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**ENVIRONMENTAL PROTECTION**

**AIR, ENERGY, AND MATERIALS SUSTAINABILITY**

**DIVISION OF AIR QUALITY**

**Control and Prohibition of Carbon Dioxide Emissions**

**Adopted Amendment: N.J.A.C. 7:27-1.4, 1.36, 8.14, 8.15, 22.16, and 22.28; and 7:27A-3.2, 3.5, and 3.10**

**Adopted New Rules: N.J.A.C. 7:27F**

Proposed: December 6, 2021, at 53 N.J.R. 1945(a); February 7, 2022, at 54 N.J.R. 228(a)

Adopted: December 2, 2022, by Shawn M. LaTourette, Commissioner, Department of Environmental Protection.

Filed: December 5, 2022, as R.2022 d. \_\_\_\_\_, **with non-substantial changes** not requiring additional public notice and comment (see N.J.A.C. 1:30-6.3), **and with N.J.A.C. 7:27-8.18, 7:27A-3.10(w)4, and 7:27F-4 not adopted but still pending.**

Authority: N.J.S.A. 13:1B-3(e), 13:1D-9, and 26:2C-1 et seq.

DEP Docket Number: 07-21-11.

Effective Date: January 17, 2023.

Operative Date: January 31, 2023, in accordance with N.J.S.A. 26:2C-8.a.

Expiration Dates: Exempt, N.J.A.C. 7:27; January 22, 2027, N.J.A.C. 7:27A; and January 17, 2030, N.J.A.C. 7:27F.

This rulemaking is part of the State's overall strategy to reduce greenhouse gas emissions to 80 percent less than the 2006 Statewide levels by 2050 (80x50 goal) consistent with the target specified in the Global Warming Response Act (GWRA), N.J.S.A. 26:2C-37 et seq., and

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Governor Murphy's Executive Order No. 100 (2020) (EO No. 100), which directs the Commissioner of the Department of Environmental Protection (Department) to, among other things, reform and modernize the Department's regulations to mitigate the effects of climate change. These adopted rules, which are just one component of a series of ongoing actions by the Department and other State agencies to mitigate the effects of climate change, will enable the State to reduce emissions of carbon dioxide from (1) fossil fuel-fired electric generating units (EGUs) through the application of emission limits; and (2) No. 4 and No. 6 fuel oil by banning their combustion in the State.

As originally proposed on December 6, 2021, this rulemaking included provisions pertaining to: (1) emission limits for fossil fuel-fired EGUs; (2) permitting provisions and reporting requirements for non-residential boilers of a certain size; and (3) a ban on the sale and use of No. 4 and No. 6 fuel oil. See 53 N.J.R. 1945(a). On February 7, 2022, the Department filed a notice of correction to the economic impacts statement of the original proposal as it pertained to the permitting provisions for non-residential boilers of a certain size. See 54 N.J.R. 228(a). The notice of correction also included an additional public comment period.

Due to the significance of the EGU provisions of this rulemaking, as well as the need for regulatory certainty, the Department determined that those provisions should proceed to adoption. Given the limited comments and issues raised with regard to the ban on the combustion of certain fuel oils, the Department determined that those provisions should proceed to adoption as well.

**Summary of Hearing Officer's Recommendation and Agency's Response:**

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The Department held a virtual public hearing on this rulemaking on February 1, 2022, at 9:00 A.M. through the Department's video conferencing software, Microsoft Teams. The Department held an additional public hearing on the Notice of Correction and Additional Public Comment Period for this rulemaking on March 29, 2022, at 9:00A.M. This additional public hearing related only to the proposed boiler provisions. Ken Ratzman, Assistant Director for the Division of Air Quality, served as the hearing officer for both hearings. Approximately 48 people provided oral comments at the February 1, 2022 public hearing and two people provided oral comments at the March 29, 2022 public hearing. After reviewing the written and oral comments received during the public comment period, the hearing officer recommended that the Department adopt the proposed rulemaking with the modifications described below in the responses to comments and in the Summary of Agency-Initiated Changes. The Department accepts the hearing officer's recommendations.

Records of the public hearings are available for inspection, in accordance with applicable law by contacting:

Department of Environmental Protection

Office of Legal Affairs – Attn: Docket No. 07-21-11

401 East State Street, 7th Floor

Mail Code 401-04L

PO Box 402

Trenton, New Jersey 08625-0402

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This notice of adoption document can also be viewed or downloaded from the Department's website at <http://www.nj.gov/dep/rules/adoptions.html>.

**Summary of Public Comments and Agency Responses:**

The Department accepted comments on the notice of proposal through March 6, 2022, and comments on the notice of correction and additional public comment period through April 8, 2022. The following individuals provided timely written and/or oral comments related to the subjects that are part of this notice of adoption (EGUs and Nos. 4 and 6 fuel oils):

1. Joe Alexander
2. Rachel Alipui
3. Johan Andrade
4. Mark Andreacci
5. Carole Balmer
6. Elizabeth Banwell
7. Esther Barcun
8. Joe Basralian
9. Eric Benson, Clean Water Action
10. Bill Beren
11. Catherine Betances
12. Eileen Bird
13. Barbara Blumenthal, New Jersey Conservation Foundation
14. Ruth Boice

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15. Julia Bonfim
16. Maarten Bosland
17. Gerald Boutcher
18. Joni Brennan
19. Timothy Bretschneider
20. Marinus Broekman
21. Hallie Bulleit
22. Raymond Cantor, New Jersey Business & Industry Association
23. Michael Capone, PBF Energy
24. Lisa Caron
25. Ana Castellon
26. Patricia Cassis
27. Lori E. Caughman, New Jersey Environmental Justice Alliance
28. Elizabeth Cerceo
29. Terry Cohn
30. Judith Conway
31. Holly Cox
32. Laura Coyne
33. Marie Curtis
34. Barbara Cuthbert
35. Ronald Dancer, New Jersey State Assemblyman
36. Jeff Davis, Vineland Municipal Electric Utility

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37. Rachel Dawn Davis, Waterspirit
38. Kate Delaney
39. Teresa DeMaio
40. Sam DiFalco, Food and Water Watch
41. Louis Discepola
42. Ken Dolsky
43. Ken Dolsky, Empower New Jersey
44. Susan Dorward
45. Matt Dragon, Our Revolution Essex County
46. Lina Drillman
47. Susan Druckenbrod
48. Michael Egenton, New Jersey State Chamber of Commerce
49. Rusty Eidmann-Hicks
50. Larry Engelstein
51. Robert Erickson
52. Erika Etemad
53. Zachary Fabish, Sierra Club, Delaware Riverkeeper Network, Clean Water Action, Environment New Jersey, BlueWaveNJ, Don't Gas the Meadowlands Coalition, and EmpowerNJ
54. Claudia Farber
55. Glenn Fennimore
56. Valerie Finkel

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57. Avi Frank
58. Brian Frank
59. Gloria Friedman
60. Derek Furstenwerth, Parkway Generation LLC
61. Phyllis Garr
62. Carol Gay, NJ State Industrial Union Council
63. Maria Giffen-Castro
64. Daniela Gioseffi
65. Amy Goldsmith, Clean Water Action
66. Eugene Gorrin
67. Kathleen Grant
68. Stan Greberis
69. Caroline Hancock
70. Toby Hanna, ERM
71. Carolyn Harding
72. Dennis Hart, Chemistry Council of New Jersey
73. Diane Heyer
74. Sean Hickey
75. Patricia Hilliard
76. Christopher Hitchcock
77. Avis Hofstad
78. Nicholas Homyak

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79. Orion Hopper
80. Nobuko Hori
81. Alana Horowitz Friedman
82. Jason Howell
83. David Hughes, Rutgers AAUP AFT
84. Thomas Jones
85. Mark G. Kahrer, New Jersey Natural Gas Company
86. Richard Kalish
87. Michael Kanarek
88. Mona Karim, SOMA Action
89. Holly Kempner
90. LindaJo Kensinger
91. Thomas Kiernan
92. Margaret Kling
93. Denise Koetas-Dale
94. Patricia Kortjohn
95. Charlie Kratovil
96. Charlie Kratovil, Food and Water Watch
97. Lynette Krueger
98. Diane Kuenstler
99. Sara Lazarus
100. Thuy Anh Le



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101. Veronica Leone
102. Janice Ludden
103. Matt Lydon, TigerGenCo LLC
104. Denise Lytle
105. Joan Maccari
106. Clare MacKenzie
107. Sid Madison
108. Agnes Marsala, People Over Pipelines and United Ratepayers of New Jersey
109. Olivia Martindale
110. Gerry Masurat
111. Jeffrey Mayes, Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM Interconnection, L.L.C.
112. Sheila Mazar
113. Harry McNally
114. Frederick Mendez
115. Nicholas Meng
116. Melissa Miles, New Jersey Environmental Justice Alliance
117. Eric Miller, on behalf of Clean Water Action, Earthjustice, the Energy Efficiency Alliance of New Jersey, Environment New Jersey, Environmental Defense Fund, the Natural Resources Defense Council, the New Jersey League of Conservation Voters, the Sabin Center, and the Sierra Club
118. Pat Miller

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119. Patricia Miller

120. George Moffatt

121. Lauren Morse

122. Yerina Mugica

123. Susan Mullins

124. Linda Napier

125. Liz Ndoye

126. Jennifer Nielsen

127. Charles Nunzio

128. David O'Donnell, joint comments of the American Fuel & Petrochemical

Manufacturers and the American Petroleum Institute

129. David O'Donnell, American Petroleum Institute

130. Doug O'Malley, Environment New Jersey

131. Steve Oroho, New Jersey State Senator, F. Parker Space, New Jersey State

Assemblyman, and Harold Wirths, New Jersey State Assemblyman

132. Shoshana Osofsky

133. Thomas Ostrand

134. William O'Sullivan

135. Joanne Pannone

136. Joan Peters

137. Matt Polsky

138. David Pringle, Empower New Jersey

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139. Jean Publiee
140. Anjuli Ramos, New Jersey Chapter of the Sierra Club
141. Jeffrey Rapaport
142. Edward Reichman
143. John Reichman, Blue Wave New Jersey
144. Pat Richter
145. Richard Riggs
146. Kathryn Riss
147. Scott Rittman
148. Nicole Rizzuto
149. Paula Rogovin, the Coalition to Ban Unsafe Oil Trains
150. Jordan Sachs
151. Carol Sands
152. Nadine Sapirman
153. Mary Saudargas
154. Leslie Sauer
155. Lise Sayer
156. Tim Sevener
157. Carole Shaffer-Koros
158. Georgina Shanley, Citizens United for Renewable Energy
159. Dein Shapiro

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160. Nicky Sheats, the New Jersey Environmental Justice Alliance, Tishman Environment and Design Center at the New School, and the Center for the Urban Environment of the John S. Watson Institute for Urban Policy and Research at Kean University. Additional signatories include Ironbound Community Corporation

161. Nicky Sheats, the New Jersey Environmental Justice Alliance and the New Jersey Center for Urban Environment at the Watson Institute for Urban Policy and Research at Kane University

162. Jo Sippie-Gora

163. Arlene Slott

164. Matthew Smith, Food and Water Watch

165. Andria Solimine, Independent Energy Producers of New Jersey

166. Drew Stilson, Environmental Defense Fund

167. Hunt Stockwell

168. Sharon Stoneback

169. Robert Szuter

170. Patricia Taylor

171. Dianne Thompson

172. Jeff Tittel

173. Rosemary Topar

174. Tricia Tunstall

175. Hilary Turett

176. Greg Tyson, Independent Energy Producers of New Jersey

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- 177. Jasmine Ueng-McHale
- 178. Louise Usechak
- 179. Ann Van Hise
- 180. Art Vatsky
- 181. Anne Wallman
- 182. Donald Weigl
- 183. Tina Weishaus
- 184. Elena Weissmann
- 185. Margaret White
- 186. Stuart Widom, PJM Interconnection, L.L.C.
- 187. Michael Winka, Community Clean Energy Microgrids Inc
- 188. Bill Wolfe
- 189. Lauren Wolfe, Cogentrix Energy Power Management, LLC
- 190. Rosemary Wright
- 191. Margaret Yelenik
- 192. Tracy Young
- 193. Katherine Yvinskas
- 194. Mell Zillger

195. An identical form comment was submitted by the following individuals, some of whom also submitted individualized comments, and are identified individually as to those comments:

Ibn-Umar Abbasparker

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Martin Anderson  
Johan Andrade  
Gloria Antaramian  
Genevieve Appel  
Elise Aronov  
Kevin Bannon  
Elizabeth Banwell  
Joe Basralian  
Eileen Bird  
Cori Bishop  
Ruth Boice  
Diane Bonanno  
Gerald Boutcher  
Lorraie Brabham  
Timothy Bretschneider  
Marinus Broekman  
Afina Broekman  
Ruth Bronzan  
Larissa Brookes  
Annette Caamano  
Patti Caruso  
Ann Caswell  
Nancy Chismar  
Mary Ciuffitelli  
Gregory Clewell  
Claire Cooney  
David Copperman  
Holly Cox  
Barbara Coy  
Laura Coyne  
Marie Curtis  
Barbara Cuthbert  
Paul Dee  
Renee Destefano  
Anthony Dinice  
Louis Discepola  
Susan Dorward  
Lina Drillman  
Susan Druckenbrod  
Joann Eckstut  
Cynthia Edwards  
Rusty Eidmann-Hicks  
Stanley Enzweiler

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Fred Fall  
Claudia Farber  
Sue Farro  
Naomi Feldman  
Steven Fenster  
George Fluck  
Leona Fluck  
Melvin Ford  
Tracy Foster  
Trevanne Foxton  
Avi Frank  
Sandra Garcia  
Phyllis Garr  
Eric Gaskill  
Barbara George  
Nicole Gillespy  
Daniela Gioseffi  
Lascinda Goetschius  
Joyce Goldsmith  
Eugene Gorrin  
Harriet Grose  
Carolyn Harding  
Ronald Harkov  
Tom Harris  
Kathy Hart  
Diane Heyer  
Sean Hickey  
Kathryn Hjelle  
Nicholas Homyack  
Martin Horwitz  
George Hurst  
Takako Ishii kiefer  
Shannon Jacobs  
Anna Jacus  
Kenneth Johnson  
Freda Karpf  
James Keats  
ZaSah Khademi  
Thomas Kiernan  
Kevin Kimmel  
Gehan Klele  
Margaret Kling  
Patricia Kortjohn

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Charlie Kratovil  
Diane Kuentler  
Sara Lazarus  
Stephen Leftly  
Susan Lehner  
Veronia Leone  
Tony Levy  
Colleen Loughran  
Janice Ludden  
Denise Lytle  
Joan Maccari  
Elieen Mahood-Jose  
Olivia Martindale  
Sheila Mazar  
Danelle McCarthy  
Karen McGuinness  
Keely McLeod  
Brenda Melstein  
Frederick Mendez  
Susan Mikaitis  
George Moffatt  
Bert Morris  
Lauren Morse  
Susan Mullins  
Jeannette Myers  
Dipali N.  
Elizabeth Ndoye  
Charles Nunzio  
Carl Oerke  
Keith O'Rourke  
Shoshana Osofsky  
Thomas Ostrand  
Patricia Palermo  
Marco Palladino  
Priya Patel  
Susan Patel  
Ellen Pederson  
Maureen Porcelli  
Rita Raftery  
Edward Reichman  
Mary Reilly  
Bettie Reina  
Bruce Revesz



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Charles Rinear  
Paul Rinear  
Kathryn Riss  
Scott Rittman  
Lia Romeo  
Sharon Rothe  
M. Rute Correia  
Aida Sanchez  
Carol Sands  
Matt Santaiti  
Nadine Sapirman  
Leslie Sauer  
Lise Sayer  
Corey Schade  
John Schivell  
John Schreiber  
Louise Sellon  
Michael Shakarjian  
Annette Shandolow-Hassell  
Derek Shendell  
Jane Shu  
Jo Sippie-Gorra  
Jaszmene Smith  
David Snope  
Alexandra Soteriou  
William Spadel  
Morgan Spicer  
Denise Sprague  
Deirdre Stieglitz  
Mary Agnes Sullivan  
Victor Sytzko  
Ann T.  
Dianne Thompson  
Kurt Thraen  
Janis Todd  
Steve Troyanovich  
Christopher Vota  
Alyson Waldinger  
Sheila Ward  
Donald Weigl  
Elena Weissmann  
Claire Whitcomb  
Keith Wilkins

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Paul Williams  
Rosemary Wright  
G. Y.  
Margaret Yelenik  
Tracy Young  
Nicole Zanetakos  
Sam Zappala  
Dawn Zelinski  
Ralph Zelman

196. Sierra Club submitted a form comment on behalf of 339 individuals indicating the rules were insufficient and requesting specific modifications to address perceived weaknesses in the rules before adoption. Some of the individuals who submitted this form comment also submitted individualized comments, and are identified individually as to those comments.

The comments received and the Department's responses are summarized below. The number(s) in parentheses after each comment identify the respective commenter(s) listed above.

### **Request for Extension of Comment Period**

1. COMMENT: Please provide a 30-day extension to submit comments on the proposed rules.  
(27)

RESPONSE The Department provided a 90-day public comment period as part of the proposal, which began upon publication of the notice of proposal in the December 6, 2021, New Jersey Register. See 53 N.J.R. 1945(a). The 90-day comment period was 30-days longer than the 60-day comment period required by the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq. (APA). In addition to publication of the notice of proposal, the Department provided additional

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notice of the rulemaking on December 6, 2021, by posting on its website, to media outlets maintaining a press office to cover the State House Complex and other media outlets throughout the State, and by notice sent to the Department's rulemaking and permitting email lists. Prior to publication of the notice of proposal, the Department conducted stakeholder outreach meetings on February 25, 2020, September 3, 2020, and December 21, 2021. During these sessions, the Department notified stakeholders that it was considering a rule proposal to reduce carbon dioxide emissions from stationary sources within the State, including EGUs, boilers, and the combustion of heavy oils. On February 1, 2022, the Department held a public hearing at which approximately 45 people testified. Since the publication of the notice of proposal and the conclusion of the public hearing, hundreds of individuals and organizations submitted written and verbal comments, which are summarized and addressed in this notice of adoption. Given the volume of comments submitted in response to the proposal within the 90-day comment period, the Department believes that there was ample opportunity to provide comments and discuss the rulemaking. Therefore, an additional period for public comment would be unlikely to result in the Department receiving comments relevant to the proposed rules that raise issues or provide new information, data, or findings that were not previously raised or provided during the development of the proposed rules or during the 90-day comment period.

### **Overall legal authority**

2. COMMENT: The Department has full authority under existing State law to regulate greenhouse gas emissions, and to fulfill the mandates placed upon it by the Global Warming Response Act (GWRA), N.J.S.A. 26:2C-37 et seq., the 2019 Energy Master Plan, and Governor Murphy's November 2021 Executive Order 274 (EO No. 274). Under the Air Pollution Control

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Act (APCA), New Jersey has authority to regulate any and all air pollutants. N.J.S.A. 26:2C-8 grants the Department power to “prevent[ ], control[ ], and prohibit[ ] air pollution throughout the state,” and this general authority has been interpreted by the Department to apply to greenhouse gas emissions. In 2019, the New Jersey legislature set a requirement for the State to reduce greenhouse gas emissions “to 80 [percent] below the 2006 level by the year 2050” (80x50 goal). N.J.S.A. 26:2C-38. Pursuant to this requirement, the Department released the Global Warming Response Act 80x50 Report (2050 Report) in October 2020, noting that “[o]ver the next 30 years, New Jersey must implement an economy-wide transformation that steadily phases out the use of fossil fuels,” characterizing the necessary changes as a “seismic shift in how New Jersey does business.” A year later, in November 2021, Governor Murphy signed an executive order requiring New Jersey “to reduce greenhouse gas emissions to 50 percent below 2006 levels by the year 2030” (50x30 goal). Accordingly, the Department has the authority necessary to address climate-harming pollution and a clear mandate. (53)

3. COMMENT: As a statutory basis for regulatory authority to limit CO<sub>2</sub> emissions, the Department relied primarily, if not exclusively, on the 2007 GWRA, as amended. The proposal conflated the New Jersey APCA and the GWRA, which can reasonably be interpreted as asserting the Department’s authority under the GWRA to mandate emissions reductions to meet the goals of the Act. However, there are strong legal arguments that the GWRA did not authorize the Department to regulate greenhouse gas emissions or establish emission limits for permitted sources. This can be confirmed by reviewing the legislative history, specifically by comparing the introduced version of the bill, which expressly provided authority to the Department to regulate emissions, with the final version enacted into law. The enacted version

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stripped this authority. The enacted version limited the Department to emissions monitoring and reporting functions.

It is also worth mentioning that in 2004, the Department proposed rules that defined greenhouse gas emissions as “air contaminants” (*i.e.*, pollutants) that were regulated under New Jersey’s APCA. Many within the regulated community opposed the proposed rules, at least in part because regulating greenhouse gas emissions could mean that the regulated industry would have to pay costly emissions fees. Though the proposal was adopted by the Department in 2005, the Department’s adopted rules explicitly exempted greenhouse gas emissions from permits and fee requirements. For these reasons, the Department should rescind the proposed rules and re-propose citing the APCA for its primary authority to require reductions. (188)

RESPONSE TO COMMENTS 2 and 3: New Jersey's APCA gives the Department broad authority to promulgate rules “preventing, controlling and prohibiting air pollution throughout the State.” N.J.S.A. 26:2C-8. The statute defines "air pollution" to include “the presence in the outdoor atmosphere of one or more *air contaminants* in such quantities and duration as are, or tend to be, injurious to human health or welfare, animal or plant life ...” N.J.S.A. 26:2C-2 (emphasis added). As explained in the notice of proposal, the Department adopted rules in 2005 that amended the definition of “distillates of air” in order to classify CO<sub>2</sub> as an *air contaminant*, thereby placing the regulated community on notice that the Department would take future regulatory actions pertaining to CO<sub>2</sub>. 53 N.J.R.1945(a), 1946. The 2004 notice of proposal was unequivocal concerning the Department’s authority, and explicitly asserted that the Department had fulfilled the statutory requirement to advise the public of its determination and justification for regulating CO<sub>2</sub> as an air contaminant pursuant to N.J.S.A. 26:2C-9.2i. See 36 N.J.R. 4607(a)

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(October 18, 2004). Specifically, the Department determined that regulating CO<sub>2</sub> as an air contaminant is in the best interest of human health, welfare, and the environment. 36 N.J.R. at 4608. The Department's position on its authority to regulate CO<sub>2</sub> pursuant to the APCA did not waiver when it adopted those rules in 2005, despite comments challenging the Department's authority. See 37 N.J.R. 4415(a) (November 21, 2005). The Department's 2004 notice of proposal did not include a provision to impose fees or include CO<sub>2</sub> emissions in permits. 36 N.J.R. 4607(a). Rather, the 2004 notice of proposal was very clear that the change in definition was a preliminary step to future action. See 36 N.J.R. at 4607. Nevertheless, as explained more thoroughly in Response to Comments 4 through 11, a number of individuals and entities commented on the 2004 notice of proposal and raised concerns that the change in those definitions would require CO<sub>2</sub> to be listed in permit applications and/or reports. See 37 N.J.R. 4415(a). In its notice of adoption, the Department clarified that this was not the intent, and made a number of modifications on adoption to clarify that the rules did not impose any new regulatory or reporting requirements. See 37 N.J.R. at 4423-24 and 4427-28. The Department's position on its authority to regulate CO<sub>2</sub> as an air pollutant has not changed since the 2005 adoption. In fact, the Department adopted the CO<sub>2</sub> Budget Trading Rules, N.J.A.C. 7:27C, in 2019, which include regulatory and reporting requirements for CO<sub>2</sub>.

