to this comment.

Comment 3:

Regarding the negative declaration for the 2016 Oil and Gas Industry CTG, Connecticut's submittal should indicate that the declaration is made for both the 2008 and 2015 ozone NAAQS.

Response:

DEEP understands the comment and has added a sentence to Section IV.A. of the proposed SIP stating that the negative declaration is made for both the 2008 and 2015 ozone NAAQS.

V. Comments of the Hearing Officer

Comment: In Section IV. D. of the proposed RACT SIP, DEEP makes a reference to activities of the OTC that might generate control strategies suitable as RACT measures under the 2015 ozone NAAQS. DEEP should revise this text given the activities of a workgroup within the OTC that is reviewing emissions and potential control levels for municipal waste combustors.

Response:

The text of the third paragraph is modified to refer to recent activities of the OTC.

Comment: In the time since the RACT SIP revision was proposed, decisions have been issued in several referenced court cases and several rulemakings have been published. These developments should be noted in the text of the RACT SIP revision.

Response:

The text of the proposed SIP revision is modified as follows:

- Section III.A, last paragraph: A court opinion and the proposed Revised CSAPR Update are referenced in the text.
- Section III.B, 5th paragraph: A reference to *New York v. EPA* is added in new footnote 25.
- Section IV.A, footnote 26: EPA's Finding of Failure to Submit is referenced in the footnote concerning the Oil and Natural Gas Industry CTG.

VI. Conclusion

Based upon the comments addressed in this Hearing Report, I recommend the proposed RACT SIP revision be revised as recommended herein and that the recommended final RACT plan be submitted by the Commissioner to EPA for approval.

/s/Merrily A. Gere

18 December 2020
Date

⁵ The RACT threshold for Phase 2 in RCSA section 22a-174-22e(h) is \$13,635/ton NO_x reduced, meaning that any control is presumed economically feasible at costs up to that level. In New York, the threshold is a mere \$5,341/ton NO_x reduced, as calculated according to DAR-20, Economic and Technical Analysis for Reasonably Available Control Technology (RACT).