The Department's discussion of the GWRA, Executive Orders, 2019 Energy Master Plan (EMP), and 2050 Report provided the necessary context for the public to better understand the evolution of the State's overall strategy to address climate change. The APCA authorizes the Department to regulate CO<sub>2</sub> as the Department works toward achieving the emission reduction

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goals set forth in the GWRA, Executive orders, 2019 EMP, and 2050 Report. Accordingly, the Department both has and cited to the necessary authority to promulgate these rules.

**Changes to N.J.A.C. 7:27-1**

4. COMMENT: The Department proposed amendments to N.J.A.C. 7:27-1.4 to add the terms and definitions of “air contaminant” and “distillates of air.” The Department also proposed amendments to the applicability provisions at N.J.A.C. 7:27-1.36, which stated that carbon dioxide emissions are not a basis for a requirement to include emission information in a permit application, a permit limitation, or a fee in a permit. The implications of these amendments are unclear, that is, whether the amendments will lead to further restrictions on CO<sub>2</sub> emissions from a wider range of facilities in the State. (128 and 129)

5. COMMENT: Designating and treating carbon dioxide as an air contaminant will have serious impacts and presumably unintended consequences for thousands of small facilities including schools, apartment buildings, office buildings, and small industrial facilities. As a result of the rules, these facilities will be treated as Title V major facilities and required to pay large fees. (22)

6. COMMENT: The Department did not consider the significant consequences of regulating CO<sub>2</sub> as an “air contaminant.” Thousands of businesses, schools, hospitals, apartment buildings, hotels, and other facilities in New Jersey will be out of compliance upon the effective date of the adopted rules for not having Title V and preconstruction air permits and CO<sub>2</sub> emission limits in permits. This will result in significant impacts to the business community and the Department, without any commensurate environmental benefit. These impacts are what led the U.S.

Environmental Protection Agency (EPA) to promulgate the “Tailoring Rule” so that 100 tons of CO<sub>2</sub> emissions per year would not trigger permitting and control requirements. Instead, EPA set

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a major source threshold of 25,000 tons/year, to avoid the absurd results of applying the 100 tons/year threshold for a pollutant like CO<sub>2</sub>, which is emitted at levels that are orders of magnitude higher than emissions of criteria pollutants. (22, 48, and 72)

7. COMMENT: If the Department did not intend to impact the thousands of sources that meet the 100 tons per year threshold for CO<sub>2</sub>, the impacts of which were not addressed in the notice of proposal, the Department must clarify its intent on adoption. (22)

8. COMMENT: The proposed amendments to N.J.A.C. 7:27-1 are problematic because, if adopted, the rules would require Title V permits for tens of thousands of new sources in the State based on a 100 tons per year potential to emit threshold for permits. To avoid this absurd result, rather than adopt as proposed, the Department could leave existing N.J.A.C. 7:27-1.36 and add a provision that CO<sub>2</sub> emissions will be regulated under N.J.A.C. 7:27F along with N.J.A.C. 7:27-21. (48, 70, and 72)

9. COMMENT: This rulemaking is intended to address CO<sub>2</sub> emissions from specific sources. Rather than adopt the proposed amendments to N.J.A.C. 7:27-1, the implications of which are unclear and could be far reaching, the Department should address any proposed changes to the general regulations at N.J.A.C. 7:27-1 in future rulemakings, which the Department indicated it would pursue. (128)

10. COMMENT: The proposal to delete the applicability provisions at N.J.A.C. 7:27-1.36(b) is concerning. Although the Department has classified CO<sub>2</sub> as an air contaminant since 2005, the Department recognized that subjecting entities that emit CO<sub>2</sub> to a variety of regulatory programs did not make sense, particularly because CO<sub>2</sub> is a ubiquitous substance that is emitted, even at regulatory thresholds, in almost any process. The proposed deletion of the applicability



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provisions abandons the Department's prior reasoned approach and instead, will newly subject thousands of entities to the air pollution control permitting and other requirements. The proposed deletion is unnecessary for the Department to achieve its stated regulatory goal of amending the definition of "distillates of air" and "air contaminant" to make clear that CO<sub>2</sub> is not included in the definition of "distillates of air." (48)

11. COMMENT: The Department's proposed deletion of the applicability provisions at N.J.A.C. 7:27-1.36 pertaining to CO<sub>2</sub> emissions could result in subjecting facilities to the per ton emission fees for CO<sub>2</sub>. If CO<sub>2</sub> emissions are now subject to emission fees, the Department did not address the costs in the economic impact statement. (188)

RESPONSE TO COMMENTS 4 THROUGH 11: As explained in the notice of proposal Summary, the Department proposed to define the terms "air contaminant" and "distillates of air" at N.J.A.C. 7:27-1, General Provisions, to make clear that CO<sub>2</sub> is not included in the definition of "distillates of air." 53 N.J.R. at 1946. The Department's proposal is consistent with its prior rulemaking, which classified CO<sub>2</sub> as an air contaminant. Compare 53 N.J.R. at 1946 with 36 N.J.R. 3607(a) and 37 N.J.R. 4415(a). The Department has not expanded the scope of CO<sub>2</sub> regulation otherwise provided in the rules by adding these definitions to N.J.A.C. 7:27-1.

The Department also proposed to amend N.J.A.C. 7:27-1.36, Applicability, which stated that actual or potential CO<sub>2</sub> emissions are not a basis for such requirements as including emission information in a permit application, a permit limitation, or a fee. This language was included as part of the Department's 2004 rulemaking that reclassified CO<sub>2</sub> as an air contaminant based on the Department's determination that regulating CO<sub>2</sub> as an air contaminant is in the best interest of human health, welfare, and the environment. See 36 N.J.R. 4607(a) and 37 N.J.R. 4415(a). In

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the Department's response to comments raising concerns about the permitting implications of classifying CO<sub>2</sub> as an air contaminant, the Department modified the rules on adoption to clearly exempt CO<sub>2</sub> emissions from additional reporting and regulatory requirements. See 37 N.J.R. at 4423-24. The Department did so by adding subsection (b) to N.J.A.C. 7:27-1.36 and by clarifying specific rule provisions in N.J.A.C. 7:27-8 and 22 as follows:

- The definition of “major facility” at N.J.A.C. 7:27-8.1 and at 22.1 was amended to exclude CO<sub>2</sub> from being considered as an “other air contaminant.” As a result, the potential to emit CO<sub>2</sub> is not a basis for a facility to be a “major facility.”
  - N.J.A.C. 8.2(c) was amended to exclude CO<sub>2</sub> as an air contaminant for determining if equipment or source operation is a significant source and requires a preconstruction permit and an operating certificate.
  - N.J.A.C. 7:27-8.12(a)2, 22.35(b), (c) and (c)5 were amended to exclude CO<sub>2</sub> as an air contaminant, so that CO<sub>2</sub> is not considered to determine if state-of-the-art (SOTA) is required.
  - N.J.A.C. 7:27-8 Appendix I, Table A, which includes reporting and SOTA thresholds for air contaminants, was amended to exclude CO<sub>2</sub>.
  - N.J.A.C. 7:27-22, Appendix I, Table A, which includes thresholds for reporting emissions of air contaminants other than hazardous air pollutants, was amended to exclude CO<sub>2</sub>.
- The Department also explained that classifying CO<sub>2</sub> as an air contaminant would not result in emissions fees for CO<sub>2</sub> emissions because “regulated air contaminant” is defined at N.J.S.A. 26:2C-2. 37 N.J.R. at 4423.

The inclusion of N.J.A.C. 7:27-1.36(b) during the prior rulemaking was an excessively cautious approach because CO<sub>2</sub> emissions were specifically addressed in N.J.A.C. 7:27-8 and 22.

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The provisions of N.J.A.C. 7:27-8 and -22 that exempt CO<sub>2</sub> from permitting provisions are unchanged by these rules. However, as part of this rulemaking, the Department proposed to delete N.J.A.C. 7:27-1.36(b) to avoid a potential conflict. Specifically, the CO<sub>2</sub> emission limits and other requirements at the new N.J.A.C. 7:17F must be incorporated into permits issued pursuant to N.J.A.C. 7:27-8 or -22. By proposing this deletion, the Department did not intend to expand the scope of the permitting requirements to sources that emit or have the potential to emit 100 tons of CO<sub>2</sub> per year. Nor does the Department believe the proposed deletion will result in this expansion because, as explained above, CO<sub>2</sub> emissions are addressed in the specific regulatory provisions of N.J.A.C. 7:27-8 and 22. Therefore, the Department is deleting N.J.A.C. 7:27-1.36(b), as proposed.

12. COMMENT: The proposed term “air contaminant” in N.J.A.C. 7:27-1.4 is too vague due to the use of “any substance.” The Department should delete this term and reconfigure the rules or amend the definition to mean a regulated pollutant limited to a hazardous air pollutant as defined in 40 CFR Part 68, greenhouse gas as defined in 40 CFR Part 98, or substance that is regulated under a national ambient air quality standard or precursor thereof as defined in 40 CFR Part 50. Specifically, the definition should be: “a regulated pollutant limited to a hazardous air pollutant as defined in 40 CFR Part 68, greenhouse gas as defined in 40 CFR Part 98, or substance that is regulated under a national ambient air quality standard or precursor thereof as defined in 40 CFR Part 50.” Note, per the definition in the proposed rules, steam can be an air contaminant. If the Department modifies the definition of air contaminant in N.J.A.C. 7:27-1.4, as suggested, the term “distillates of air” may be deleted since it will no longer be necessary. (103)

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RESPONSE: As stated in the notice of proposal, the terms “air contaminant” and “distillate of air” are already defined in N.J.A.C. 7:27-8.1, 17.1, 19.1 and 21.1. See 53 N.J.R. at 1946. The Department did not propose to amend the definitions of either term. The proposed amendment was to include the definitions of both terms in the general provisions of N.J.A.C. 7:27 and N.J.A.C. 7:27F to ensure that CO<sub>2</sub> is treated consistently as an air contaminant throughout both chapters. Replacing the proposed definition of “air contaminant,” one that the Department has used for years, with the suggested definition would lead to inconsistency in the definition of the same term between subchapters within N.J.A.C. 7:27 and have the potential to cause confusion. The Department’s existing definition of air contaminant in N.J.A.C. 7:27-8.1, 17.1, 19.1 and 21.1 has not been deemed too vague in existing permits.

**N.J.A.C. 7:27F-1, Purpose and scope**

13. COMMENT: The Department should consider replacing the language regarding fossil fuels at N.J.A.C. 7:27F-1.1(a) with “and eliminates the future use of coal, number four and number six fuel oil.” The Department is not reducing emissions from fossil fuels. (103)

RESPONSE: As proposed, N.J.A.C. 7:27F-1.1(a) did not suitably capture the Department’s intended purpose and scope of the rules. Although the commenter identifies the shortcoming in the proposed rule text, the suggested language does not accurately capture the purpose and scope either. As stated in the notice of proposal, these rules are one of the initial steps New Jersey will take toward the 80x50 goal. See 53 N.J.R. at 1946. Simply put, these rules are intended to address the combustion of fossil fuels in different circumstances. The Department is modifying N.J.A.C. 7:27F-1.1(a) on adoption to more accurately reflect this purpose.

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**General concerns about the environment**

14. COMMENT: New Jersey is the most densely populated state. As a result, the people in New Jersey suffer higher rates of pollution. New Jersey relies heavily on its shoreline for its economy and the enjoyment of its residents. For these reasons, New Jersey has more to lose and must do more to address fossil fuel use. (6)

15. COMMENT: There is no doubt, scientifically, that New Jersey must have stronger emissions standards since it is one of the fastest overheating states in the country. New Jersey is a peninsula of shorelines that will drown due to global over-heating. The State is in a climate crisis and needs stronger limits on CO<sub>2</sub> and methane. (64)

16. COMMENT: New Jersey is being affected by climate change faster than any other state in the country. New Jersey residents need clean air for children and grandchildren to breathe in New Jersey. (56)

17. COMMENT: Please help New Jersey by reducing the impact of a warming planet. (30)

18. COMMENT: The latest Intergovernmental Panel on Climate Change (IPCC) report shows that the climate situation is more dire than previously thought. There is no time to waste. (7, 26, 55, 89, and 122)

19. COMMENT: It is essential to limit CO<sub>2</sub> emissions in order to prevent a climate disaster, which the IPCC says could displace or kill hundreds of millions of people by the end of this century. (159)

20. COMMENT: It is imperative that regulators act on the UN report while there is still time. (1, 16, 24, 150, and 193)

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21. COMMENT: Stopping and reversing climate change must be at the top of every person's list because there is no second Earth. (90)
22. COMMENT: We must act now to ensure the survival of our planet. We must work to prevent the worst impacts, such as ocean rise, flooding, extreme weather, groundwater salinization of coastal farmland, and destruction of micro-ecology before it is too late. (14, 87, and 110)
23. COMMENT: Reducing emissions of CO<sub>2</sub> and methane is critical to the long-term health of our planet and the people on it. (84)
24. COMMENT: Reducing CO<sub>2</sub> emissions is crucial to making positive change in the current climate crisis. (132, 145, and 177)
25. COMMENT: Climate change is happening now and we must act boldly and immediately to limit the impact before it is too late. (4, 8, 59, 71, 97, 136, 168, 179, and 190)
26. COMMENT: Climate change is a reality and pollution is still going on at too great a rate for real environmental safety. (77)
27. COMMENT: Reducing CO<sub>2</sub> is one of the most important issues of our lifetime. Drastic action is needed now. (170)
28. COMMENT: Our future is dependent on the decisions we make now. We need to prioritize a healthy environment now to save our beaches, the animals, and future generations. (124)
29. COMMENT: Please act to ensure a healthy environment for future generations. (2, 18, 106, and 157)
30. COMMENT: My generation unknowingly took from the Earth in ways that endanger the future of humans. We must act on the greater knowledge we have now, to reduce carbon emissions. (185)

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31. COMMENT: The Earth needs protection. Please act responsibly. (15, 41, and 175)
32. COMMENT: We must stop all pollution of Earth by using renewable clean energy only. (25)
33. COMMENT: New Jersey should be the vanguard for action to save our earth, our children, and our future. (148)
34. COMMENT: Please protect the air that we breathe and limit climate change. (29)

RESPONSE TO COMMENTS 14 THROUGH 34: As described in the Social Impact analysis portion of the notice of proposal, the 2020 *New Jersey Scientific Report on Climate Change* compiled scientific material in a comprehensive report detailing both the effects and the impacts of climate change. See 53 N.J.R. at 1957, citing New Jersey Department of Environmental Protection, 2020, *New Jersey Scientific Report on Climate Change*, Version 1.0 (Eds. R. Hill, M.M. Rutkowski, L.A. Lester, H. Genievich, N.A. Procopio) Trenton, NJ 184 pp. (2020 Report on Climate Change). While the 2020 Report on Climate Change examines climate change at the global and regional level, its purpose is to explain the current and anticipated effects and impacts in New Jersey. *Ibid.* The Department is cognizant of the global impacts as detailed in international reports, such as the IPCC, and local impacts as detailed in the 2020 Report on Climate Change. The adopted rules are one of the initial steps the Department and other State agencies will take to mitigate the impacts of climate change by reducing greenhouse gas emissions. 53 N.J.R. at 1957. However, additional action and collaboration at all levels of government, through public-private ventures, and across economic sectors will be necessary to meet the 80x50 goal. 53 N.J.R. at 1946. The Department also recognizes that in addition to reducing greenhouse gas emissions, other air pollutants must be reduced. While these adopted rules are expected to have an ancillary positive benefit by reducing co-pollutants that have an

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adverse impact on air quality and human health (53 N.J.R. at 1957), the Department anticipates future rulemaking that would directly address other (non-greenhouse gas) air pollutants.

### **General opposition**

35. COMMENT (#4 Sierra Club long Form): Overall, this proposed rulemaking does not meet the moment and does not give New Jersey the necessary push towards renewable energy. It is unrealistic for the Department to count on a future rulemaking to achieve greater greenhouse gas emissions reductions. The Department should strengthen these rules instead. (31, 86, 88, 108, 144, 163, 173, and 196)

36. COMMENT: The rules do not go far enough, fast enough to meet the dire urgency of the climate crisis we are facing. (195)

37. COMMENT: The Department says the rules are an initial step, but at this pace there is no chance the Department will move fast enough or effectively enough to catch up with our climate emergency. (3, 32, 34, 66, 73, 91, 94, 99, 104, 105, 142, 147, 182, and 192)

38. COMMENT: The proposed rules are a prime example of government putting forward climate legislation that is neither good enough nor fast enough to make a meaningful difference for the next generation. (21)

39. COMMENT: We have passed the point where initial or interim steps can be considered doing something about climate and environmental justice. Everything the Department does from this date forward, from the enforcement of existing rules to the proposal of new rules, must take the reality and urgency of climate change into account. Neither of these elements seem to be represented in the proposed rules. (45)



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40. COMMENT: The proposed rules do not go nearly far enough to protect New Jersey citizens by reducing greenhouse gases. We need a stronger rule to address the climate emergency. (93)

41. COMMENT: The proposed rules are clearly inadequate to address the adverse changes brought about by climate change. (7)

42. COMMENT: The proposed rules are completely inadequate. The Department must replace the proposed rules with stronger rules to combat the existential threat to humanity. (154)

43. COMMENT: The rules do not do enough to tackle the climate crisis. The Department must fix the rules to get emission reductions now and set a national example. (174)

44. COMMENT: The Department must propose stronger rules in order to address the climate crisis at the speed and scale needed. The proposed rules fail to provide protection. (69)

45. COMMENT: The proposed rules do not adequately address the climate emergency. Even accepting the Department's concerns about leakage and grid stability, the rules could and should do more to lower emissions. (138)

46. COMMENT: The rules must be strengthened if the Department wants to protect against climate threats. (62)

47. COMMENT: The rules need to be fixed to avoid the worst consequences of climate change. (112)

48. COMMENT: The rules should not be adopted because they do little to address climate change. (120)

49. COMMENT: The proposed rules do not address the climate crisis in a timeframe that will adequately protect life, especially the lives of vulnerable populations. (83)

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50. COMMENT: The rules must be withdrawn and rewritten to appropriately address the climate crisis. The rules should get us to zero emissions and protect New Jersey residents, not the fossil fuel companies. (183)

51. COMMENT: The rules need to cut emissions more quickly, more sharply, more dramatically, in order for us to have a chance to actually survive this crisis. (50)

52. COMMENT: Please consider strengthening the proposed rules. It is our responsibility to reduce carbon emissions in order to prevent future catastrophe on a global level. (115)

53. COMMENT: The Department has the authority to regulate carbon dioxide, but these rules barely regulate those emissions. The rules do not come close to the aggressive reductions in fossil fuels set forth in the 2019 EMP modeled through the Integrated Energy Plan. (130)

54. COMMENT: Carbon dioxide emissions should be banned now. (151)

55. COMMENT: The rules are so weak that the regulatory effort is futile. The rules should be stronger. Stop giving the fossil fuel industry a pass. (169)

56. COMMENT: We are in a climate emergency and the rules need to hold the fossil fuel industry to account so that we can meet the emission reduction goals set by Governor Murphy and the GWRA. (80)

57. COMMENT: The rules favor the interests of the fossil fuel industry. (5, 9, 10, 81, 135, 143, 183, and 192)

58. COMMENT: The proposed rules do not regulate industry. (79)

59. COMMENT: New Jersey needs to have stronger rules that do more on a faster timeframe. Many states have taken stronger actions concerning greenhouse gas emissions. New Jersey is behind the curve. (138)

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60. COMMENT: The rules are severely flawed. There are dozens of states doing better work. Global warming is impacting our health every day. If we do not fix the rules or replace them, we are really poisoning ourselves and our planet for future generations. (172)

61. COMMENT: The rules should be more aggressive to reflect our need for a diverse green power source and to protect our most vulnerable. Other states are doing a better job of moving toward electrification than New Jersey. These rules do not do enough. (65)

62. COMMENT: The proposed rules cannot be adopted as written because they will deter the implementation of clean energy solutions. Many states, including New York, have taken stronger actions concerning greenhouse gas emissions. New Jersey must do better. (43)

63. COMMENT: The rules, as they are currently drafted, will do nothing but ensure climate collapse. The rules will do virtually nothing to stop the proliferation of new sources of greenhouse gas emissions, including dirty power plants, which are predominantly sited in low-income communities of color. These rules bring no relief to those communities. (164)

64. COMMENT: The proposed rules fail to achieve significant greenhouse gas emission reductions. More definitive, aggressive rules are necessary to achieve a 50 percent reduction by 2030. The Department must close the loopholes and expand the scope of the proposed rules if it hopes to achieve the greenhouse gas emission reduction goals. (76)

65. COMMENT: The Department should develop strict rules, without the proposed loopholes, in order to significantly and meaningfully reduce emissions amid the climate emergency. (31)

66. COMMENT: Please close the loopholes in the proposed rules for the benefit of New Jersey residents who care about the impact of those CO<sub>2</sub> emissions on our community. (46)

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67. COMMENT: Please initiate stronger restrictions on CO<sub>2</sub> emissions and close the loopholes in the rules. (177)

68. COMMENT: The rules must be improved substantially to close the loopholes, achieve true emissions reductions, and address environmental justice. (11)

69. COMMENT: Addressing climate change is the most important public health crisis of the 21st century. New Jersey should consider all other decisions (economic, policy, and otherwise) in this light. Please eliminate the loopholes in the rules because we need meaningful reductions in New Jersey. (28)

70. COMMENT: The proposed rules are totally insufficient. New Jersey can and must do better than this for the health and safety of our people. This is a climate emergency, and all agencies need to do their part. The Department must take bold action. (92)

71. COMMENT: The Department should rewrite these rules so that they have a significant impact. The Department should be more big-picture oriented, should be more dynamic in its thinking, and should coordinate. (141)

72. COMMENT: The rules do very little to protect New Jersey communities. The Department needs to take strong actions. (8)

73. COMMENT: New Jersey needs sweeping and specific action if this State is to be a leader against the climate crisis effecting the State's communities. (19)

74. COMMENT: The rules are weak and do little to curb carbon emissions or protect New Jersey communities. The Department should find the courage to do better. (8)

75. COMMENT: The rules should be rewritten to set aggressive targets for CO<sub>2</sub> reductions and take courageous, bold, moral leadership to address the climate crisis. (67)

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76. COMMENT: The proposed rules do not encourage the innovation needed to reduce greenhouse gas emissions by 50 percent by 2030. The rules should create the conditions that will require business to respond and innovate. (68)

77. COMMENT: The proposed rules are not creative enough. New Jersey should electrify more. The technology exists to electrify rail and use solar panels for heating. (156)

78. COMMENT: The manner in which State government operates is not working. It must come up with new strategies that go way beyond these rules. (137)

79. COMMENT: The Department should act boldly to reduce greenhouse gas emissions and reduce fossil fuels. (47)

80. COMMENT: New Jersey is one of the three fastest warming states in the nation. The rules must be stronger to meaningfully tackle the climate crisis. (64)

81. COMMENT: New Jersey is one of the states that is warming the fastest. The tourism industry accounts for almost seven percent of New Jersey's gross domestic product and rising sea levels and more frequent storms means the State will lose money due to loss of revenue and storm damage. It is time for New Jersey to switch to alternative energy that does not impact climate as much. The Department should do the same. (39)

82. COMMENT: These rules are an attempt to keep New Jersey economically competitive with other states. But that will only result in the destruction of the Earth. Please stop the abuse of our planet. (114)

83. COMMENT: The rules do not address the urgency of the climate crisis. No economic interest, under any circumstances, can ever be above the reverence for life. (78)

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84. COMMENT: The rules must be rewritten. The rules fund false solutions, like “renewable natural gas,” which will only exacerbate health crises and extreme weather. The rules should be more creative and incorporate more meaningful actions for our youth. The Department should consider job training, green jobs, grid hardening and national security. (37)

85. COMMENT: The Department needs to set benchmarks and keep to them. (178)

86. COMMENT: Do not allow New Jersey to be saddled with decisions that we will regret in the future. The Department should make the rules stronger. (180)

87. COMMENT: The rules do not address climate change. The rules only codify the status quo. (42)

88. COMMENT: These rules are like fighting the climate crisis by throwing popcorn at it. Please use some heavy rocks. (127)

89. COMMENT: The rules should do more to address the issues. (194)

90. COMMENT: The rules are bad and should not be adopted. (158)

RESPONSE TO COMMENTS 35 THROUGH 90: The Department acknowledges the commenters’ concerns that more should be done or done more quickly. However, no single set of rules or single Department within the State can resolve the issue of climate change. As the notice of proposal explained, these rules are among the initial steps the Department is taking to mitigate the impacts of climate change by reducing the greenhouse gas emissions that are driving climate change. 53 N.J.R. at 1957. The greatest emission reductions from these rules are estimated to come from the emission limits on new and existing EGUs; however, as explained in the Response to Comments 127 through 148, the provisions will reduce emissions in a measured, purposeful manner to maintain grid reliability and avoid leakage. Calls to immediately eliminate

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all fossil fuels from the electric generating sector overlook the fact that New Jersey is part of a regional grid. New Jersey relies on electricity imports from out of State, which are generated by EGUs that typically have a higher emissions profile than EGUs located within New Jersey. Even if New Jersey were to eliminate all in-State EGUs that run on fossil fuels, CO<sub>2</sub> emissions would continue to be released by the out-of-State EGUs that would be called upon to supply the demand for electricity from New Jersey residents and businesses. This is a concept known as “leakage.” These rules seek to minimize the potential for leakage by establishing future emission limits that will allow time for more renewable generation to connect to the regional grid.

The Department is aware that New Jersey has unique climate challenges, such as the rate of warming and sea-level rise. In that same vein, New Jersey has unique characteristics, such as its level of electric demand, transportation needs, geography, population density, and more. In proposing these rules, the Department considered New Jersey’s needs and structure, which is why the notice of proposal detailed the Department’s consideration of multiple factors, including an estimated projection of the PJM Interconnection LLC (PJM) CO<sub>2</sub> marginal rate (as compared to the proposed emission limits), as well as the proposed timing of new renewable energy sources, like offshore wind.

The adoption of these rules provides regulatory certainty. As the State transitions to meet its climate goals fossil fuel-fired EGUs will be expected to reduce their emissions to an-ever increasing degree. The Department anticipates that this regulatory certainty, in conjunction with other state policies supporting renewables, will foster future investment in renewable energy and storage options. The transition to clean energy must be carefully planned. Thus, these rules are

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an initial step in a comprehensive strategy that will need to be continuously developed and refined as the State evaluates trends in energy demand (i.e., electrification of buildings and transportation), new technologies (i.e., battery storage, offshore wind, solar, and hydrogen), and costs.

### **Environmental justice**

91. COMMENT: In its current form the proposed rules (as pertaining to the EGU provisions) are extremely disappointing to the New Jersey Environmental Justice (EJ) community because the rules do not explicitly address EJ. The rules should include mandatory emission reductions from EGUs in EJ communities. The rules should include a method for identifying EGUs that should be forced to reduce emissions for EJ reasons. For example, there should be a full accounting of the total annual carbon dioxide emissions and, more importantly for immediate EJ concerns, total greenhouse gas co-pollutant emissions in pounds per year for each facility and corresponding EGUs at a facility, as well as a detailed map of the location of facilities and EGUs in relation to EJ communities. The proposed rules should also include consideration of EGUs located in EJ communities that individually have a capacity under 25 MW but when combined with other EGUs in the same plant, or operating nearby, have a capacity that exceeds 25 MW. Many of these EGUs may be serving either as peaker or auxiliary power units and may have a very localized impact on public health from co-pollutant emissions. Finally, climate change mitigation policies designed to reduce greenhouse gas emissions must be coupled with investments in renewable energy (RE) and energy efficiency (EE) infrastructure. It is possible to simultaneously limit the use of fossil fuel fired power plants in EJ communities while investing in RE and EE



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infrastructure that will benefit these communities. This will result in skilled, green infrastructure job opportunities, a decrease in reliance on fossil fuels, decrease in air pollution and increase in public health and community well-being. (160)

92. COMMENT: New Jersey must ensure that its approach to meeting climate targets follows a robust public engagement process to identify and focus on directing environmental and economic benefits to communities that are disproportionately burdened with environmental harms and health impacts. Prioritizing equity in program design can help ensure that critical air quality improvements and clean energy investments materialize in the communities that need them most and constrain potential adverse impacts by placing more stringent compliance obligations on emitters with ongoing operations in these communities. If well-designed, a cap-and-invest approach can deliver reductions in climate pollution as well as address locally harmful air pollution in overburdened communities. (166)

93. COMMENT: As written, the rules fail to implement the Environmental Justice Law, which took effect in September 2020, and accordingly fail to recognize how the health risks and effects borne by overburdened communities translate into a need for emitters to be required to reduce emissions on a faster timeline and to a greater degree. The proposed rulemaking does not include any language to protect communities that are already overly burdened with pollution, nor does it include the evaluation of the cumulative impacts of co-pollutants to surrounding communities. Given New Jersey's failure to attain and maintain the health-based Federal standards for ground-level ozone, and the State's high levels of asthma and other respiratory diseases, it is incumbent upon the Department to take into account the benefits that would flow to the public health and

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overburdened communities of rapid decarbonization, and, conversely, the harms the public are endured by a delayed transition to a clean energy future. (53)

94. COMMENT: While the proposed rules include projected estimates of the reductions in hazardous air pollutants and criteria pollutants that harm human health, some have faulted the proposed rules for not doing more to reduce these pollutants by more deeply limiting the operation of these specific EGUs. Rapidly reducing the disproportionate burden imposed on specific communities in the vicinity of power plants, as well as reducing greenhouse gas emissions from all power plants should be a goal. But as a matter of effective policy, it is important to use the right tools for each job. The right tools for reducing greenhouse gas emissions involve primarily substituting clean energy megawatt-hours for fossil megawatt-hours, by rapidly deploying very large amounts renewable energy and cost-effective storage across the entire region that supplies the electricity used in New Jersey. This process will, as a co-benefit to reducing CO<sub>2</sub> emissions, also reduce both local and upwind release of many non-greenhouse gas pollutants from regional coal and gas plants that cause health problems and death among all New Jersey residents, but will not effectively target specific EGU sources of these non-greenhouse gas emissions that disproportionately impact specific nearby New Jersey communities. The right tools for reducing the specific types of EGU pollution that cause local morbidity and mortality will result in reducing the amount of the specific harmful pollutants that are released in or near New Jersey's most affected communities. Those reductions may result from use of different pollution control technologies, different generation technologies, or different fuels – all of which are likely to produce more rapid and larger health benefits than simply trying to use stringent CO<sub>2</sub> regulations. For these reasons, the Department should take

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appropriate steps, independent of the proposed rules, to dramatically reduce the emissions from all sources that disproportionately harm the health and cause deaths among New Jersey communities that bear such burdens disproportionately. (13)

95. COMMENT: There is no Environmental Justice component in the proposed rules. The rules do not evaluate the cumulative impacts to surrounding communities or include any language to protect communities that are already overly burdened with pollution. (3, 5, 8, 9, 31, 32, 34, 40, 44, 49, 62, 66, 68, 73, 86, 88, 91, 104, 105, 108, 113, 120, 142, 144, 163, 181, 182, 184, 192, and 196)

96. COMMENT: The rules do not take into account environmental justice. No protection is offered for communities who are already overly burdened with pollution. (57 and 81)

97. COMMENT: The rules fail to protect overburdened communities. (64, 101, 112, 115, 121, 123, 126, 146, 162, 174, and 191)

98. COMMENT: The rules do not evaluate the cumulative impacts to surrounding communities or include any language to protect communities that are already overly burdened with pollution. (102)

99. COMMENT: The rules have no environmental justice provisions. Overburdened, low-income communities bearing the unequal burden of toxic air and water resulting in damage to health, especially for children and the elderly. (158)

100. COMMENT: There is no EJ provision in the rules to protect poor or minority areas. Air permits for harmful facilities will continue to be approved, polluting New Jersey with not just CO<sub>2</sub> emissions but other harmful co-pollutants like NO<sub>x</sub> and PM. (155)

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101. COMMENT: The Department should re-enforce social justice in this rulemaking by including an environmental justice component, and not rely solely on the cumulative impacts law. (8)

102. COMMENT: The rules should address environmental justice. (12, 38, 54, 58, 63, 118, 125, 171, and 183)

103. COMMENT: New Jersey passed an unprecedented environmental justice bill, and the Governor has committed the State to specific targets. Neither of these elements seem to be represented in the proposed rules. (45)

104. COMMENT: The rules do not address environmental justice. The continued positioning of unhealthy facilities in underserved neighborhoods has to stop. New Jersey passed a law to do that, but that law is not reflected in the proposed rules. (33)

105. COMMENT: Environmental justice must be a significant factor in all decision making. (79)

106. COMMENT: The rules should address environmental justice and include a cumulative impact component. (140 and 172)

107. COMMENT: The proposed rules are totally inadequate as a result of the loopholes. The rules must be strengthened to reflect principles of environmental justice and protect environmental justice communities. As written, these rules allow new power plants to be built, which means communities that are already overly burdened will be subject to additional pollution, in some cases for the 30 to 40 years. Children are highly impacted by environmental conditions, particularly in Newark, as documented by the Children's Environmental Health Center, Department of Environmental Medicine and Public Health at Mount Sinai. This

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contributes to an educational achievement gap and loss of social and emotional supports. The new rules must be dropped or strengthened to address these issues. (149)

108. COMMENT: The rules do not address the impact of air pollution in communities. The Harvard School of Public Health found a direct link between air pollution, COVID transmission, and increased potential for premature death. (130)

109. COMMENT: The rules do not explicitly address environmental justice concerns. For years, advocates have asked the Department to develop a rule that requires reduced emissions from power plants located in environmental justice communities, communities of color or low-income communities if the emissions significantly impact the community. These rules do not consider the location of the power plants; and therefore, the rules do not account for existing pollution sources in a community. These rules, as currently drafted, will allow power plants located in EJ communities now to keep on harming those communities either because those plants have emission rates that are below the emission limits set by the rules or because the plants have no individual EGUs with a capacity above 25MW. (161)

110. COMMENT: The rules do not get at the issues that most impact EJ communities. The rules focus on CO<sub>2</sub> emissions without mentioning cumulative impacts or co-pollutants. (116)

111. COMMENTS: The rules should address cumulative impacts and co-pollutants. We cannot allow electrification of systems and transportation on the backs of overburdened communities where fossil fuels are burned. (65)

112. COMMENT: The rules should require faster reductions in overburdened communities. (138)

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RESPONSE TO COMMENTS 91 THROUGH 112: The Department's primary goal in promulgating the new rules is to reduce emissions of CO<sub>2</sub>, a greenhouse gas. The Department agrees that more work is necessary to ensure greater emissions reductions of local pollutants (non-greenhouse gas emissions) in overburdened communities. While the Department anticipates that there will be reductions in criteria pollutants and hazardous air pollutants as a result of these rules, the main focus of this rulemaking is the mitigation of climate change. The Department refers commenters to rules that were separately proposed pursuant to the Environmental Justice Law, N.J.S.A. 13:1D-157 et seq. See 54 N.J.R. 971(a), June 6, 2022 (EJ rules). As proposed, the EJ rules require the Department to evaluate environmental and public health impacts of certain facilities in overburdened communities when the Department reviews specific types of permit applications. *Ibid.* For instance, any major source of air pollution located in or proposed to be located in an overburdened community would be subject to the EJ rules, as proposed. *Ibid.* Further, the EJ rules propose to define environmental and public health stressors to include, but not be limited to, concentrated areas of air pollution, surface water, and combined sewer overflows. *Ibid.* The Department believes that the commenters' concerns are discussed within the notice of proposal of the EJ rules.

### **Social cost of carbon**

113. COMMENT: The use of a social cost of carbon analysis as a basis to support the economic or social benefits of the rules is inappropriate. While the Legislature may have used this analysis to support a nuclear subsidy in a stand-alone piece of legislation, it did not authorize such a use in the APCA or in the GWRA. Further, the social cost of carbon is based on a number of

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unrealistic assumptions, including unrealistic assumptions of emission projections, and does not in any way reflect the actual costs or benefits to the citizens of New Jersey. For instance, of the 37,000 million metric tons (MMT) of global carbon emissions, the emissions attributable to the United States are just 6,600 MMT. Of the United States' portion of global emissions, New Jersey accounts for only 105 MMT. The New Jersey percentage of US carbon emissions is 1.59 percent and only 0.28 percent of world emissions. While these numbers are not being provided as a reason to not reduce carbon emissions in the State, they do reflect the enormous and global nature of the problem. To suggest that there will be a dollar per ton social cost of carbon benefit for carbon reductions in New Jersey is to ignore these facts and to engage in an academic versus real world exercise of costs and benefits. The Administrative Procedure Act does not allow for academic exercises but insists that the Department show the actual costs and benefits of the actions that it is taking. (22)

RESPONSE: The Department conducted an economic analysis that “describes the expected costs, revenues, and other economic impact upon governmental bodies of the State, and particularly any segments of the public proposed to be regulated.” N.J.A.C. 1:30-5.1(c)(3). The Department also conducted a social analysis that “describes the expected social impact of the proposed rulemaking on the public. N.J.A.C. 1:30-5.1(c)(2). While the social cost of carbon was a consideration, the Department took into account other factors like the health and environmental benefits of reducing other pollutants. See 53 N.J.R. at 1955-62. As discussed in the notice of proposal, climate change impacts are significant and far-reaching. While these rules have costs associated with their implementation, the failure to mitigate climate change carries its own price. See 53 N.J.R. at 1959. To help explain the costs of a failure to act, the Department examined the

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social cost of carbon, which is a measure of the monetized global damages associated with an incremental increase in carbon emissions in a given year. *Ibid.* Carbon emissions are a global problem, and New Jersey's emissions contribute to the global impacts. The Department's use of social cost of carbon estimates contextualizes the impact of those reductions by placing a dollar value on the long-term, real-world damages those emissions will cause.

### **Conditional support for the emissions limits on new and existing EGUs**

114. COMMENT: The proposed rules are an important initial step to materially reducing greenhouse gas emissions, while avoiding the leakage of CO<sub>2</sub> that would be caused by more stringent rules. Leakage results when one state imposes more stringent CO<sub>2</sub> reduction requirements than neighboring states that serve the same interconnected electric grid. Such leakage creates a significant challenge to New Jersey's achievement of its critically important CO<sub>2</sub> emission reduction goals, since leakage results in few or no emission reductions, and instead simply shifts similar, or even greater, amounts of CO<sub>2</sub> emissions to neighboring states. To its credit, the Department understands both the problems of leakage, and the primary means to achieve the State's and the region's needed CO<sub>2</sub> emission reductions. Simply put, the vast majority of needed CO<sub>2</sub> emission reductions can only come from the rapid deployment of very large amounts of renewable and other clean energy resources, both in the State and in the region. The proposed rules turn the screws down on the emissions rates (output of CO<sub>2</sub> per each MWh generated) allowed by existing EGUs over the course of the next 12 years, forcing the least efficient and least environmentally responsible of these existing EGUs to exit the market, but at a rate that should not either threaten reliability or cause large amounts of leakage of CO<sub>2</sub> emissions



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to out-of-State generators. The proposed rules set a much more stringent emission rate of 860 lbs of CO<sub>2</sub> per MWh for any new EGUs. The proposed output-based emission standards are highly appropriate for this initial step of EGU regulation in New Jersey because: (i) even with the rapid growth of renewables, the firm capacity provided by gas-fired EGUs will need to run for a period of time in the future; (ii) increasingly stringent performance standards could provide a strong incentive for the development and use of zero-carbon fuels. Still, these emission standards must be paired with complementary policies that ensure widespread deployment of clean energy resources. (13)

RESPONSE: The Department acknowledges the commenter's support of the emission limits for new and existing EGUs set forth in the rules. The Department recognizes that the commenter would like the State to pursue complementary policies for the rapid deployment of clean energy resources. Given the magnitude of reductions necessary to meet the 80x50 or 50x30 goal, there is no single rule or strategy that will achieve all of the emission reductions necessary. The Department anticipates that the State will continue to develop, and refine, the mix of policies, rules, and laws that will work to mitigate climate change and strengthen resilience in the State.

#### **Support for the emission limits on new EGUs**

115. COMMENT: The 860 pounds per MWh emission limit for new EGUs at N.J.A.C. 7:27F-2.5(b) is a good, measured first step to achieve the transition to a net zero electric generation sector. (187)

RESPONSE: The Department acknowledges the commenter's support of this provision of the rules.

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**Support for 25MWe EGU applicability threshold**

116. COMMENT: The 25 MW minimum and requirement that a certain percentage of electricity be sold to the grid are reasonable applicability thresholds. (22)

RESPONSE: The Department acknowledges the commenter's support of this provision of the rules.

**EGU Data**

117. COMMENT: The Department should provide the analyses that are the basis for the emission and cost estimates in the proposal document, including but not limited to, the assessment of potential emission leakage to other states using PJM data. (134)

118. COMMENT: The Department should provide the datasets used to determine compliance tiers and timelines, cost benefit analysis, and any other sources of information that set the foundational basis of the proposed rules so that stakeholders will have a better understanding of the Department's analytic approach and may assist in the development of effective alternatives. (165 and 176)

119. COMMENT: The Department has not provided the full, comprehensive data sets or its analysis for the proposed rules. Without transparency, stakeholders cannot determine the reasonableness or accuracy of the analysis by the Department. (60)

120. COMMENT: The Department should provide the data set that calculated the 2.5-million-ton CO<sub>2</sub> decrease by 2035. (103)

121. COMMENT: The data and materials, including detailed rationale, should be made available. (103 and 176)

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122. COMMENT: The Department used incorrect data from the EPA Clean Air Markets Division (CAMD) when it developed the rules. The Department’s proposal indicated that there are only 14.8 million tons of CO<sub>2</sub> emissions reported in the CAMD data set it used. However, the 40 CFR Part 98 data set reports approximately 19 million tons of CO<sub>2</sub> emissions for the New Jersey electric sector in 2018. (60, 103, and 165)

123. COMMENT: There are inconsistencies in the CAMD data set used by the Department. Notably, the data for cogeneration and combined cycle units are reported differently by different entities. Some include their gross MWh of generation, while others report a mix of MWh and steam output. These data issues impact the Department’s analysis of the proposed rules. (165)

124. COMMENT: The Department did not take into account that some combined cycle facilities incorporate a portion of their steam turbine generation and others do not in EPA’s reported gross MW values. By not accounting for this, the Department’s analysis skewed the derived lbs/MWh and emissions limit tier that applies to certain units. (103)

125. COMMENT: The Department references “fuel switching” to meet stated emission limits. However, in the EPA’s Acid Rain Program CY 2018 data set, the units are already operating on natural gas. (103)

126. COMMENT: The EPA’s CAMD data for 2020 acid rain program units in New Jersey results in 72 units while a query of 2021 RGGI Units in New Jersey results in 93 active units for the 2021 calendar year (2020 RGGI report is not available for New Jersey due to applicability). The notice of proposal states there were 94 units. Note, the query does result in 33 applicable facilities. (103)

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RESPONSE TO COMMENTS 117 THROUGH 126: The Department’s notice of proposal included a lengthy explanation of the rationale for the timelines and emission limits for each proposed tier, as well as a description of the data relied on to develop the rules. See 53 N.J.R. 1945(a), 1947-51; 1955-57; 1960-61. The Department used the nameplate capacity facilities reported in 2020 and used 2018 CAMD data to estimate the total number of units that the three emission tiers would potentially impact. 53 N.J.R. at 1961. Further, the Department used 2018 emission statements as part of its analysis of the emission reduction estimates. 53 N.J.R. at 1957.

The concern expressed by commenters that the Department relied on incorrect CAMD data is misplaced. As noted in the notice of proposal, CAMD “runs programs that reduce air pollution from power plants to address several environmental problems including acid rain, ozone and particle pollution, and interstate transport of air pollution.” 53 N.J.R. at 1955. CAMD has multiple datasets, including the acid rain dataset that commenters mention, that may be sorted by different criteria. To clarify, the Department used the 2018 CAMD data set that may be generated based on fossil fuel-fired EGUs in New Jersey that are subject to EPA’s Cross-State Air Pollution Rule (CSAPR). The Department used this dataset based on the CSAPR applicability because it includes all fossil fuel-fired EGUs over 25 MW that send more than 10 percent of their power to the grid, consistent with the applicability parameters in the rules. Using this dataset, the CO<sub>2</sub> emissions from EGUs in New Jersey, which are subject to the CSAPR, totaled 19.01 million short tons in 2018, similar to the 19-million-ton value the commenters’ cite for the 40 CFR Part 98 data set. Though there is a separate CAMD dataset that may be generated based on participation in the Acid Rain Program, which results in CO<sub>2</sub> emissions totaling 14.86 million short tons, this was not the dataset the Department used to develop the rules. The two

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data sets are different because several EGUs in New Jersey, including three coal-fired EGUs, are excluded from the Acid Rain Program. As noted in the notice of proposal, the Department included those three coal-fired EGUs in its analysis and noted that those EGUs would not meet the Tier 1 emission limit as currently operated. 53 N.J.R. at 1948.

The Department is aware that some combined-cycle facilities do not incorporate their steam generation in the gross megawatt values reported to CAMD. To account for this gap in the CAMD dataset, the Department compared the generation data from CAMD with the generation values reported to the Energy Information Administration (EIA) and the EPA's National Electric Energy Data System (NEEDS). Generation from the steam turbines for all applicable sources is included in the EIA reports and heat input rates for EGUs are included in the NEEDS data. In cases where the EIA value for gross generation from a facility was greater than the CAMD value, the Department used the difference to adjust the CO<sub>2</sub> emission rates (in lb/MWh) calculated for individual EGUs. While the 2018 CAMD data had a total of 98 fossil fuel-fired EGUs (using the CSAPR data set), the Department is aware that four of those units had shut down prior to the proposal's publication. The Department's projection of emission reductions was therefore limited to the 94 units in operation at the time the proposal was developed. See 53 N.J.R. at 1947. The NEEDS data was also used to establish the gross load for the coal units. The Department used the heat rates provided in the NEEDS data to determine the gross load for those units because they are cogeneration units that provide steam to their host facilities as well as electricity to the grid, and neither the EIA nor CAMD data sets properly account for both steam and electric loads.

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As commenters are aware, there is no perfect, real-time database with all of the information needed for analysis in a single place. Therefore, the Department used the best data that was available at the time it developed the proposal. When necessary to make assumptions or adjustments, the Department endeavored to explain those assumptions and adjustments in the notice of proposal. See 53 N.J.R. at 1947-51; 1955-57; 1960-61. Specifically, the Department explained in detail in the notice of proposal, that it analyzed the age, emission rate, and usage of the existing EGUs. See 53 N.J.R. at 1948-49. The following table is a visual representation of the data described above and presented in written form in the notice of proposal:

<b>Facility Name</b>	<b>Unit ID</b>	<b>Type</b>	<b>Year Built</b>	<b>Annual Hours</b>	<b>Gross Load (MW-h)</b>	<b>CO<sub>2</sub> (short tons)</b>	<b>CO<sub>2</sub> (lb/MWh)</b>	<b>Notes</b>
Salem Generating Station	2001	SC	1971	7	52	108	4,142	1
Carlls Corner Energy Center	3001	SC	1973	7	149	285	3,828	
Mickleton Energy Center	1001	CC	1974	121	5,031	7,853	3,122	
Carll's Corner Energy Center	2001	SC	1973	429	11,687	16,365	2,801	
Sayreville	1400	SC	1972	23	731	960	2,628	
West Station	2001	SC	1972	44	1,179	1,472	2,496	
Sayreville	1200	SC	1972	19	685	819	2,392	
Sayreville	1600	SC	1972	16	666	786	2,361	

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B L England	2	CFB	1964	183	15,669	17,648	2,253	2
Logan Generating Plant	1001	CFB	1996	7,788	675,600	757,839	2,243	3
Carneys Point	1001	CFB	1995	7,808	456,800	506,832	2,219	3
Carneys Point	1002	CFB	1995	8,623	493,800	547,795	2,219	3
Sayreville	1500	SC	1972	31	1,573	1,733	2,203	4
Gilbert Generating Station	9	SC	1995	78	6,503	6,073	1,868	4
<b>1,700 Lb/MWh</b>								
Linden Generating Station	8	SC	1995	161	10,392	8,603	1,656	
Gilbert Generating Station	4	CC	1974	26	1,203	893	1,484	5
Forked River Power	2001	SC	1989	138	3,989	3,247	1,628	
Forked River Power	3001	SC	1989	154	4,490	3,627	1,615	
Linden Generating Station	7	SC	1995	214	14,165	11,425	1,613	
Linden Generating Station	6	SC	2000	247	17,941	14,298	1,594	
Gilbert Generating Station	5	CC	1974	27	1,262	908	1,439	5
Gilbert Generating Station	6	CC	1974	31	1,585	1,134	1,430	5
Gilbert Generating Station	7	CC	1974	30	1,499	1,069	1,426	5

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Sherman Avenue	1	SC	1991	812	59,144	44,767	1,514	
Cumberland Energy Center	4001	SC	1990	802	58,711	40,297	1,373	
Burlington Generating Station	121	SC	2000	337	13,036	8,762	1,344	4
Linden Generating Station	5	SC	2000	111	6,857	4,587	1,338	
Bayonne Plant Holding, LLC	4001	CC	1991	10	212	140	1,317	2,5
Essex	3500	SC	1990	34	1,542	1,005	1,304	4
<b>1,300 Lb/MWh</b>								
Burlington Generating Station	122	SC	2000	304	11,545	7,496	1,299	
Bayonne Plant Holding, LLC	2001	CC	1991	69	1,479	956	1,292	2,5
Kearny Generating Station	124	SC	2001	718	28,301	17,938	1,268	
Kearny Generating Station	121	SC	2001	699	27,090	17,007	1,256	
Kearny Generating Station	131	SC	2012	841	31,076	19,508	1,256	
Kearny Generating Station	122	SC	2001	680	27,458	17,149	1,249	
Burlington Generating Station	123	SC	2000	327	12,947	8,025	1,240	
Kearny Generating Station	132	SC	2012	869	32,133	19,916	1,240	
Burlington Generating Station	124	SC	2000	305	11,637	7,207	1,239	



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Kearny Generating Station	123	SC	2001	694	27,811	17,205	1,237	
Elmwood Power LLC	2001	CC	1987	61	3,357	2,043	1,217	
Kearny Generating Station	141	SC	2012	969	36,734	22,299	1,214	
Kearny Generating Station	134	SC	2012	824	29,919	18,140	1,213	
Ocean Peaking Power	OPP 4	SC	2003	774	124,966	75,681	1,211	
Kearny Generating Station	142	SC	2012	973	37,393	22,631	1,210	
Kearny Generating Station	133	SC	2012	888	33,243	19,954	1,200	
Bayonne Energy Center	GT5	SC	2012	1,600	81,598	47,961	1,176	
Howard M Down	U11	SC	2012	1,440	82,123	48,028	1,170	
EFS Parlin Holdings, LLC	3001	CC	1993	224	9,793	5,699	1,164	
Bayonne Energy Center	GT1	SC	2012	1,571	79,916	46,500	1,164	
Bayonne Energy Center	GT2	SC	2012	1,726	88,470	51,323	1,160	
Bayonne Energy Center	GT3	SC	2012	1,433	74,125	42,963	1,159	
Bayonne Energy Center	GT8	SC	2012	1,566	80,747	46,777	1,159	
EFS Parlin Holdings, LLC	1001	CC	1993	206	9,088	5,261	1,158	
Bayonne Energy Center	GT4	SC	2012	1,488	75,867	43,676	1,151	

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Clayville	U1	SC	2015	1,505	86,624	49,225	1,137	
Bayonne Energy Center	GT7	SC	2012	1,765	91,937	51,964	1,130	
Bayonne Energy Center	GT9	SC	2018	1,140	56,691	32,001	1,129	
Ocean Peaking Power	OPP 3	SC	2003	839	148,164	82,165	1,109	
Bayonne Energy Center	GT6	SC	2012	1,416	73,647	40,665	1,104	
Bergen Generating Station	1101	CC	1995	3,424	362,207	196,122	1,083	5
Newark Bay Cogen	1001	CC	1993	299	15,624	8,440	1,080	
Camden Plant Holding, LLC	2001	CC	1992	425	51,626	27,748	1,075	
Eagle Point Power Generation	1	CC	1989	2,230	230,959	123,944	1,073	
Newark Bay Cogen	2001	CC	1993	327	17,265	9,256	1,072	
Eagle Point Power Generation	2	CC	1989	2,671	288,462	151,150	1,048	
Bayonne Energy Center	GT1 0	SC	2018	1,110	55,297	28,903	1,045	
Bayonne Plant Holding, LLC	1001	CC	1991	32	1,751	911	1,040	2,5
Bergen Generating Station	1301	CC	1995	3,553	390,397	200,879	1,029	5
Bergen Generating Station	1401	CC	1995	2,503	297,141	151,690	1,021	5
Bergen Generating Station	1201	CC	1995	2,805	349,726	178,077	1,018	5

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Pedricktown Cogeneration Plant	1001	CC	1995	475	48,915	24,705	1,010	4
<b>1,000 Lb/MWh</b>								
Cumberland Energy Center	5001	CC	2008	1,540	144,430	71,688	993	
Sayreville Power LP	1002	CC	1991	2,727	365,174	178,465	977	
Sayreville Power LP	1001	CC	1991	2,718	364,540	178,148	977	
Lakewood	2001	CC	1994	3,220	395,134	189,267	958	5
Lakewood	1001	CC	1994	3,222	400,356	190,415	951	5
Linden Generating Station	1101	CC	2003	5,551	1,313,508	560,452	853	
West Deptford Energy Station	E102	CC	2015	6,790	1,981,555	843,268	851	
Linden Cogeneration Facility	8001	CC	1992	7,201	1,052,636	447,908	851	
Linden Cogeneration Facility	5001	CC	1992	7,490	1,093,389	464,708	850	
Linden Cogeneration Facility	9001	CC	1992	6,903	992,145	421,637	850	
Linden Generating Station	1201	CC	2003	4,047	968,051	410,890	849	
Linden Cogeneration Facility	6001	CC	1992	7,677	1,140,440	483,611	848	
West Deptford Energy Station	E101	CC	2015	6,591	1,934,822	819,318	847	
Linden Generating Station	2201	CC	2003	6,165	1,464,365	615,236	840	

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Red Oak Power, LLC	2	CC	2000	5,550	1,331,605	558,804	839	5
Linden Cogeneration Facility	7001	CC	1992	7,185	1,050,623	440,465	838	
Linden Generating Station	2101	CC	2003	6,734	1,597,184	669,329	838	
Red Oak Power, LLC	1	CC	2000	6,277	1,510,667	628,369	832	5
Red Oak Power, LLC	3	CC	2000	6,248	1,513,641	626,391	828	5
Bergen Generating Station	2101	CC	2002	6,619	1,444,602	589,567	816	5
Bergen Generating Station	2201	CC	2002	5,501	1,233,285	500,788	812	5
Newark Energy Center	U001	CC	2015	7,679	2,316,736	923,998	798	
Newark Energy Center	U002	CC	2015	7,729	2,315,252	915,011	790	
Linden Cogeneration Facility	4001	CC	2001	7,962	2,043,851	796,976	780	
Woodbridge Energy Center	2	CC	2015	7,719	2,452,858	930,788	759	
Woodbridge Energy Center	1	CC	2015	7,684	2,451,239	929,249	758	
Sewaren Generating Station	7	CC	2018	3,854	1,811,313	624,761	690	
<b>Total CO<sub>2</sub> (Short Tons)</b>						<b>19,010,023</b>		

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<b>Notes:</b>								
1. Salem is for emergency use only.								
2. EGU was shut down before rule proposal								
3. Gross load was calculated using the heat rate from the NEEDS database and the annual heat input								
4. EGU might comply with CO <sub>2</sub> limit for next tier if a greater proportion of natural gas relative to fuel oil is used								
5. EIA electric output data was used to adjust CAMD data to include output of steam turbines for these combined cycle units								
<b>Glossary:</b>								
SC-Simple Cycle Turbine								
CC-Combined Cycle Turbine								
CFB-Coal-Fired Boiler								
MWh-Megawatt-hour								
MMBTU-Million BTUs								
Lb-Pounds								

As the table demonstrates, the three emission limits the Department chose appeared to be natural breakpoints in the CO<sub>2</sub> emissions attributable to the existing EGUs based upon the emission rates and ages of the units. However, in order to minimize the risk of leakage at each stage, the Department also analyzed the projected generation needs and potential for leakage as it developed the emission limits, number of tiers, and dates of compliance. See 53 N.J.R. at 1948-49. The notice of proposal provided an explanation of the Department’s analysis for each tier, including consideration of all of the above factors. *Ibid.*

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Similarly, the Department set forth a detailed explanation of its estimated CO<sub>2</sub> emissions reductions in the Environmental Impact statement of the notice of proposal. See 53 N.J.R. at 1955-56. Specifically, the Department provided a description of its assumptions about shutdowns at each tier, as well as assumed emissions from “make-up” power, and explained its use of both CAMD data and PJM emissions data. The following provides a visual representation of the data described in written form in the notice of proposal:

<b>Tier</b>	<b>Total 2018 CO<sub>2</sub> Emissions (excluding those units shut down prior to the proposal and Units for Emergency use only, as identified in the table above)</b>	<b>Total 2018 Generation (excluding units shut down at time of proposal, as identified in the table above)</b>	<b>Make-Up CO<sub>2</sub> Emission Rate (PJM marginal peak rate as described in the proposal)</b>	<b>Estimated CO<sub>2</sub> Emissions From Make-Up Electrical Generation (2018 Generation multiplied by Make-Up Emission Rate and divided by 2,000 lbs per Short Ton as described in the proposal)</b>	<b>Estimated CO<sub>2</sub> Emissions From Making Up Cogeneration Steam Load (Carneys Point and Logan Generating Plants)</b>	<b>Net CO<sub>2</sub> Reductions (Total CO<sub>2</sub> minus Make-up Emissions for electrical and steam generation)</b>
1 (2024)	1,848,812 Short Tons	1,654,404 MWh	1,132 lb/MWh	936,393 Short Tons	393,250 Short Tons	519,169 Short Tons
2 (2027)	144,620 Short Tons	195,815 MWh	1,051 lb/MWh	102,901 Short Tons	-----	41,719 Short tons
3 (2035)	1,987,322 Short Tons	3,622,020 MWh	Not Estimated for 2035	Not Estimated for 2035	-----	Not Estimated for 2035

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As explained in the proposal, the Department calculated total CO<sub>2</sub> emission reduction using several assumptions. See 53 N.J.R. at 1955-56. First, the Department used the 2018 CAMD data to calculate the CO<sub>2</sub> emission rate for each existing EGU (excluding emissions from those units identified as shut down or for emergency use only) that the Department assumed would shut down in 2024, 2027 and 2035. *Ibid.* For purposes of this calculation, the Department assumed that any existing EGU that operated above the applicable CO<sub>2</sub> emission limits of 1,700, 1,300, and 1,000 lb/MWh would shut down by the applicable compliance date. *Ibid.* Next, the Department added the gross CO<sub>2</sub> emission reductions from the shutdown of EGUs at Tier 3, and the net CO<sub>2</sub> emission reductions from the shutdown of EGUs at Tier 1 and Tier 2 (by accounting for the make-up power and generation) to reach the total CO<sub>2</sub> emission reduction of 2,548,210 short tons. *Ibid.*

### **EGU emission reductions**

127. COMMENT: Overall, the rules are not expected to result in significant greenhouse gas emission reductions or benefits to public health and the environment. The Department has acknowledged that most of New Jersey's air pollution, including greenhouse gas emissions, comes from mobile and out-of-State sources; as such, this rulemaking will be ineffective in accomplishing material greenhouse gas emission reductions. It is clear that the point sources in New Jersey that are the subject of these proposed rules are not the problem. Despite these realities, proposed rules will create material new costs for New Jersey businesses and citizens, as well as business uncertainty and compliance risk for the regulated community, with little or no greenhouse gas and climate change benefit in return. (72)

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128. COMMENT: The proposed rules will do little to reduce greenhouse gas emissions, but they could be costly to the State's energy system and economy. The Department should not adopt these rules. The Department can wait as technology that would strengthen the State's energy system evolves, and avoid irrevocable harm to New Jersey's citizens and communities. (22)

129. COMMENT: The rules are not balanced. There is not much in the way of a climate benefit, but there is an economic impact that will present challenges for the regulated community. The Department should be looking at other options that do not involve rulemaking. (70)

130. COMMENT: These regulations, on their own, will not have a significant impact on the emission levels in this State. The process of electrification will ultimately have a negative cost-benefit ratio and add to the already crushing cost of living in New Jersey. The Department should withdraw these rules. (35 and 131)

131. COMMENT: Regulation of greenhouse gas emissions from the power sector is a necessary part of reducing climate-damaging emissions. The Department's steps toward reductions are appreciated. Decarbonizing New Jersey's economy as a whole requires decarbonizing its electric sector while electrifying everything else, and thus ratcheting down carbon emissions from power plants is critical. However, the proposed rules do not go nearly far enough to meet the State's goals. The proposed rules would only reduce emissions by a small fraction of the reductions New Jersey needs to achieve. As proposed, this rule would only reduce EGU emissions by 2.5 million tons per year, and thereby only achieve four percent of the needed reductions to reach the 50x30 climate goal, and that is only after full implementation by 2035. Similarly, even after full implementation of the rules as proposed, a total of only three percent of the needed reductions to achieve the 80x50 goal would be reached. The Department should



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correct this problem by incorporating more protective and additional emission limit tiers into a final rule, and by ensuring that measures are in place to achieve the power sector emissions reductions necessary to meet the 50x30 and 80x50 goals. (53)

132. COMMENT: Performance-based measures like those in the proposed rules are steps toward reducing the climate impact of the State's energy systems, but a comprehensive policy framework that limits greenhouse gas emissions across the economy is essential. The proposed rules do not provide this framework and thus do not secure emission reductions in line with the mandates of the GWRA. The proposed rules state that there are 40 EGUs that operate in the State and emit CO<sub>2</sub> at a rate greater than 1,000 lb/MWh and less than 1,300 lb/MWh. These units account for approximately nine percent of the power produced in the State and approximately 10 percent of the CO<sub>2</sub> emissions from the electric generation sector. Since only 10 percent of the State's emissions from electricity generation will be affected by these rules, which will not occur until 2035, the rules will only have a marginal impact on overall CO<sub>2</sub> emissions.

Governor Murphy's Executive Order No. 100 states that the only method to begin mitigation is through steep and immediate reductions in greenhouse gas emissions. To achieve the requirements of these mandates, the Department should target clearly defined pathways for achieving emission reductions on a timeline that is compatible with the State's targets. The State should establish an overarching cap on climate pollution and dramatically accelerate near-term reductions, to reduce cumulative emissions. One key pathway and opportunity for accelerating reductions and meeting the State's economy-wide emissions targets is through swiftly decarbonizing the power sector. Achieving at least an 80 percent reduction in carbon dioxide

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emissions from the power sector by 2030 (relative to 2005 levels), which is critical to reducing emissions by at least 50 percent across the economy by 2030. (166)

133. COMMENT: The rules will achieve only a small percentage of the emission reductions needed to meet the 80x50 and 50x30 goals. (31, 40, 43, 63, 86, 88, 108, 125, 138, 140, 144, 155, 163, 181, and 196)

134. COMMENT: Not only will the rules fail to meet the greenhouse gas emission reduction goals set by the GWRA and the Governor's 50x30 goal, but the rules are counterproductive to those goals. (7 and 65)

135. COMMENT: The rules will not achieve an 80 percent reduction in the State's greenhouse gas emissions by 2050 (80x50 goal). (3, 5, 8, 32, 44, 66, 68, 73, 81, 91, 93, 94, 99, 105, 108, 113, 120, 141, 142, 158, 182, and 192)

136. COMMENT: The rules only achieve three percent of the reductions needed to reach the 80x50 goal, and the bulk of those reductions would take place after 2030. (9 and 130)

137. COMMENT: The rules will not achieve a 50 percent reduction in greenhouse gas emissions below 2006 levels by 2030 (50x30 goal) established by Executive Order 274. (5, 8, 43, 52, 67, 68, 69, 74, 76, 79, 104, 120, 126, 133, 138, 143, 152, 172, 173, and 196)

138. COMMENT: The rules only get three percent of the reductions needed to achieve the 50x30 goal and are mostly backloaded for 2035 and beyond. (3, 32, 34, 64, 66, 73, 91, 94, 99, 104, 105, 142, 147, 174, 182, 191, and 192)

139. COMMENT: The rules will be nowhere near effective enough to reduce carbon emissions by 50 percent by 2030. (115, 133, 154, and 191)

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140. COMMENT: The Department must propose a better rule in order to meet the 50x30 goal set forth in Governor Murphy's Executive Order. (52, 62, 64, 74, 100, 121, 125, 130, 162, 164, 172, 174, 183, 188, and 191)

141. COMMENT: The rules do not even mention the 50x30 goal. (3, 32, 34, 66, 68, 73, 91, 94, 99, 105, 108, 112, 113, 125, 142, 147, 182, 184, 192, and 196)

142. COMMENT: The rules will achieve only four percent of the needed emission reductions. (75 and 143)

143. COMMENT: The rules will not achieve the high level of greenhouse gas emission reductions that science indicates is necessary to address the climate change. (5, 10, 65, 66, 67, 74, 86, 107, 138, 167, 172, and 196)

144. COMMENT: The existing New Jersey mandates, per the 2019 New Jersey Energy Master Plan (EMP) Figure 1 Reference 2 curve, do not bring New Jersey anywhere near the target of 100 percent clean electric and 80 percent greenhouse gas emission reductions by 2050. (51 and 119)

145. COMMENT: The rules do not meet or beat the Federal greenhouse gas emission reduction goals. (58, 93, 108, and 135)

146. COMMENT: The Department must strengthen these rules to achieve greater reductions sooner. (9, 40, 93, 98, and 140)

147. COMMENT: The Department should develop rules that will result in net zero emissions from the electric sector by 2035. (81 and 135)

148. COMMENT: The State needs a reduction in greenhouse gas emissions to real zero, not net zero, by 2030 or 2035. These rules fail to meet the needed reductions. (37)

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RESPONSE TO COMMENTS 127 THROUGH 148: As the Department stated in the notice of proposal, the rules are an important first regulatory step toward decarbonizing the State's electric generation sector in line with the 2019 EMP and the 2050 Report. 53 N.J.R. at 1947. The 2019 EMP explains that a measured approach to 100 percent clean energy, consistent with current technological and practical limits of supply/demand, will maintain grid reliability and avoid leakage. *Ibid.* Thus, as the Department and other State agencies work together to implement comprehensive policies and regulations to transition the State's electric generation sector to net zero, variables such as the availability of renewable electric generation in New Jersey and the PJM region, storage capacity, and increased or decreased electricity demand must be considered. *Ibid.* Reducing emissions from the electric generating sector is a complex process, in part because New Jersey is part of a regional grid. For example, even if the Department implemented an emission limit that 90 percent of the State's EGUs could not meet, demand for electricity in New Jersey would not change. Consequently, PJM, the regional grid, would be required to supply that demand to avoid compromising the reliability of the grid. Demand would likely be met with either a request from PJM that an in-State EGU(s) continue operating beyond its announced retirement date ("Reliability Must Run" or "RMR") to maintain reliable operation, or with electricity from out-of-State generation that is likely to have a higher rate of CO<sub>2</sub> emissions; either outcome would result in greater carbon emissions. The latter is known as leakage. For this reason, the Department has pursued a measured approach to the emission limits. This approach included consideration of an estimated projection of the PJM CO<sub>2</sub> marginal rate (as compared to the proposed emission limits), as well as the proposed timing of new renewable energy sources,

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like offshore wind. 53 N.J.R. at 1947. A measured approach is necessary to avoid simply shifting electricity supply from in-State to out-of-State EGUs.

Given the magnitude of reductions necessary to meet the 80x50 or 50x30 goal, there is no single rule or strategy that will achieve all the emission reductions necessary. The State will need to continue to develop, and refine, the mix of policies, rules, and laws that will work to mitigate climate change and strengthen resilience in the State. And though the emission reduction estimates from this rulemaking may seem relatively modest, the Department, and other State agencies, will continue to work collaboratively over time and across economic sectors, levels of government, and through public private ventures to implement policies that will build upon one another as the State methodically advances to meet the 80x50 goal over the next three decades. 53 N.J.R. at 1947. To that end, the rules are designed to provide regulatory certainty. As the State transitions to meet its climate goals, the regulated community will know that fossil fuel-fired EGUs will be expected to reduce their emissions to an-ever increasing degree. The Department anticipates that this regulatory certainty, in conjunction with other state policies supporting renewables, will foster future investment in renewable energy and storage options. Regulatory certainty is an important component of a comprehensive strategy, and these rules are an important initial step in the State's overall strategy. In adopting these rules, the Department intends to provide regulatory certainty and a predictable signal to the regulated community.

As noted in Response to Comments 202 through 231, the applicability thresholds of these rules are almost identical to those in the Carbon CO<sub>2</sub> Budget Trading rules at N.J.A.C. 7:27C. Thus, the bulk of the EGUs impacted will be familiar with the process to incorporate the changes and will be expected to maintain similar monitoring, recordkeeping, and compliance

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requirements to avoid duplication wherever possible. For those facilities with No. 4 or No. 6 fuel oil on site, the rules are clear about future use and include a two-year grace period. In sum, the Department has taken a measured approach to this rulemaking.

As discussed in the notice of proposal, climate change impacts are significant and far reaching. While these rules have costs associated with their implementation, the failure to mitigate climate change carries its own price. See 53 N.J.R. at 1959. To help explain the costs of the failure to act, the Department examined the social cost of carbon, a measure of the monetized global damages associated with an incremental increase in carbon emissions in a given year, as part of its Economic Impact analysis. *Ibid.* After careful consideration of all of these factors, the Department determined that the emission limits for EGUs will have an overall net positive impact.

149. COMMENT: The outcome of this initial rule, taken alone, has only a modest impact on greenhouse gas emissions and climate change. However, this rule is cautious because it recognizes the critical challenge: by mandating reductions in emissions from power plants in New Jersey, emissions will increase someplace else because New Jersey is part of a regional grid. Of course, New Jersey will continue to pursue strategies for addressing all of these concerns, but they must be regional. This could include national and regional energy initiatives that result in deployment of new zero carbon emitting electric generation. These rules would complement a regional strategy of rapid deployment of new resources. (13)

150. COMMENT: In considering strategies for reducing emissions in the near term from electricity generation, New Jersey should address emissions leakage, which results when

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electricity generated in a state with an emissions limit (such as New Jersey) is served by imported electricity that is not covered by pollution limits. Rapidly scaling up in-State deployment of clean energy resources and energy efficiency measures in the region can help reduce leakage. The State can also mitigate leakage by covering emissions associated with electricity used to serve electricity load in New Jersey including electricity generated in other states. By putting emissions from electricity imports under a cap, New Jersey can ensure that any emissions associated with generation dispatched to serve electric load within its borders will be covered, eliminating the economic incentive for generating units from uncapped states to serve their load and in turn undermine climate and clean energy commitments and targets. Achieving the State's economy-wide goals will require a comprehensive approach that directly targets, and firmly limits, climate pollution, while also focusing on those areas like electricity generation where the State can make progress the fastest. (166)

RESPONSE TO COMMENTS 149 AND 150: As noted in the Response to Comments 127 through 148, New Jersey's electric generation is supplied by a regional grid. As such, these rules represent a measured approach intended to minimize the potential for leakage and/or disruptions in reliability. As a member of a regional grid, it is also true that the State will need to pursue a comprehensive suite of strategies, including regional strategies, if the State is to be successful in reducing greenhouse gas emissions long term. Thus, these rules are one piece of a multi-faceted, long-term process that will be necessary to reach the State's climate goals. Moving forward, the State will continue to develop, and refine, the mix of policies, rules, and laws that will work to reach the 80x50 and 100 percent clean energy goals.

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**EGU leakage projections**

151. COMMENT: The Department's analysis compared the proposed CO<sub>2</sub> emission limits to PJM's annual, on-peak marginal CO<sub>2</sub> emission rates to demonstrate that the rules will not cause leakage. By directly comparing the emission rates from EGUs impacted by the Tier 1 and Tier 2 emission limits with the PJM on-peak marginal emission rate, the Department erroneously concluded that the emission rates from generation that would replace Tier 1 and Tier 2 generation (that would be forced to retire because of the rule) is lower than the retired generation. This leads the Department to incorrectly conclude that emissions will be reduced.

The Department should have analyzed the marginal emission rates during super peak hours, when Tier 1 and Tier 2 EGUs typically operate. The super-peak-hour emission rates are representative of the replacement generation that New Jersey would have to import if the proposed Tier 1, Tier 2, and Tier 3 CO<sub>2</sub> emissions limits were imposed on existing New Jersey EGUs. They are higher than the PJM on-peak emission rates used by Department to determine the emission impact from replacement generation and higher than the emissions limits proposed in the rules. Hence, the New Jersey EGUs that are forced to retire pursuant to these rules will be replaced by out-of-State generation with higher emission rates and the rules will lead to increased CO<sub>2</sub> emissions. (165)

152. COMMENT: The Department's finding that the rules will reduce CO<sub>2</sub> emissions from EGUs is incorrect and based on flawed data and analysis. The Department's analysis compared the proposed CO<sub>2</sub> emissions limits to a forecast of PJM's annual, on-peak marginal CO<sub>2</sub> rates. However, this analysis is simply not accurate because the emission rates for PJM on-peak hours cover about half of annual hours. A significant portion of these hours include efficient, low



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emissions rate, combined-cycle generation on the margin. But the EGUs impacted by the proposed Tier 1 and Tier 2 CO<sub>2</sub> limits operate for far fewer hours, generally dispatched by PJM only during periods of high winter or summer peak demand. The Department's analysis therefore incorrectly compares emission rates from generators that operate for only a limited number of hours per year to an average marginal emission rate that includes far more efficient generators operating at significantly more hours. (60)

153. Comment: The rules force New Jersey to rely upon other states within the PJM system to make up the difference in in-State generation. Many of those states generate greater CO<sub>2</sub> emissions than New Jersey. (35 and 131)

154. COMMENT: The Department should not lock itself into a regulatory policy that results in greater carbon emissions. The Department has acknowledged the possibility of leakage, yet the rules do not provide an off ramp for facilities who emit carbon at lower levels than PJM rates. The Department should allow extensions for a greater number of EGUs. (22)

155. COMMENT: The rules are intended to address climate change. However, the rules contemplate elective EGU shut down, resulting in a shift of generating resources to meet real and potential in-State demand to other generation sources within the PJM grid. While this may allow New Jersey to reduce its emissions profile in isolation, the rules may inadvertently result in greater reliance on other emitting resources in other jurisdictions. (85)

156. COMMENT: These rules will increase leakage, shifting electric generation to dirtier EGUs outside of New Jersey, thereby increasing CO<sub>2</sub> emissions instead of reducing CO<sub>2</sub> emissions. New Jersey's EGUs are already regulated under the Regional Greenhouse Gas Initiative (RGGI) and will face increasing, market-based economic pressure to reduce their CO<sub>2</sub> emissions.

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Because New Jersey EGUs are competing with EGUs which are not in RGGI states, New Jersey's participation in RGGI is already resulting in leakage, and an increase in regional CO<sub>2</sub> emissions. These rules will further exacerbate leakage. (165)

RESPONSE TO COMMENTS 151 THROUGH 156: While the Department recognizes the challenges faced during periods of extreme peak loading and the market's reliance on more costly resources during those times, it does not believe that peak loads must necessarily be served by high emitting units in the future. Instead, as described in the notice of proposal, these rules are only one piece of a comprehensive suite of strategies. See 53 N.J.R. at 1945-46. As detailed in the 2019 Energy Master Plan and the 80x50 Report, multiple agencies must coordinate as the State works toward expanding renewable energy supply, energy storage, improved energy efficiency, and load management, all of which will be necessary to promote improved grid performance and maintain clean, reliable, and affordable generating capacity. See 2019 EMP, pp. 138 -196; 80x50 Report, pp. xiii-xiv. For example, as described in the 2019 EMP, the State must pursue energy efficiency and conservation measures in order to reduce intermittent spikes in peak demand. As these rules and complementary measures are implemented, the Department anticipates that new, renewable dispatchable resources and the existing lower-emitting EGUs that can meet the CO<sub>2</sub> emission limits will be able to serve New Jersey's demand, including its peak demand, that the Tier 1 and Tier 2 units currently serve.

Even if high-emitting units in the PJM region continue to be used during brief periods of extreme demand as the Tier 1 and Tier 2 emission limits are implemented, the Department anticipates that the ongoing trend of ever-cleaner generation will prevail and that any emission leakage will be transient in nature. The projected PJM on-peak marginal emissions rate is

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therefore considered to be representative of the grid performance expected and under the conditions anticipated as the State transitions its electric generating sector.

The Department will continually evaluate leakage as part of the RGGI program. Increased deployment of renewables and energy efficiency will help mitigate impacts of electric generation shift and associated emission leakage. Additionally, as the regional grid becomes cleaner, and more states potentially adopt climate migration policy and or participate in RGGI, the generation that replaces any displaced New Jersey generation will continue to have lower emissions over time, reducing potential increases in emissions from the generation dispatch shift. The Department's participation in RGGI is a sound, long-term strategy to ensure that EGUs in the region that are members of both RGGI and PJM are also moving toward lower emissions. As a participant in PJM, a regional transmission organization, the State must simultaneously pursue local and regional strategies if it is to be successful in reducing greenhouse gas emissions long-term.

#### **EGU provision incentive to increase emissions**

157. COMMENT: Defining emissions limits based on average annual emission rates may create unintended incentives for dual fuel generators. For example, a combined cycle EGU with a heat rate of 8 MMBtu/MWh can stay below the 1,000 lb/MWh limit as long as it operates 82 percent of the time on natural gas on an annual basis. This means that the unit would be allowed to burn oil for one hour for approximately every 5.5 hours it burns natural gas. As a result, the more the unit runs on natural gas, the more it would be permitted to run on oil. This creates an incentive to

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run more hours on natural gas in order to create the option to increase the hours that the unit can run on oil. Both could increase emissions compared to an efficient, competitive outcome. (111)

RESPONSE: Generally speaking, there would be no incentive for a facility to allow a unit to burn more natural gas in order to create an option to run on oil. However, the Department acknowledges one scenario in which an EGU would have an incentive to increase natural gas usage in order to create an option to burn oil. Specifically, there are periods of natural gas curtailment in which a facility's supply of natural gas is restricted or halted, through no fault of the facility, and the unit must run on oil or stop running. To prevent a scenario in which a facility may determine it is necessary or advantageous to burn excess natural gas in order to offset emissions during a natural gas curtailment period, the Department is modifying N.J.A.C. 7:27F-2.3(c) on adoption to exempt CO<sub>2</sub> emissions during a natural gas curtailment period from being counted as part of the calculation of that EGU's emission limit. This exemption is similar to N.J.A.C. 7:27-19.25, which exempts the emergency use of fuel oil when calculating a facility's NO<sub>x</sub> emissions.

### **Grid reliability**

158. COMMENT: The rules would "allow affected existing EGUs to apply for an extension of compliance, if the EGU must continue to operate to ensure electric grid reliability." Currently, the Department's rules contemplate the eligibility for an extension of compliance as a "Reliability Must Run" determination by PJM, allowing PJM to determine if a resource is needed to operate beyond a unit's requested retirement date for reliability purposes. The RMR process allows the resource to recover its operating costs through a formulaic rate specified in

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the PJM Tariff or a FERC-approved Cost of Service Recovery Rate in exchange for remaining in service until the requisite reliability-based transmission upgrades are put in place. However, PJM also depends on other services from its generators for ensuring reliability, which are especially acute when contemplating the transition to the clean energy future. PJM recently completed the first phase of reliability analyses related to the evolving energy mix entitled “Energy Transition in PJM: Frameworks for Analysis.” This is a living study that will be iterated upon over time. The study’s initial findings suggest five key focus areas for PJM’s stakeholder community. In particular, the Department should review three of these focus areas as it implements decarbonization policies. First, a system with increased variable resources will require new approaches to adequately assess the reliability value of each resource and the system overall. Second, operational flexibility is necessary to address the uncertainty of variable resources. Third, the market structure must provide the right incentives to maintain these reliability services. The Department should be aware that a proliferation of policies within the footprint that serve to accelerate the retirement of thermal resources before a substitute that meets particular engineering parameters is in place may very likely result in reliability violations and has the potential to leave customers without power under certain scenarios. The Department should consider the full breadth of reliability services the system depends on, such as Black Start capability, when affording compliance extensions to resources that may be unable to meet their emission targets by the respective dates. PJM is willing to work with the Department on reliability guidance associated with the rules. If guidance is not feasible, the Department should include language akin to “and additional reliability considerations as determined independently by PJM to maintain reliable grid operations only” to its compliance extension framework. This

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will help ensure that residents and businesses do not experience any interruption in service as the Department advances these regulations. (186)

159. COMMENT: For purposes of maintaining reliability, the Department should amend its provisions pertaining to extensions of compliance deadlines to include other potential scenarios from PJM or NYISO, other than RMR. (103)

160. COMMENT: A rule placing CO<sub>2</sub> emission limits on new EGUs is a feasible early step towards the State's greenhouse gas reduction goals. The 860 lb/MWh is a good emission rate for new combined cycle units, but CO<sub>2</sub> emission limits on new EGUs should be assigned based upon subcategorization (combined cycle, Combined heat and power, simple cycle, and internal combustion engines). The same is not true for existing EGUs. Specifically, the Department's tiered approach to placing emission limits on existing EGUs does not take into consideration the operational needs of the grid during peak demand. There are instances when a fast-start peaker unit is needed to stabilize the grid to avoid a brownout or blackout. These peakers are going to be needed even more in future years to complement the intermittency of wind and solar generation. While these peaker units may only operate for a few hundred hours per year, their operation is critical to the reliability of the grid. Heat rates, and therefore CO<sub>2</sub> lbs/MWh emission rates, are relatively high for these units. This is primarily driven by the fact that the units may only be needed for an hour or less per dispatch and not at their operational heat rate during startup and shutdown. These location-specific needs for peaker generation and related ancillary services to ensure grid liability cannot be provided by imports. The Department needs to gather input from stakeholders including the power generators, electric utilities, load serving entities, the BPU, and related entities that are working to ensure a resilient and reliable electric grid. (103)

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161. COMMENT: Some of the New Jersey generation resources that help to meet peak demand will no longer be able to operate under the proposed emission limits. The Department should carefully monitor the potential electric reliability impacts from the rules and explicitly provide for additional compliance flexibility to address and eliminate electric reliability concerns. (165 and 176)

162. COMMENT: Because renewable energy is often intermittent energy, the bulk power system is likely to become more operationally volatile and require resources that can dispatch quickly to compensate for rapid decreases in available energy. Addressing that point, PJM's most recent Energy Transition Study stated, "[t]hermal generators provide essential reliability services today, and an adequate supply will be needed until a substitute is deployed at scale." The retirement of dispatchable resources within New Jersey, coupled with the integration of more in-State intermittent resources, will increase reliability concerns in New Jersey. Many of the generating facilities that the rules would eliminate provide the necessary grid support to increase clean energy additions and provide meaningful reductions in economy wide emissions. For instance, peaking facilities provide important reliability services to New Jersey, particularly during periods of high electric demand and other electric system stress. Rather than eliminating these facilities, the Department should consider alternatives, such as physically pairing large-scale battery storage devices with existing generating capacity. Though Federal and State regulations do not yet seamlessly integrate these types of resources into the dispatch and operation of the market, the Department could investigate how co-located or hybrid resources can accelerate the clean energy transition and leverage existing energy resources. (189)

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163. COMMENT: The rules may inadvertently shift source-point emissions to out-of-State units. This may have a negative impact on in-State energy reliability and resiliency. Most discussions about electrification are centered around development of generating units, energy storage and end use. The replacement cost, timeline of replacement, and reliability of delivery infrastructure should be considered. The Department should leverage existing in-State resources as feedstock through the scaled development and operation of units that can decarbonize energy delivered through existing natural gas pipeline infrastructure, while preserving energy system resiliency. An “all of the above” planning approach that incorporates all options would be balanced, reliable, resilient, and fair to all New Jerseyans. The natural gas distribution system is an asset that is paid for and in service, and has demonstrated its ability to deliver energy reliably, even in periods of extended, extreme cold. It can be utilized to support energy storage for electricity derived from solar, offshore wind, or other emerging technologies. (85)

164. COMMENT: To address impacts on reliability if these rules are adopted, the State must move quickly to meet its statutory energy storage goals (600 MW by 2021 and 2,000 MW by 2030). This is one potential way to bring additional peak resources on line. The Department should coordinate with the BPU to expeditiously address and implement an aggressive storage policy and associated incentives to move the growth of storage forward. (165 and 176)

RESPONSE TO COMMENTS 158 THROUGH 164: The Department acknowledges that the reliability of the grid will be a concern as the State transitions the electric generating sector towards 100 percent clean energy. That is one of the reasons the Department noted in the notice of proposal that it will continue to collaborate with the BPU and other State agencies to regularly update the strategies and recommendations in the 2019 EMP and the 2050 Report to consider the



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State's progress in reducing emissions, current modeling, emerging pathways and technologies, and a reassessment of priorities. See 53 N.J.R. at 1946. Modeling will help to determine whether future generation can meet the forecast demand. Though policies to promote storage are beyond the scope of this rulemaking, such policies are among the broader set of strategies and approaches that the State may consider as it continues to implement the strategies and recommendations of the EMP and 2050 Report.

As the compliance deadline for each tier approaches, an owner and operator of a fossil fuel-fired EGU operating in the State may choose to shut down because the EGU is unable to meet the new emission limit. When an owner or operator decides to shut down an EGU, they are obliged to notify certain entities, including the BPU and PJM, of their decision. The rules allow an owner or operator of an EGU to apply for an extension of the compliance deadline for an emission limit by providing documentation from the BPU, PJM, or NYISO indicating that a shutdown would disrupt grid operations or impact reliability. See 53 N.J.R. at 1949; See also, 7:27F-2.5(f) and (g). Additionally, the rules allow the Department to issue a general extension of a compliance deadline (for all EGUs) if the BPU notifies the Department in writing that such an extension is necessary. See 7:27F-2.5(h). Hence, the rules were written in a manner that reduces the risk of any negative impacts on the reliability of the electric generating grid. Not only will there be continued modeling, but in the event that the shutdown of one or more EGUs would impact reliability as determined by the BPU or PJM, the Department can exempt that EGU from the emission limit for the time necessary to resolve the reliability issue.

Further, the Department has considered the additional reliability factors raised by PJM, which cannot be addressed through the designation of a unit as RMR. The Department is

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modifying N.J.A.C. 7:27F-2.5(f) and (g) on adoption to expand the eligibility criteria for an extension of a compliance deadline to allow an EGU to apply for an extension if it receives a written request by PJM or NYISO to remain operational to maintain grid reliability. This is consistent with the Department's original intent to preserve the reliability of the grid for electric consumers. See 53 N.J.R. at 1949. The Department is also modifying N.J.A.C. 7:27F-2.5(g) to clarify that a request for an extension should be made to the Bureau of Stationary Sources. With these revisions, the Department is confident that potential reliability concerns can be addressed in a timely manner.

165. COMMENT: This regulation as currently proposed, along with RGGI, serves as a good intention; however, the means and the probable ends are not justified. To meet New Jersey's projected electrification trends, the demand for electricity will more than double over the next few decades and a reliable supply of electricity will be crucial to meet this increased demand. Renewable energy sources such as wind and solar, including battery storage from wind and solar sources when power prices and supply allow, will play a significant role in providing the increased capacity, energy, and ancillary services required to meet the increased demand and maintain a reliable and resilient grid. However, natural gas-fired simple cycle and combined cycle technologies will bridge and complement the increased capacity of renewable energy technologies being commissioned over the next decades. Gas-fired simple cycle and combine cycle units will provide an insurance policy against unforeseen and foreseen events as we increase the installed capacity attributed to renewable technologies and transition fossil fuel-based power sources with electricity-based uses, namely EVs and space heating. The Department

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should commission a rule drafting stakeholder group to review the comments and collaborate with the Department and other agencies and organizations to redraft and publish revised proposed rules to implement realistic policies and regulations that take into account the complex factors making up the “grid” from development economics, materials, and land availability to interconnection requirements and timeframes. If the Department commissions a new stakeholder group, discussion topics should include, but not be limited to: a subcategorization of the emission limits for existing EGUs that considers the differences between combined cycle, combined heat and power, simple cycle, and internal combustion engine power generation technologies; and the inclusion of a provision that allows for facility and portfolio averaging that includes renewable generation. (103)

RESPONSE: Comment 165 is a broad summary of the commenter’s position. The commenter also provided an extensive list of proposed modifications to the rules, should the Department decide to convene a new stakeholder process to redraft and re-propose the rules as suggested. The list of suggested modifications is centered primarily around the commenter’s objection to the Department’s decision to set emission limits that do not consider the differences among technologies and the absence in the rules of a portfolio-style emission averaging provision. The commenter indicates that these modifications are necessary to keep natural gas-fired units online to maintain reliability as the State transitions to electric.

As discussed in notice of proposal and in Response to Comments 173 through 199, the Department acknowledges that the State will need to maintain some fossil fuel-fired generation until clean energy sources come online at the scale necessary to meet current and future anticipated demand. See 53 N.J.R. at 1948. However, as discussed in greater detail in Response

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to Comments 158 through 164, the Department considered the issue of grid reliability when it proposed the rules and included a number of safeguards. The adopted rules provide for extensions of the compliance deadlines based upon specific and general circumstances, as determined by PJM, BPU, or NYISO. An “across-the-board” approach to emission limits, based on subcategorization of new and existing EGUs, is not necessary to maintain reliability so long as the Department has built in the appropriate safeguards. Moreover, the subcategorization approach to emission limits would be more likely to result in older, less efficient equipment remaining online longer than necessary to maintain reliability.

Similarly, the Department has not proposed a “portfolio” approach to CO<sub>2</sub> emission reductions as it pertains to reliability, because the safeguards in the adopted rules are anticipated to be sufficient. As discussed in Response to Comments 166, 167, 168, 169 and 170, a portfolio approach to emission limits that incorporates greater flexibility through the use of renewable energy is beyond the scope of this rulemaking, but the Department may consider this approach for future stakeholder and rulemaking efforts.

### **Grid flexibility**

166. COMMENT: The rules should contain explicit provisions allowing for increased compliance flexibility so that the Department can maintain reliability, prevent negative economic impacts, and allow for further reductions in CO<sub>2</sub> emissions. These provisions should: allow the use of net emissions rate averaging with a portfolio approach that could include renewable resources; provide an exemption if an EGU demonstrates that continued operations can provide sustained energy, economic, reliability or environmental benefits; and allow EGUs to propose

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other innovative measures that meet the Department's goals and warrant regulatory flexibility.

This flexibility is necessary to adapt to changing market conditions. (60)

167. COMMENT: Eliminating any of the EGUs running on carbon-based fuels can have a significant effect on the State's energy system, given the fact that the State's electrification policies for transportation and buildings will likely double, if not triple electrical demand over the next 30 years. Therefore, the Department should consider further exemptions and offramps for the rules. For example, there should be an exemption for EGUs that provide an essential public benefit. In some cases, EGUs may provide backup or emergency generation for transportation or safety systems or ensure the continuation of operations of a facility. Though they cannot meet the emission limits, their operations and actual emissions are limited to these services. (22)

168. COMMENT: The Department should exclude or exempt larger "inside the fence" power plants that sell less than a certain percentage (e.g., 25 percent) of their power to the grid. In addition, EGUs located at critical infrastructure manufacturing facilities should also be exempt as these units are part of disaster recovery plans. (72)

169. COMMENT: The Department should expand its flexibility provisions to address the realities of power markets as they change over time. The market is continually shifting and given the expansive term of the rule proposal, the ability of the Department to adapt and refine the limits based on changing market conditions and regional emission levels will be critical. The Department should remain agile to ensure that a sustainable pathway remains in place to reach the State's long-term goals. (165 and 176)

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170. COMMENT: The final rule should make clear that regulated entities can request that the Department address their specific challenges as they arise and consider compliance extensions, averaging plans, and other creative forms of compliance flexibility. (165)

RESPONSE TO COMMENTS 166, 167, 168, 169 and 170: As the Department explained in the notice of proposal, in order to achieve the 80x50 goal, the State will need to make reductions in all sectors, but especially in the transportation, residential and commercial, and electric generation sectors. See 53 N.J.R. at 1946. Additionally, the Department noted that achieving these reductions is a long-term, complex task that will require collaboration among many groups over time. *Ibid.* Thus, the Department cautioned that these rules should not be viewed as the single definitive act intended to meet the 80x50 goal. *Ibid.* The Department recognizes that the State's policies and strategies, and even its rules, will need to remain flexible to address changing variables. *Ibid.* As an example of the need for flexibility, the Department observed that reducing emissions in the transportation and building sectors through electrification means the State will significantly increase its demand on the electric generating sector. *Ibid.* Thus, the Department, in collaboration with other State agencies, will continue to monitor factors like modeling, costs, emerging technologies, and emissions. *Ibid.*

Though the Department has included exemptions in the rules to address reliability concerns (N.J.A.C. 7:27F-2.2(f)-(h)), many commenters suggest that the rules should include more flexibility in order to recognize that the intermittent nature of renewable generation may be a basis for keeping some of the older, higher emitting EGUs in operation. Commenters' recommendations include proposals to exempt certain EGUs from the emission limits. The suggested exemptions are based upon a portfolio approach (e.g., pairing with battery storage),

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whether the EGU supplies less than 25 percent power to the grid, or the EGU's provision of an essential public service. The Department acknowledges the regulated community's suggestions of collaborative approaches to reducing emissions and encourages commenters to communicate their ideas for consideration during future stakeholder and rulemaking efforts.

### **EGU shutdowns**

171. COMMENT: Many existing EGUs will not be able to demonstrate compliance under the proposed emission limits. Under Tier 1 (1,700 lbs/MWh in 2024), older steam units are likely to have challenges complying with this first CO<sub>2</sub> emissions limit threshold. Under Tier 2 (1,300 lbs/MWh in 2027), older peaking units and other simple cycle units are the most likely to have compliance challenges. Under Tier 3 (1,000 lbs/MWh 2035), the remaining simple cycle as well as older combined cycle units are the most likely to have compliance challenges. For many of these EGUs, there are no technological or fuel switching options that they could incorporate to achieve compliance. As a result, the rules would force them into retirement. (165)

172. COMMENT: Some existing EGUs will be unable to comply with the emission limits of these rules through technology or fuel switching activity. While the strategy of emission limits for new EGUs is agreeable, the rate-based emission limits placed on existing EGUs is akin to a "taking." The State should compensate those entities that will shut down as a result of the proposed 2024, 2027, or 2035 emission limits. Pursuant to Executive Order 100, which calls for a just and smooth transition to 100 percent clean energy, the State should compensate stranded assets. Under normal circumstances, market forces such as supply and demand trends, feedstock material costs, labor, and other factors that drive entities out of business or sectors obsolete may

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not necessitate societal compensation. However, the impact of these rules on existing EGUs justifies a remedy to the effected entity and work force. (103)

RESPONSE TO COMMENTS 171 AND 172: The Department acknowledged in its notice of proposal that the Tier 1, Tier 2, and Tier 3 limits could result in the retirement of certain EGUs. 53 N.J.R. at 1948-49. EO No. 100 did acknowledge the possibility of stranded assets as the State transitions to 100 percent clean energy, but did not suggest that owners should be compensated for these assets. Placing emission limits or performance standards on new or existing EGUs, where outdated and inefficient technology must be either updated, retrofitted, or retired, does not constitute a taking. To consider it otherwise would undermine the purposes and goals of both the CAA and the APCA. Consistent with the just and smooth transition contemplated by EO No. 100, the Department's rules are designed to provide certainty to the regulated community that as the State transitions to meet its climate goals fossil fuel-fired EGUs will be expected to reduce their emissions to an-ever increasing degree. The Department anticipates that this regulatory certainty, in conjunction with other state policies supporting renewables, will foster future investment in renewable energy and storage options. By providing regulatory certainty to the market, the Department ensures the regulated community can make informed decisions about its investments.

### **The future of fossil fuel use in EGUs**

173. COMMENT: The rules allow for the construction of new fossil fuel-fired power plants as long as they meet the emission limit or are kept below the 25 MWe capacity. The rules also allow existing fossil fuel-fired EGUs, particularly natural gas plants, to continue operating within



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the specified emission limits. Overall, the rules will not provide the necessary push New Jersey needs toward renewable energy. (196)

174. COMMENT: The Department should prohibit any new fossil fuel infrastructure. New infrastructure should be required to use renewable energy sources. The State should be reducing and eventually eliminating fossil fuel pollution from existing sources. If the State is going to transition to clean, renewable energy, the rules should not allow the continued investment in fossil fuel infrastructure. This will discourage investment in renewable solutions. (7 and 164)

175. COMMENT: The rules undermine renewable energy by allowing new fossil fuel-fired power plants to be built and grandfathering in over 90 percent of existing fossil fuel-fired plants. The rules should reduce the use of fuels like oil and coal. (31, 86, 144, 155, and 163)

176. COMMENT: The rules undermine renewable energy by allowing new fossil fuel-fired power plants to be built. The rules should reduce the use of fuels like oil and coal. (63 and 88)

177. COMMENT: The function of these kinds of regulations is twofold. One function is to actually dramatically reduce the level of emissions. But the second function is to stimulate the market to respond to the new constraints, and thereby promote the kind of innovation and change that the State needs technologically to move forward. By not forcing that type of dynamic, the rules actually hinder the development of clean energy, market-based solutions. (50)

178. COMMENT: The rules do not transition New Jersey away from fossil fuels because they allow the continued operation for the majority of the State's current gas-fired power plants and the construction of new power plants. (31, 32, 34, 44, 66, 73, 91, 94, 104, 105, 109, 126, 142, 147, 182, and 192)

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179. COMMENT: The rules allow the majority of our existing gas-fired power plants to continue to operate. This will make it harder to reduce emissions and will undermine renewable energy.

(5, 8, 40, 62, 68, 113, 120, 153, and 181.)

180. COMMENT: The State cannot transition away from fossil fuels to clean renewable energy if the rules allow for the construction of more fossil fuel power plants over the next decade. (130)

181. COMMENT: The rules do not transition New Jersey away from fossil fuels. (12, 69, and 171)

182. COMMENT: Fossil fuel infrastructure should be phased out and renewables should be incentivized. (33)

183. COMMENT: The rules do not help New Jersey reach its environmental goals because they allow new fossil fuel-fired power plants to be built and grandfather in over 90 percent of existing fossil fuel-fired plants. (63, 125, and 158)

184. COMMENT: The rules grandfather in over 90 percent of the State's existing plants, which means New Jersey will have a difficult time reducing greenhouse gas emissions. (5, 8, 49, 62, 68, 108, 113, and 120)

185. COMMENT: The State must stop using and producing power with fossil fuels. The rules are not innovative enough to get the greenhouse gas emission reductions the State needs because the rules perpetuate fossil fuel systems. (65)

186. COMMENT: The rules will not adequately address climate change because they allow for new power plants to be built and existing natural gas plants to continue to operate. (17, 33, 38, 64, 99, 101, 146, 174, and 191)

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187. COMMENT: The rules allow new gas-fired power plants to continue to be built, which could potentially increase the State's greenhouse gas emissions instead of reducing them. (8, 9, 40, 68, 93, 113, 120, and 172)

188. COMMENT: The rules should have a sunset provision for each polluting power plant that is currently operating. Other nations are skillfully, deliberately scaling up clean, non-fossil fuel power. (8)

189. COMMENT: Existing plants should not be grandfathered in under the rules; existing plants should be decommissioned. (58)

190. COMMENT: The rules should not allow any new gas plants or pipelines. Wind, solar and hydrogen should be used for electricity production. ((61)

191. COMMENT: The rules should not allow any new gas-fired power plants. Solar, geothermal and wind plants should be the standard moving forward. (30)

192. COMMENT: The rules should not allow any new power plants. (53, 58, 81, 87, 102, 153, and 154)

193. COMMENT: The rules should not allow new or expanded fossil fuel plants. (45 and 112)

194. COMMENT: The State does not need natural gas to address climate change. Wind power should be a priority. (75)

195. COMMENT: Ninety percent of the existing power plants in New Jersey will be grandfathered in under the rules. The standard is so weak for existing plants that almost every plant that has been built in New Jersey since the late 1980s and early 1990s meets the emission limit. (172)

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196. COMMENT: The rules fail to restrict the construction of new facilities and the penalties are so weak, they invite continued pollution. (143)

197. COMMENT: The rules should be strengthened to stop the construction of new fossil fuel power plants. (95 and 96)

198. COMMENT: We need to end fossil fuel consumption in this State. (82)

199. COMMENT: Allowing new gas plants to be built is a waste of money, resources, and time. (162)

RESPONSE TO COMMENTS 173 THROUGH 199: The EMP predicts the demand from the electrification of buildings and transportation will more than double the electricity demand in New Jersey. See 53 N.J.R. at 1948. Until clean energy sources come online at the scale necessary to meet current and future anticipated demand, the State will need to maintain fossil fuel-fired generation. *Ibid.* Otherwise, grid reliability will be compromised and regional emissions will increase. Thus, as explained in the notice of proposal Summary, the Department proposed emission limits in the rules that are expected to decrease overall emissions while maintaining reliability. 53 N.J.R. at 1947.

As discussed at length in Response to Comments 127 through 148, the rules provide certainty to the regulated community that as the State transitions to meet its climate goals fossil fuel-fired EGUs will be expected to reduce their emissions to an-ever increasing degree. The Department anticipates that this regulatory certainty, in conjunction with other state policies supporting renewables, will foster future investment in renewable energy and storage options. While not prohibiting the construction of new fossil fuel-fired EGUs or forcing the decommissioning of existing fossil fuel-fired EGUs in this rulemaking, the Department is

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sending a signal to the regulated community concerning their investment choices in light of the State's climate goals and timelines. This rulemaking is an initial step developed consistent with the 2019 EMP, which included extensive modeling, and the 2050 Report. 53 N.J.R. at 1946. The criteria in the new rules may require reexamination when the State updates the modeling for the EMP, or when the Department updates the recommendations in the 2050 Report. *Ibid.* Given the magnitude of the emission reductions needed to achieve the 80x50 and 50x30 goals, the Department along with the Legislature and many other State agencies, will need to continue to develop, and refine, the mix of policies, rules, and laws that will be needed to mitigate climate change and strengthen resilience in the State.

200. COMMENT: Over the next decades many in industry look forward to a “clean electrification” of the current sources of fossil fuel combustion. The renewable sector, and technologies not yet invented, will become the primary power generation sources over the decades through normal market means and subsidies. Much like combined cycle generators have displaced coal and nuclear generators through normal market means, renewables will displace combustion turbine-based technologies over the next 50 years. Although some regulatory trends did increase the rate of decommissioning of coal and nuclear facilities it was primarily economic, technological obsolescence, and management factors. Thus, the shift in power generation technology should be driven by actual market conditions and technological innovations, not regulation. Moreover, it is essential to maintain state-of-the-art combined cycle and simple cycle units in the generation supply mix and not forecast their decommissioning through regulatory mandates unless and until a resilient and reliable technology has been installed. Currently, PJM

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has put a two-year moratorium on any new generation from entering the transmission queue, making the planning and forecasting of new power generation sources difficult. This is another reason the market and technology should dictate the shift in power generation rather than regulation. (103)

201. COMMENT: The proposed rules make it difficult to justify investments in efficiency and environmental improvements in electric generation. Investments in the power sector are capital-intensive and take years or decades to recover. Certainty about the direction of policy and its current and future impact is vital to allow the sector to make the investments that will help New Jersey achieve its economic, environmental, and electric reliability goals. The Department's rules and policies should not inadvertently disincentivize investments in efficiency improvements in the electric sector by imposing a regulatory structure that fails to provide a reasonable opportunity for entities to recover their investments. (60)

RESPONSE TO COMMENTS 200 AND 201: The Department's rules are designed to provide regulatory certainty. As the State transitions to meet its climate goals, fossil fuel-fired EGUs will be expected to reduce their emissions to an ever increasing degree. The Department anticipates that this regulatory certainty, in conjunction with other state policies supporting renewables, will foster future investment in renewable energy and storage options. By providing certainty, the regulated community can make informed decisions about its investments. To the extent fossil fuel-fired generation continues to be necessary, the Response to Comments 173 through 199 describes the Department's consideration of this issue as well as the provisions in the rules that ensure reliability and address flexibility.

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**EGUs and emissions not subject to the rules**

202. COMMENT: The proposed rules include a de facto exemption for EGUs that use natural gas for less than half of their fuel requirement, with the majority of the fuel supplied, instead, by a clean alternative. This exemption could become a loophole for a large number of new facilities that could produce CO<sub>2</sub> emissions per MWh at a rate greater than the limit proposed for new EGUs. The notice of proposal Summary does not explain the reasoning behind the proposed definition of fossil-fuel-fired EGU, but this definition could allow new EGUs, for example, to effectively avoid the performance standard in a way that would result in the excepted new EGUs emitting substantially more than the permitted 860 pounds of CO<sub>2</sub> per MWh. As drafted, the EGU standards apply only to fossil fuel-fired EGUs. So, any EGU that supplies more than 50 percent of its input from a non-fossil fuel would be exempt from the performance standard. For example, a new EGU may find it economically preferable to pay more for a non-fossil fuel (e.g., a bio-fuel) for 51 percent of their BTU input than to comply with the 860 pound performance standard. The Department could fix this loophole on adoption. First, the Department should change the definition of fossil fuel-fired EGU to any EGU whose fuel consists, in whole or in part, of fossil fuels. Second, the Department should amend the rules to provide that the CO<sub>2</sub> emission standard can be met by any of the following approaches by each EGU: (i) by measuring, via continuous emission monitors, the total amount of CO<sub>2</sub> emitted in each year and with proper accounting of total MWh production, showing that the CO<sub>2</sub> per MWh does not exceed the standard; (ii) by fuel inventory monitoring, sampling and analysis showing total quantity of each type of fuel used, together with the CO<sub>2</sub> content of the fuels used, including any certified zero-carbon or low-carbon fuels, demonstrating that the total releases of CO<sub>2</sub> from

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combusting those fuels does not exceed the standard; or (iii) for any fuel claimed to have low net CO<sub>2e</sub> emissions (e.g., bio-fuels, digester-based methane and landfill gas fuels), certification of the net reduction in CO<sub>2</sub> emissions to the atmosphere from the use of such fuels on a per MMBTU input basis, together with inventory monitoring, sampling and analysis confirming the quantity and characteristics of each such fuel used. (13)

203. COMMENT: The proposed rules suffer from loopholes that would allow sources to escape regulation. These loopholes should be closed in the final rule. The Department should require all EGUs, whether or not they send electricity to the grid, to meet carbon limits, even if that means creating a separate category for facilities that provide only onsite or backup power. Under this proposed rulemaking, power generating units that provide power “on site” or as “backup” to industrial sector sources, such as refineries and facilities like the Passaic Valley Sewerage Commission (PVSC) would be exempted. Likewise, cryptocurrency mining operations could create situations in which little electricity is sent to the grid because most of it is “used” onsite to power server farms, and carbon emissions escape the Department’s rules. Additionally, the proposed rules would apply only to units with a nameplate capacity of 25 MWe or higher, allowing smaller units or facilities with a cumulative nameplate capacity lower than 25MWe to emit any level of greenhouse gas. All CO<sub>2</sub> emitting EGUs, regardless of their nameplate capacity, should be included in the rules. The proposed rules would allow for the construction of new power plants as long as the cumulative nameplate capacity is kept below 25 MWe. Indeed, the proposed rules fail to preclude the construction of new fossil generation at all since EGUs with a nameplate capacity of 25MWe or higher can be built so long as they can meet the 860



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pounds of CO<sub>2</sub>/MWh emission limit. New fossil-fired power plants—which often have multi-decade operating lifetimes—are antithetical to New Jersey’s climate goals.

Further, the proposed rules apply only to EGUs that burn 50 percent or more fossil fuels, thus exempting CO<sub>2</sub> sources like incinerators and co-generation plants (i.e., Linden Generation Station) where waste and other types of energy sources are used. The Department should close this loophole. Finally, the proposed rules do not capture non-stack emissions that are nonetheless significant contributors to climate change. Gas-fired power plants are served by a leaky pipeline system, meaning that a portion of the fossil fuel consumed by such facilities never actually gets combusted, and is instead emitted incidental to the plant’s operation. Such emissions of methane in particular are intensely problematic, as methane is a far more intense greenhouse gas than carbon dioxide. Therefore, the Department should incorporate such fugitive emissions into how it calculates compliance with greenhouse gas emission limits in its final rule. The Department should also promulgate an additional rule to cover non-EGU sources of greenhouse gas emissions. (53)

204. COMMENT: The rules only cover EGUs equal to or greater than 25 megawatts, which is a concern because they do not take into account the cumulative impacts of many smaller facilities. And there are other loopholes, like the exclusion of EGUs from the industrial sector, which is the third largest contributor to emissions. (116)

205. COMMENT: The rules contain too many loopholes. New Jersey has the capability to transition to alternative energies, like offshore wind and solar, but the rules do not reflect the alternatives. (39)

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206. COMMENT: The rules should not include loopholes. Wind power should be a priority. (75)

207. COMMENT: There are a slew of loopholes in the rules, which shield many polluters. (118 and 74)

208. COMMENT: The rules contain too many loopholes, including the fact that they grandfather in 90 percent of the existing power plants. (81)

209. COMMENT: The Department should eliminate the loopholes in the proposed rules if it wants to mitigate global warming. (20)

210. COMMENT: The rules have too many loopholes. (112 and 154)

211. COMMENT: The rules should consider all sources contributing to the State's air pollution, including fugitive emissions from existing pipelines, power plants that do not contribute to the grid, incinerators, cogeneration facilities, landfills, and biogas sources. (7)

212. COMMENT: The rules are inadequate to meet the State's 80x50 goals and protect the environment, because the rules do not apply to cogeneration plants, incinerators, or refineries even though they count for 56 percent of emissions. The rules also allow new power plants to be built. (158)

213. COMMENT: The proposed rules have so many exceptions, such as incinerators and cogeneration plants, industrial refineries, and small, new, or expanding power plants that the rules will achieve only a small percentage of emission reductions. (69)

214. COMMENT: The rules redefine natural gas to exclude gases like landfill gas and digester gas. These gases emit just as much methane and CO<sub>2</sub> as natural gas and will make it even more difficult to meet the State's greenhouse gas emission reduction goals. (42)

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215. COMMENT: The rules are inadequate as written because they exclude many generating plants. (143)

216. COMMENT: The rules are not aggressive enough. The rules grandfather in existing power plants and exempt incinerators. (65)

217. COMMENT: The rules would exempt the proposed gas plant for the Passaic Valley Sewage Commission, which is expected to be built in Newark. The Department should amend the rules to consider the quality of life of that community. (100)

218. COMMENT: The rules should not limit applicability to EGUs with a capacity of 25 MWe or higher. (31, 32, 34, 44, 45, 63, 66, 73, 76, 86, 88, 91, 99, 104, 105, 125, 126, 130, 142, 144, 147, 155, 163, 172, 173, 182, 192, and 196)

219. COMMENT: The rules should apply to any EGU that emits greenhouse gases, regardless of its capacity. (32, 34, 44, 66, 73, 91, 99, 104, 105, 115, 126, 140, 142, 147, 152, 173, 182, 192, and 196)

220. COMMENT: The rules should not exempt sources that burn less than 50 percent fossil fuels. (5, 8, 9, 31, 32, 34, 44, 45, 63, 66, 68, 73, 76, 86, 88, 91, 94, 99, 104, 105, 113, 120, 125, 140, 142, 144, 147, 155, 163, 173, 181, 182, 192, and 196)

221. COMMENT: The rules should apply to all EGUs, even if they do not deliver electricity to the grid. (5, 8, 9, 31, 32, 34, 40, 44, 45, 58, 62, 63, 64, 66, 68, 73, 76, 86, 88, 91, 94, 96, 99, 101, 104, 105, 113, 120, 125, 130, 140, 142, 144, 146, 147, 155, 163, 173, 174, 182, 191, 192, and 196)

222. COMMENT: The rules should not exempt backup plants. (5, 8, 31, 64, 86, 88, 101, 144, 146, 162, 163, 174, 191, and 196)

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223. COMMENT: The rules should not exempt cogeneration plants. (5, 8, 9, 31, 32, 34, 40, 44, 66, 68, 73, 86, 88, 91, 96, 99, 104, 105, 113, 115, 120, 142, 144, 147, 152, 155, 163, 172, 173, 181, 182, 183, 192, and 196)

224. COMMENT: The rules should not exempt incinerators. (5, 8, 9, 31, 32, 34, 40, 44, 64, 66, 68, 73, 86, 88, 91, 96, 99, 101, 104, 105, 113, 115, 120, 130, 142, 144, 146, 147, 152, 155, 162, 163, 172, 173, 174, 181, 182, 183, 191, and 192)

225. COMMENT: The rules should not exempt industrial sector sources, like refineries. (31, 32, 44, 34, 66, 73, 86, 88, 91, 99, 104, 105, 108, 126, 142, 144, 163, 182, 183, and 192)

226. COMMENT: The rules should not allow for the construction of new power plants. (31, 32, 34, 44, 63, 66, 73, 86, 88, 91, 94, 99, 104, 105, 125, 126, 130, 142, 144, 147, 155, 163, 182, and 192)

227. COMMENT: The rules should not allow for the expansion of existing power plants. (31, 32, 34, 44, 63, 66, 73, 86, 88, 91, 99, 104, 105, 125, 126, 142, 144, 147, 155, 163, 182, and 192)

228. COMMENT: The rules should not allow for the continued operation of the majority of New Jersey's existing gas plants. (94 and 181)

229. COMMENT: The rules should not allow for the burning of digester gas, biogas, or landfill gas. (5, 8, 31, 68, 86, 113, 120, 144, and 163)

230. COMMENT: The rules should not exempt biogas. (58, 172, and 183)

231. COMMENT: The rules fail to regulate fugitive emissions. (5, 8, 31, 40, 45, 58, 68, 76, 86, 96, 113, 120, 130, 144, 163, and 183)

RESPONSE TO COMMENTS 202 THROUGH 231: The Department purposely limited the applicability of the rules to a group of EGUs that meet a defined set of criteria. As explained in

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the notice of proposal, the requirements that an EGU provide at least 10 percent of its annual gross electric output to the grid and that it have a nameplate capacity of 25 MWe or greater is consistent with other regulatory programs, such as the CO<sub>2</sub> Budget Trading Program and the Federal Acid Rain program. 53 N.J.R. at 1948. The units regulated by these rules are the foundation of New Jersey's electric generation supply and New Jersey will not meet the goal of 100 percent clean energy unless it addresses CO<sub>2</sub> emissions from these electric generation units. However, as discussed in Response to Comments 127 through 148, regulating these EGUs does pose special challenges because these EGUs are all connected to a regional grid. Thus, reliability and the risk of leakage were important considerations.

In contrast, EGUs supplying less than 10 percent of their annual gross electric output to the grid and EGUs of a less substantial capacity do not raise the same concerns for reliability or leakage. This does not mean that smaller-capacity EGUs or those supplying a smaller portion of their electric output to the grid do not pose regulatory challenges; rather, those challenges fall into different categories. Accordingly, the scope of this rulemaking was limited to the EGUs that make up the bulk of New Jersey's in-State electric generation supply to ensure the Department adequately addressed the unique regulatory challenges of these units. As explained in the notice of proposal, the adopted rules are one of the initial steps that the Department and other State agencies will take as part of a comprehensive scheme to mitigate the impacts of climate change. 53 N.J.R. at 1946.

The Department recognizes that limiting the rules to EGUs that annually combust at least 50 percent fossil fuel may result in one or more EGUs attempting to "game" the system by using 51 percent biofuel (or some other non-fossil fuel, such as digester gas) and 49 percent fossil fuel

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to avoid the requirements of these rules. The Department notes that co-firing an existing EGU with biofuel or digester gas and fossil fuel is not technically feasible in every case and certainly not as simple as flipping a switch. An existing EGU would have to invest time and money for that purpose. This would include, at the very least, modifications to an existing permit. Further, any facility (whether new or existing) with an EGU with a nameplate capacity greater than 25 MWe (or a facility with more than one EGUs, which have an aggregate capacity of 25 MWe) burning fossil fuel and biodiesel or digester gas would be subject to the Department's other permitting requirements at N.J.A.C. 7:27-8 and N.J.A.C. 7:27-22, and may be subject to Federal Prevention of Significant Deterioration requirements at 40 CFR 52.21. Thus, choosing this strategy in an attempt to avoid the applicability of the new rules would require an investment. While the Department does not anticipate that this would be a popular strategy simply to avoid the emission limits on CO<sub>2</sub>, should this become a trend, the Department would evaluate the need for future rulemaking. To the extent that this requirement exempts certain cogeneration and incinerator plants from the new rules, the Department reiterates that the main purpose of this rulemaking was to regulate New Jersey's electric generation supply.

Finally, the Department did not explicitly require fugitive emissions to be included in the calculation of an EGUs annual CO<sub>2</sub> emissions from its gross electric output. CO<sub>2</sub> is the result of combustion of fuel within the EGU, so fugitive emissions of CO<sub>2</sub> from an EGU are generally minimal or nonexistent. Fugitive emissions from these facilities would be methane emissions from natural gas leaks. Likewise, there may be fugitive emissions of methane from the natural gas distribution system, which supplies fuel to the EGUs. However, methane emissions and the natural gas distribution system are beyond the scope of this rulemaking.

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### Definition of natural gas

232. COMMENT: The Department should clarify the definition of “natural gas” by adding the term biogas or define digester gas to include the terms biomass gas or biogas. The term biogas is frequently used to describe a fuel made from recycled organic waste. (187)

233. COMMENT: The proposed definition of “natural gas” excludes certain gases, including landfill gas and digester gas. The proposed exclusion of landfill and digester gas is supported and appreciated. However, to be accurate, it is recommended that “included but not limited to” be added and “certain” be struck. As used here, “certain” makes the definition subjective.

Technology advancements in RNG and hydrogen continue and should be supported and encouraged as a strategy to achieve shared climate goals. Ambiguity in the language would negatively affect investment into research, technology, and infrastructure, which will only thwart the climate goals that the Department is attempting to achieve. Development of these technologies is crucial as the same advancements will certainly assist in achieving emissions reduction goals that may come in future proposals, including transportation. For example, many in the regulated community are exploring opportunities to capture, process and reform existing sources of carbon dioxide emissions through hydrogenation--converting the emitted CO<sub>2</sub> into renewable fuel. It is clearly appropriate to add hydrogen as a specific example of gas that is not considered fossil natural gas. To encourage advancements in technology, the definition should be amended as follows: “Natural gas excludes **renewable** gases, **including but not limited to, hydrogen**, landfill gas, digester gas, existing carbon emission sources or other gas derived from decomposition of organic material.”

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(85)

RESPONSE TO COMMENTS 232 AND 233: Digester gas is among the gaseous fuels excluded from the Department's definition of natural gas. It is generally accepted in environmental science that biogas and biomass gas are forms of digester gas or landfill gas, which is why the Department did not specifically include the terms biogas or biomass gas. It is evident from the comments, however, that clarification is needed. Accordingly, the Department is modifying the definition of "natural gas" to specifically exclude biogas and biomass gas. It is not necessary that the definition specifically exempt hydrogen; hydrogen could not fall under the definition of natural gas because hydrogen contains no hydrocarbons.

**Alignment of compliance dates with PJM planning period**

234. COMMENT: The Department is proposing to use January 1 of 2024, 2027, and 2035, as the compliance deadlines for defined output-based emission limits for CO<sub>2</sub>. The Department should consider using compliance deadlines that align with the PJM "planning period," rather than the beginning of each calendar year. The PJM planning period begins on June 1 of each calendar year and extends through May 31 of the following year. Electric system operators, transmission owners, generation owners, load-serving entities and other PJM stakeholders utilize the planning period calendar to plan the electric system and make long-term generator and transmission investment decisions. For example, PJM's primary capacity auction is called the "base residual auction." It is held on an annual basis and procures the majority of capacity commitments for the specified future planning period (e.g., the 2021/2022 base residual auction was held in 2018 and procured capacity to be available between June 1, 2021, and May 31, 2022). If a resource



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“clears” the base residual auction, it takes on a commitment to provide its capacity for the entire planning period. Under PJM’s market rules, resources cannot commit to only part of the planning period. Aligning the compliance dates with the Planning Period timeline will provide a more efficient process for the exit of existing resources from the system. (186)

235. COMMENT: The Department should consider extending the Tier 1 compliance deadline of January 1, 2024, for an additional year to allow facilities more time to determine if they can or should invest in upgrades or fuel switching or terminate operations. (22)

RESPONSE TO COMMENTS 234 AND 235: For the reasons presented in Comment 234, the Department is modifying N.J.A.C. 7:27F-2.5(d) on adoption to align the compliance deadlines with the June 1 planning period of PJM. Though the Department does not believe it is necessary to provide an additional year beyond January 1, 2024, for facilities to determine whether they will invest or terminate operations, the modification to align the compliance deadlines with the PJM planning period will provide impacted entities with an additional five months to determine if they can or should invest in upgrades or fuel switching, or terminate operations.

### **Impact Analyses**

236. COMMENT: The Department has not included a cost-benefit analysis to consider the jobs, tax revenue, and overall economic impact of forced closures of EGUs or the ratepayer impact related to the effect of these closures on wholesale energy and capacity market prices. Forcing the Tier 1 and 2 EGUs into premature retirement will have unknown economic and energy market impacts, in addition to the negative environmental impact of increased CO<sub>2</sub> emissions caused by leakage. (165)

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237. COMMENT: The Department's economic analysis was insufficient in that it failed to document quantitative and qualitative outcomes as a result of shutdowns, including worker assistance and buy-outs. Additionally, it failed to provide anticipated workload hours and administrative costs for the Department and regulated entities, failed to provide a justification for the added costs, and failed to project anticipated (direct and indirect) losses for closures. (103)

RESPONSE TO COMMENTS 236 AND 237: In accordance with the APA and the Office of Administrative Law's Rules for Agency Rulemaking, the Department conducted an economic impact analysis that "describes the expected costs, revenues, and other economic impact upon governmental bodies of the State, and particularly any segments of the public proposed to be regulated." N.J.A.C. 1:30-5.1(c)3. The Department acknowledged in its notice of proposal that some EGUs may retire as a result of the Tier 1, Tier 2, and Tier 3 emission limits, and included an estimate of the maximum number of units that might retire based on their current emissions and potential to meet the proposed limits. See 53 N.J.R. at 1948-49. However, the Department also noted that some units may choose to modify their operations to comply and that retirements would be a function of the business decisions of each owner/operator. See 53 N.J.R. at 1961. As events that occurred after the publication of the proposal (the announced closure of six electric generating units: one unit at the Logan generating plant, two units at the Carney's Point plant, two units at the Newark Bay Cogeneration plant, and one unit at the Pedricktown Cogeneration plant) demonstrate, it is not possible to predict with certainty whether units will shut down as a result of the rules, will shut down as a result of other market forces (or some combination of these factors), or will invest in upgrades to continue operating. For that reason, the Department acknowledged that the cost of compliance would vary by entity. 53 N.J.R. at 1961. Nonetheless,

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for entities that make a business decision to shut down, the economic impacts would include some loss of employment, and some loss of tax revenue at the State and local levels. *Ibid.*

It is not necessary for the Department to estimate the economic impact of every potential scenario. The Department described the potential costs to government bodies and the regulated entities. See 53 N.J.R. at 1957-66; See also, N.J.S.A. 52:14B-4(a)(2). The Department also included a detailed jobs impact statement, which concluded that while some job loss is a possibility, facilities with EGUs subject to the rules often have multiple operations that may allow them to shift employment rather than eliminate jobs. 53 N.J.R. at 1963.

As required, the Department has provided commenters with the opportunity to provide feedback and critiques of its analysis. The Department carefully considered the feedback and critiques from all commenters and is satisfied that the analyses it presented in the proposal provided a reasonable forecast of the costs and benefits.

238. COMMENT: The Department should relate the dollar per MW initial installation costs provided to the additional generation needed if facilities are going to shut down. For example, does the Department forecast a need for 4 gigawatts of additional combined cycle generation needed over the next five years? Should the public assume that \$3.5 billion (4,000 multiplied by \$873,000) to be on the low end for the costs of replacement generation? (103)

RESPONSE: The Department did not forecast the costs of replacement generation or additional generation based upon new fossil fuel-fired EGU technology. The Department concluded that, “The collective capacity of existing New Jersey EGUs that emit less than 1,000lb CO<sub>2</sub>/MWh is approximately 6,700 MW, which is sufficient to cover the projected fossil fuel generation need if

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the other annual generation goals are met by 2035.” 53 N.J.R. at 1949. In short, the Department anticipates that a number of planned offshore wind and solar projects will provide the capacity necessary to meet future demand as some existing fossil fuel-fired EGUs shut down in response to the emission limits of the rules. See 53 N.J.R. at 1962. Additionally, the proposed rules included reliability safeguards, which are being strengthened on adoption, to allow the continued operation of a unit that may be needed for grid reliability issues, particularly those that may arise within the transmission system or as a result of unique local dispatch concerns. The Department noted that a fossil fuel-fired EGU that would meet the CO<sub>2</sub> emission limit for a “new EGU” pursuant to the rules is estimated to cost in the range of \$873,000 per MW to \$1.3 million per MW. 53 N.J.R. at 1961.

239. COMMENT: The Department should not discard all of the gas utilities. No one should be forced to switch systems at great expense, especially since New Jersey residents already have high taxes. (139)

RESPONSE: The proposed rules do not eliminate gas utilities or the supply of natural gas to residential customers in the State. As noted in the notice of proposal, fossil fuel-fired electric generation in the State will continue to be needed until clean energy sources come online and clean energy technology advances to meet anticipated electric demand. 53 N.J.R. at 1948. Thus, the rules applicable to EGUs seek to achieve reductions of CO<sub>2</sub> emissions from fossil fuel-fired EGUs by requiring those EGUs to meet output-based emission limits for CO<sub>2</sub> that become more stringent over time. 53 N.J.R. at 1947. These EGUs are not being eliminated.

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240. COMMENT: Given the planned increases in clean renewable electricity that will be in the competitive electricity market between now and 2035, the proposed CO<sub>2</sub> limits for existing EGUs are out of sync with the phasing of New Jersey's offshore wind and grid-supply solar that will come on-line in future years. By 2033, the 7,500 MW of installed offshore wind capacity could generate just shy of 50 percent of New Jersey's current electricity needs. Though New Jersey's electricity usage will increase over time, the supply of clean renewable electricity from offshore wind will exceed this new expanded electricity demand by the late 2020s, approximately in 2027/28 based on the anticipated installation schedule. The financing mechanism for offshore wind is the Offshore Wind Renewable Energy Certificate (OREC). The OREC is an all-in price, so development will proceed regardless. However, the sale of offshore wind electricity and capacity is required to be returned to the ratepayer – offsetting the majority of the upfront OREC financing costs. Generally, existing electricity has a lower price to market than new supply. Therefore, existing EGUs will be further up in the dispatch order than the newer offshore wind generation. Based upon the current schedule, the proposed CO<sub>2</sub> emission limits for existing EGUs will have the effect of limiting the sale of OSW electricity in the competitive wholesale market. This will have a double impact on New Jersey ratepayers. First, ratepayers will have continued exposure to the impacts of CO<sub>2</sub> emissions from existing EGUs. Second, a steeper phase down of the CO<sub>2</sub> emission limits for existing EGUs in 2027 and 2035 would have offset the direct electric rate cost impacts of offshore wind. Therefore, the Department should withdraw the CO<sub>2</sub> emission limits for existing EGU's at N.J.A.C. 7:27F-2.5(d)2 and 3 and work with the BPU to reassess and reevaluate more stringent, reasonable, and practical CO<sub>2</sub> emission limits for existing EGUs to be phased in for 2027 and 2035. (187)

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RESPONSE: Though it is true that the net financial cost of offshore wind to ratepayers is affected by the difference in wholesale market prices compared to the OREC award, the Department does not anticipate that the CO<sub>2</sub> emission limits for existing EGUs will limit the sale of offshore wind electricity in the competitive wholesale market. Wholesale competitive markets dispatch resources in ranked order, based on their marginal costs of producing electricity. The marginal cost of producing offshore wind electricity is typically very low, because the variable costs of operating a wind turbine are near-zero and wind generation has no associated fuel costs. Moreover, the actual electrical output of offshore wind generation is not affected by changes in the wholesale market price. As a result, offshore wind generators tend to operate as “price takers” in the wholesale markets. In contrast, fossil fuel-fired EGUs are typically more expensive to operate because they consume fuel and incur other variable expenses for each MWh of electricity produced. The actual electrical output of a fossil fuel-fired EGU will be affected by changes in the wholesale market price. For these reasons, the wholesale market will select offshore wind produced electricity before fossil fuel-fired EGU produced electricity. Thus, the net financial cost of offshore wind to ratepayers should not be impacted by the number of fossil fuel-fired EGUs operating in the wholesale market pursuant to more or less stringent CO<sub>2</sub> emission limits.

241. COMMENT: The Department’s analysis included emissions for the Chambers and Logan EGUs. Since Chambers and Logan will deactivate in April 2022, before the rules’ proposed emission limits can be effective, the Department should perform a new quantitative and qualitative (for the State and region) impact analysis to consider these closures. (103)

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RESPONSE: The Department's analysis included a reasonable forecast of the environmental impacts based on the information available at the time the proposal was developed; the APA does not require a revised or subsequent analysis. The closures of the Chambers and Logan EGUs were not publicly disclosed until March 23, 2022, months after the December 2021 publication date of the notice of proposal. As noted in Response to Comments 236 and 237, it is not possible for the Department to predict with certainty when or why units will shut down. Business decisions are often multifaceted and may be the result of regulations, other market forces, or some combination of multiple factors.

242. COMMENT: The Department should perform a predictive analysis of the leakage that may be caused by implementation of these rules, similar to the analysis that was done before reentry into RGGI. (103)

RESPONSE: The Department performed an analysis of potential leakage as described at length in the notice of proposal. See 53 N.J.R. at 1948-49. As noted there and in Response to Comments 151 through 156, the Department acknowledges that leakage is a possibility in the short-term if high-emitting units in the PJM region continue to be used during brief periods of high demand. Nonetheless, the Department anticipates that the ongoing trend of ever-cleaner generation will prevail and that any emission leakage will be transient in nature. To the extent that the commenter is concerned that a different, RGGI-type analysis should have been performed, the Department notes that the BPU is legislatively required to consider and address any dispatch shifting from New Jersey's participation in RGGI. Specifically, this is required in the Global Warming Solutions Fund Act amendments to the Electric Discount and Energy Competition Act

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28 at N.J.S.A. 48:3-87.c(2), which obligates the BPU to “adopt, pursuant to the Administrative Procedure Act, a greenhouse gas emissions portfolio standard to mitigate leakage or another regulatory mechanism to mitigate leakage applicable to all electric power suppliers and basic generation service providers that provide electricity to customers within the State.” Thus, the BPU will continue to model leakage based on changing conditions, including changes to in-State electric generation that may result from RGGI. Modeling is not done in a vacuum. The BPU will consider shutdowns that may occur as a result of these rules as it monitors the impacts of RGGI. As stated in the notice of proposal, these rules are an initial step developed in response to current modeling and technology, but the Department will continue to reexamine the modeling and strategies intended to facilitate the State’s push toward its 80x50 goal and may update its rules and policies accordingly. See 53 N.J.R. at 1946. But the Department will not be doing this work alone, because the EMP and 2050 Report both highlight that this transformation will require collaboration with other State agencies, other government bodies, and private entities.

243. COMMENT: The Department failed to include in its impact statements the effect of the rules’ decreased CO<sub>2</sub> emissions (along with the increase in regional CO<sub>2</sub> emissions) on New Jersey’s crops. Presumably, these rules and other rules and policy activities will lead to the implementation of regenerative agricultural practices and related agricultural lessons learned to reverse the negative effects of the current detrimental agricultural practices. The Department has failed to weigh the cost of carbon on the currently imported goods that would then increase the demand from New Jersey and other regional sources. (103)



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RESPONSE: Pursuant to the requirements of the APA and the Office of Administrative Law's Rules for Agency Rulemaking, the Department conducted an agriculture industry impact analysis "setting forth the nature and extent of the impact of the proposed rule on the agriculture industry." N.J.A.C. 1:30-5.1(c)6. The Department's analysis indicated that, overall, climate change has a negative impact on agriculture. The rules, as one step in the State's comprehensive effort to reach the 80x50 goal to reduce carbon emission, are intended to mitigate those negative impacts on the agriculture industry. Regenerative agricultural practices are beyond the scope of this rulemaking.

244. COMMENT: The rules fail to quantify the enormous healthcare impact of pollutants like nitrous oxide. (141)

RESPONSE: The Department notes that the reference to nitrous oxide may have been an error in the transcript of the hearing or a slip of the tongue by the commenter. Nitrous oxide is entirely outside the scope of this rulemaking. Accordingly, the Department will interpret this as a comment on the impacts of the pollutant known as nitrogen oxide (NO<sub>x</sub>). The notice of proposal included an estimate of the incidental reductions of NO<sub>x</sub> emissions expected to result from implementation of the rules as well as a recitation of the health impacts of that pollutant. See 53 N.J.R. at 1957 and 1959.

### **Assorted EGU provisions**

245. COMMENT: Can the Department issue a permit if N.J.A.C. 7:27-8.14(a)10 includes a future condition that a unit or facility potentially cannot comply with? (103)

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RESPONSE: The Department issues permits based on an applicant's demonstration that the equipment or facility complies with or will comply with all enforceable air rules by the applicable deadline. For a facility or piece of equipment that may be unable to comply with a future provision, the permit will indicate that the facility or equipment will either comply or cease operations by the applicable deadline. The Department addresses violations of permits if and when they occur.

246. COMMENT: The Department should change its permitting approach. The Department should reference the N.J.A.C. 7:27F conditions in the permit conditions. This will save paper and possible consistency issues. (103)

RESPONSE: The proposed rules did not include a change in the Department's approach to permitting. All permits must include emission limitations and standards, including any operational requirement necessary to assure compliance with all applicable requirements. See N.J.A.C. 7:27-22.16(a). The majority of permits are sent to applicants in electronic format, making the number of pages of permit conditions all but irrelevant for purposes of use of paper. Permit applicants may make recommendations and provide comments on draft permits, but the Department makes the ultimate determination as to whether conditions are incorporated by reference or explicitly listed. Therefore, a blanket incorporation by reference may not be suitable in every scenario.

247. COMMENT: The Department should refer to the incorporation of the N.J.A.C. 7:27F, CO<sub>2</sub> emission limit requirements, in a different section of the rules than N.J.A.C. 7:27-22.28, which

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incorporates the RGGI provisions. Since both the RGGI rules and the New Jersey rules protecting against climate threats have a volatile nature, separating the two into individual provisions would make amending or deleting either of the rules easier. (103)

RESPONSE: The Department acknowledges the commenter's concern for flexibility in future rule proposals. However, the Department does not agree that separating these provisions would streamline the process for future rulemaking efforts.

248. COMMENT: The first letter of a defined term should be upper-case throughout the actual rules to indicate the term used in the rule language is the actual term as defined. (103)

RESPONSE: As noted in the proposal, at the beginning of each "definitions" section, the rules state, "The following words and terms, when used in this subchapter, shall have the following meanings unless the context clearly indicates otherwise." See 53 N.J.R. at 1965, 1967, 1969, and 1971. The public is on notice that defined terms must be given the meaning assigned unless otherwise specified. Moreover, capitalizing each defined term when it occurs in rule text is not consistent with the standard formatting of the New Jersey Administrative Code.

249. COMMENT: The Department should modify the N.J.A.C. 7:27F-1.3, Definitions, on adoption to eliminate the references to "as defined at N.J.A.C. 7:27:22.1" or similar, since it duplicates defined terms, and delete the terms "air contaminant" and "distillate of air" since they are duplicates. (103)

RESPONSE: N.J.A.C. 7:27F is a separate chapter from N.J.A.C. 7:27. By using the phrase "as defined in N.J.A.C. 7:27-22.1" for terms used in N.J.A.C. 7:27F, the Department is avoiding

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duplication, not generating it. For consistency, the Department is modifying the definitions of “air contaminant” and “distillate of air” at N.J.A.C. 7:27F-1.3 on adoption to reference the definitions at N.J.A.C. 7:27-1.4, rather than repeat the definitions.

250. COMMENT: N.J.A.C. 7:27F-1.5, Right to enter, is duplicative and not needed. (103)

RESPONSE: N.J.A.C. 7:27F and N.J.A.C. 7:27 are separate chapters within the Administrative Code. Hence, the Department’s authority to enter and access records, equipment, and more is asserted in both places.

251. COMMENT: The term “coal” is not used in the rules; therefore, there is no reason to define it. (103)

RESPONSE: The term “coal” appears in the definition of the term “fossil fuel.”

252. COMMENT: The Department should revise the definition for “EGU” by adding the term fossil fuel before the term combustion. (187)

RESPONSE: The definition of EGU at N.J.A.C. 7:27F-2.1 is consistent with the definition of EGU at N.J.A.C. 7:27-19.1. Moreover, there should be no confusion concerning applicability because the definitions of the terms “new EGU” and “existing EGU” at N.J.A.C. 7:27F-2.1 make clear that EGUs subject to the rules are those that are fossil fuel-fired.

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253. COMMENT: The Department should clarify that since the abbreviation for the term “kilo” pursuant to the International System of Units term is “k” and not “K” the term kilowatt-hour should be “kWh” not “KWh.” (187)

254. COMMENT: The Department should delete the “s” in kilowatt hours in the definition of kWh. (103)

RESPONSE TO COMMENTS 253 AND 254: The Department agrees that “kWh” is the correct abbreviation for kilowatt hour, and that the term should be expressed in the singular, rather than the plural. The Department will make the corrections on adoption.

255. COMMENT: The Department should consider all “net-zero” based emissions solutions to encourage reduction of emissions. Consideration should be given to emissions reductions achieved by capture and refinement of methane that would otherwise be vented passively without control or flared. Considering the climate crisis that necessitates these rules, it makes sense to design the rules to achieve global emission reductions, which includes net carbon emission reductions achieved by capturing existing methane source gas for refinement and utilization as fuel. (85)

RESPONSE: The Department interprets this comment as a request to consider methods of capture or refinement related to methane produced at landfills and digesters and used as fuels. This rulemaking addresses the combustion of fossil fuels from EGUs covered by the rules. That includes fossil fuel-fired EGUs that provide more than 10 percent of their annual gross electric output to the electric grid. The rules define fossil fuel-fired to mean the combustion of fossil fuel, alone, or in combination with any other fuel, where the fossil fuel combusted comprises, or is

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projected to comprise, more than 50 percent of the annual heat input on a British thermal unit (BTU) basis during any year. Landfill gas and digester gas are not mentioned in the definition of “fossil fuel,” and the Department has explicitly excluded landfill gas and digester gas from the definition of natural gas used in the rules. Thus, to the extent that an EGU combusts more than 50 percent fossil fuel in combination with landfill or digester gas, it is covered by the rules. To the extent the commenter is suggesting the rules should cover other entities, the comment is beyond the scope of this rulemaking.

256. COMMENT: The Department should revise the definition of “combined cycle unit” to mean, “a stationary combustion turbine that drives an electric generator and from which heat is captured from the exhaust of the stationary combustion turbine to create steam utilized in a steam turbine to drive either the same or different electric generator. Duct burners, if installed, are included in the combined cycle unit.”

The Department should add the following sentence to the end of the definition of “stationary combustion turbine”: “A stationary combustion turbine that burns any solid fuel directly is considered a steam generating unit.”

The Department should revise the definition of “combined heat and power unit” to mean, “a stationary combustion turbine that drives an electric generator and from which heat is captured from the exhaust of the stationary combustion turbine to create a useful thermal energy utilized for industrial, commercial, heating, or cooling purposes. Prior to the useful thermal energy being utilized for industrial, commercial, or heating or cooling purposes it may also be utilized in a steam turbine to drive either the same or different electric generator by the unit. Duct

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burners, if installed, are included in the combined heat and power (CHP) unit. A CHP unit may also mean a boiler that combusts fuel to generate useful thermal energy that is utilized in steam turbine to drive an electric generator and then for or in conjunction with industrial, commercial, or heating or cooling purposes. A cogeneration unit, as defined and regulated by the various Federal agencies, is a type of CHP unit.” (103)

RESPONSE: As explained in the notice of proposal, the rules include compliance demonstration requirements consistent with the applicable New Source Performance Standards (NSPS) program requirements at 40 CFR 60.5535 and 60.5540. 53 N.J.R. at 1950. The commenter expressed disagreement with this approach throughout their submission, frequently noting that the use of the NSPS provisions would cause confusion. As explained in the notice of proposal, the Department proposed to define the terms “combined cycle unit,” “stationary combustion turbine,” and “combined heat and power unit” consistent with the definition of those terms in the NSPS at 40 CFR 60.5580. See 53 N.J.R. at 1947 and 1950. Because the Department is incorporating the applicable provisions of the NSPS for purposes of the monitoring, compliance demonstration, and recordkeeping for this rulemaking, the Department remains satisfied that definitions consistent with those provisions are appropriate.

257. COMMENT: The Department should revise the definition of “commence commercial operation” to mean, “to have begun to generate electricity for sale, including the sale of test generation.” (103)

RESPONSE: The Department’s definition of “commence commercial operations” was modeled on the relevant portion of the definition of the term in the Carbon Dioxide Budget Trading rules

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(CO<sub>2</sub> Budget Trading rules) at N.J.A.C. 7:27C-1.2, Definitions. As explained in the notice of proposal, the CO<sub>2</sub> Budget Trading rules have monitoring requirements that, like the adopted rules, are based on the NSPS provisions. See 53 N.J.R. at 1950. To the extent possible, the Department defined terms in these rules to be consistent with the CO<sub>2</sub> Budget Trading rules to avoid duplication or confusion surrounding the monitoring, recordkeeping, and compliance requirements. Accordingly, the Department will not make the suggested change.

258. COMMENT: The Department should delete “facility code” because it is duplicative of “ORIS Code” and ranges from one digit to five digits. The Department should consider using the term “plant code” as provided by the Energy Information Administration (EIA). The Department should add the following term with definition: “EIA Facility Code” means the unique code provided to an electric generating facility by the EIA. Additionally, the Department should replace the term “ORIS code” with “plant code.” (103)

RESPONSE: The terms “facility code” and “plant code” are used in the CO<sub>2</sub> Budget Trading rules. The Department is unaware of any confusion associated with these terms pertaining to the implementation of the CO<sub>2</sub> Budget Trading rules. As explained in Response to Comment 257, consistency between the CO<sub>2</sub> Budget Trading rules and the adopted rules avoids duplication and confusion. Thus, the Department will not make the suggested change on adoption.

259. COMMENT: The definition of “gross electric output” should not include electricity used in the plant auxiliaries and the transformers. The gross electric output should be measured at the generator’s output terminals and at the generator’s rated voltage. The Department should revise



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the definition as follows: “Gross electric output” means the total amount of electric energy produced by an EGU, electric generating facility, or electric generating portfolio and is measured at each prime mover’s electric generator at the electric generator’s voltage level. A CHP unit’s thermal energy output shall be added to the CHP unit’s gross electric output by a factor of ### multiplied by useful thermal energy mass. (103)

RESPONSE: The Department agrees that the definition of “gross electric output” should not include electricity used in the plant auxiliaries and the transformers, and is modifying the definition on adoption. However, the commenter suggests other changes to the definition of the term based upon concerns raised by the commenter in separate comments. The adopted definition is consistent with the definition of the term “gross generation” as used in the CO<sub>2</sub> Budget Trading rules at N.J.A.C. 7:27C-1.2.

260. COMMENT: The Department should delete the terms “IGCC” and “HRSG” because they are not used in the rules. (103)

RESPONSE: The term “IGCC” is used in the definition of the term “gross energy output;” therefore, the definition of IGCC appropriately remains in the adopted rules. The term “HRSG” is not used in the definitions or other sections of the rules. However, the term “heat recovery steam generating unit,” on which the acronym is based, is used in the definition of the term “combined cycle unit.” The Department is modifying the definition of “combined cycle unit” on adoption to use the abbreviation “HRSG” instead of the full term.

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261. COMMENT: The Department should update the definition of “mechanical output” to simplify the measurement to one step by multiplying the horsepower hours by 0.0007457. (103)

RESPONSE: The definition of mechanical output was taken directly from 40 CFR 60.5580. To maintain consistency, the Department will not modify the definition on adoption.

262. COMMENT: The definition of “nameplate capacity” should be amended to include the following sentence at the end: “Nameplate capacity for EGUs that can no longer physically achieve these specific manufacturer designated conditions will instead use their maximum achievable electrical output based on a Department approved testing protocol and an enforceable permit limit.” (36)

263. COMMENT: The Department should update the definition of “nameplate capacity” to the actual nameplate of the generator expressed by the apparent power multiplied by the power factor. (103)

RESPONSE TO COMMENTS 262 AND 263: The Department’s definition of “nameplate capacity” is identical to the definition of the term in the CO<sub>2</sub> Budget Trading rules at N.J.A.C. 7:27C-1.2, Definitions. To the extent possible, the Department has attempted to maintain consistency between the CO<sub>2</sub> Budget Trading rules and this rulemaking to avoid duplication or confusion. If the Department were to make the suggested change in the definition, two EGUs with the same manufacturer-specified nameplate capacity could have different nameplate capacities reported under the two chapters (N.J.A.C. 7:27C and 27F). In order to avoid inconsistency in reporting, the Department is adopting the definition as proposed.

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264. COMMENT: The Department should eliminate the definition of “net-electric output” because the term is not used in the rules. (103)

RESPONSE: As “net-electric output” is not used in the rules, the Department is deleting the definition on adoption.

265. COMMENT: The terms “interstate” and “PJM” should be deleted from the definition of “RMR unit” so that the definition is inclusive of NYISO. (103)

RESPONSE: The Department is deleting the term “interstate” from the definition of RMR since the NYISO is not an interstate transmission system. Rather than delete the term “PJM” from the definition, the Department is adding the phrase “or NYISO” before the word “Tariff” to clarify that an approved PJM or NYISO Tariff may be used to demonstrate that a unit is RMR.

266. COMMENT: The reference to “a stationary combustion turbine burning solid fuel” in the definition of the term stationary combustion turbine should be deleted because it does not make sense. (103)

267. COMMENT: The term “steam generating unit” does not include HRSG. Additionally, the Department should delete the sentence indicating that it does not include nuclear. Rather than using the term “steam generating unit,” the Department may wish to use the term “boiler.” The following revision to the definition is recommended: “The term neither includes nuclear steam generators nor the heat recovery steam generators of combined cycle units and stationary combustion turbine CHP units.” (103)

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RESPONSE TO COMMENTS 266 AND 267: As explained in the notice of proposal, the Department proposed to define the terms “stationary combustion turbine” and “steam generating unit” consistent with the definitions of those terms in the NSPS rules at 40 CFR 60.5580. See 53 N.J.R. at 1947. The Department is keeping the definitions as proposed for consistency. The definition for “steam generating unit” in the Federal rules did not include HRSG, and the Department is satisfied that the proposed definition is appropriate.

268. COMMENT: The Department should revise the definition of “output-based emission limit” to “...or lb of emissions/mmbtu of steam generated.” (103)

RESPONSE: The Department interprets this comment as a request to change the capital letters in “MMBTU” to lower case, “mmbtu.” The proposed unit of measure, MMBTU, using capital letters, is consistent with the unit the Department uses elsewhere in its Air Pollution Control rules, such as the permitting rules at N.J.A.C. 7:27-8.8 and 22.14, and the NO<sub>x</sub> rules, N.J.A.C. 7:27-19. No modification is necessary.

269. COMMENT: The Department should define “simple cycle unit” as “a stationary combustion turbine used to drive an electric generator that is neither a combined cycle unit nor a combined heat and power unit.” (103)

RESPONSE: As explained in the notice of proposal, the proposed definition of “simple cycle combustion turbine” is consistent with the definition of that term at N.J.A.C. 7:27-19.1. See 53 N.J.R. at 1947. The suggested definition would not be consistent with the Department’s existing rules as a replacement or an addition.

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270. COMMENT: The Department should revise the rules to: (a) include, “or combustion” in the definition of the term “fossil fuel” or use the simple definition provided in 40 CFR Part 72 that does not include the fuel’s purpose; (b) eliminate the “more than 50 percent” requirement in the definition of “fossil fuel-fired” since it implies that a unit that combusts over 50 percent of its annual heat input in hydrogen would be exempt from the regulation or use the simple definition provided in Part 72 that does not include the fuel’s prorated percent; and (c) revise the ISO condition to 288.15 Kelvin. (103)

RESPONSE: The Department agrees that the definition of “fossil fuel” should be simplified. The Department is modifying the definition on adoption to match the definition of the term in the CO<sub>2</sub> Budget Trading rules at N.J.A.C. 7:27C-1.2, which is identical to the definition of “fossil fuel” used in 40 CFR part 72. The Department does not agree that the provision in the definition of “fossil fuel-fired” concerning “more than 50 percent” fossil fuel should be eliminated; to do so would render the definitions in the two chapters inconsistent. Though the CO<sub>2</sub> Budget Trading rules apply the definition only to units that commenced operation prior to January 1, 2005, the adopted rules make no distinction between the amount of fossil fuel combusted and the date a unit commenced operation. As the commenter pointed out, the definition of fossil fuel-fired means that an existing or new EGU that combusts 50 percent or less fossil fuel would not be subject to the emission limits of the rules. This may facilitate alternate technologies to generate electricity (for example, renewable fuels). The Department is modifying the definition of “ISO conditions” on adoption to reflect that it refers 288.15 Kelvin rather than “288.”

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271. COMMENT: The Department should delete “fossil fuel-fired” since the term is already defined EGU as fossil fuel-fired. (103)

RESPONSE: The Department’s definition of the term “electric generating unit” or “EGU” does not include the term fossil fuel-fired. The Department’s definitions of “existing EGU” and “new EGU” do include references to “fossil fuel-fired.” The adopted definition of the term “fossil fuel-fired” assists the regulated community to determine which EGUs are subject to the rules.

272. COMMENT: The Department should delete the 10 percent condition in the definition of EGU. The definition of EGU should be updated to better define units and account for electricity delivery not just to the “distribution grid.” Anything that combusts fuel and produces electricity should be included, except for emergency or backup units. Comparing CY 2020 emission data from all EIA reportable units versus those applicable to RGGI ( $\geq 25\text{mw}$ ) there is a little over 3 million tons of CO<sub>2</sub> emissions not captured. (103)

RESPONSE: The “10 percent condition” language is in the definitions of “existing EGU” and “new EGU.” As explained in the notice of proposal, this applicability threshold is consistent with the CO<sub>2</sub> Budget Trading Program rules. See 53 N.J.R. at 1948. Both programs are intended to reduce carbon dioxide emissions from electric generating units that provide electricity to the grid. By setting a threshold of 10 percent annual gross output of electricity to the grid and a nameplate capacity of 25MWe or larger for individual EGUs and an aggregate nameplate capacity of 25MWe or larger at EGU facilities, the Department is targeting a specific group of EGUs. As discussed in Response to Comments 202 through 231, these EGUs are the foundation of New Jersey’s electric generation supply. And regulating these EGUs does pose special

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challenges because these EGUs are all connected to a regional grid. Thus, reliability and the risk of leakage were important considerations. The Department did not provide a specific exemption for emergency or backup units because the threshold applicability requirements (for example, providing more than 10 percent of annual electricity to the grid and a minimum nameplate capacity of equal to or greater than 25MWe) generally exclude emergency and backup units.

273. COMMENT: The phrase “and provides more than 10 percent of its annual gross electric output to the electric grid” in the definition of “existing EGU” and “new EGU” needs to be clarified. First, the term electric grid is not defined. Regardless, EGUs are interconnected to the transmission system at PJM not the distribution grid managed by the electric distribution companies (EDC) or electric utilities. The EGU is directly interconnected to the PJM transmission system and may deliver power to distribution customers through the distribution grid, but this definition should be clarified. Second, it should not matter in regulating CO<sub>2</sub> emissions from the electric sector whether it is tied to commercial sales of its gross electric output to the electric grid. (187)

RESPONSE: As discussed in the notice of proposal, the Department limited the applicability of this rulemaking to electric generating units that provide electricity to grid. See 53 N.J.R. at 1948. This is consistent with the CO<sub>2</sub> Budget Trading Program rules at N.J.A.C. 7:27C. This limitation does not mean that the Department believes that only the emissions from EGUs that deliver power to the grid should be regulated; rather, it means that only those EGUs meeting that threshold will be regulated by the adopted rules. On adoption, the Department is modifying the

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definition to remove the phrase “the electric power distribution grid” and replace it with “NYISO or PJM.”

274. COMMENT: The Department should revise N.J.A.C. 7:27F-2.2 to: reflect what an EGU encompasses; differentiate between “unit” and “facility;” include units with a nameplate capacity of less than 25MW since EIA data indicates that these units annually account for 3 to 4 million tons of CO<sub>2</sub> emissions (20 percent to 30 percent of the current existing EGU inventory) and excluding less than 25 MW units could result in numerous standalone single unit simple cycle combustion turbine facilities with total aggregate nameplates less than 25 MW; expand applicability to include any “new EGU” regardless of nameplate capacity; and consider the new source review (NSR) implications by exempting combustion turbine upgrades to optimize heat rate, output from NSR. N.J.A.C. 7:27F-2.2(a) should be revised to read: “This subchapter establishes requirements and procedures concerning the control and prohibition of CO<sub>2</sub> emissions from EGUs with a nameplate capacity of equal to or greater than 1 MW.” (103)

RESPONSE: The Department defines the terms “EGU facility,” and “EGU” at N.J.A.C. 7:27F-2.1 Therefore, it is not necessary to further describe or differentiate between these two terms in the applicability section. As set forth in the notice of proposal, the applicability of the rules is consistent with the CO<sub>2</sub> Budget Trading program. See 53 N.J.R. at 1948. The capacity thresholds used in the CO<sub>2</sub> Budget Trading program (N.J.A.C. 7:27C-1.2) are mirrored in the adopted rules and serve as a useful benchmark because these units account for the majority of emissions (in terms of the mass quantity of tons of CO<sub>2</sub> emission) from EGUs in the State. By setting a specific threshold for applicability of the adopted rules, the Department is not indicating that it



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will regulate emissions from only those EGUs with a nameplate capacity of 25Mwe or greater. Rather, the applicability threshold means that the adopted rules apply to only those EGUs meeting that threshold. Whether other regulatory programs apply to the EGUs depends on the conditions of those programs. While the Department does not anticipate that the exclusion of facilities less than 25MWe would result in numerous standalone, single unit, simple cycle combustion turbine facilities with total aggregate nameplates less than 25 MW simply to avoid the emission limits on CO<sub>2</sub>, should this become a trend, the Department would evaluate the need for future rulemaking.

With regard to the commenter's suggestion that combustion turbine upgrades should be exempted from the rules, the commenter failed to specify the NSR implications the commenter believes to be of concern. Without such an explanation or analysis, the Department will not modify the rules on adoption.

275. COMMENT: The Department should allow the 12-month rolling average to be demonstrated monthly and reported on a quarterly basis. The Department should delete the term "operating month" because compliance is determined on a "12-month rolling basis." (103)

276. COMMENT: The Department should ensure that reporting is consistent among states and EGUs. It may be necessary for the Department to revamp the Excess Emission Monitoring Performance Reports (EEMPR) to alleviate duplication of reporting. In addition, the Department should allow compliance to be demonstrated using a facility-wide or portfolio approach. This would allow renewable energy resources to offset emissions. (103)

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RESPONSE TO COMMENTS 275 AND 276: The comment concerning the deletion of the term “operating month” appears to be part of a larger list of proposed modifications to the rules, many of which are based on the commenter’s conceptual disagreements with the Department’s approach to this rulemaking, including the commenter’s suggestion to use a portfolio approach to emission limits that incorporates renewable energy sources. As discussed in Response to Comments 166, 167, 168, 169 and 170, the Department does not agree that a facility-wide or portfolio approach to emissions limits is necessary to maintain reliability.

The adopted rules include compliance demonstration requirements consistent with the applicable NSPS program requirements at 40 CFR 60.5535 and 60.5540. 53 N.J.R. at 1950. The Department has defined the term “operating month” consistent with the definition of that term at 40 CFR 60.5580, consistent with the compliance requirements of the NSPS program. The Department’s rules indicate that compliance is determined on a 12-operating-month rolling average basis. 53 N.J.R. at 1970; proposed at N.J.A.C. 7:27F-2.3(c). Thus, a definition of the term “operating month” is appropriate and will be adopted as proposed. The Department is not modifying the rules to make reporting more burdensome by requiring quarterly reports. The rules do not include specific reporting requirements, but require only a certification of compliance. The Department anticipates that a report would be necessary only if an EGU were not in compliance. An EGU or facility would use the EEMPR only if it were using continuous emissions monitoring system (CEMS) data, as opposed to fuel use. If an EGU or facility has concerns about reporting, the Department will address those administrative issues separate from the rulemaking.

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277. COMMENT: The Department should amend N.J.A.C. 7:27F-2.3, General provisions, to delete N.J.A.C. 7:27F-2.3(a)4i, ii, and iii because the rule implies that an owner/operator does not need to comply with anything other than what is contained in N.J.A.C. 7:27F. (103)

RESPONSE: As stated in N.J.A.C. 7:27F-1.1(d), compliance with N.J.A.C. 7:27F will not relieve a person of an obligations under any other rules. Read as a whole, the rules are clear. The Department is not modifying N.J.A.C. 7:27F-2.3(a)4 on adoption as requested.

278. COMMENT: N.J.A.C. 7:27F-2.3(a)5 should be revised since reports are submitted per this chapter, not subchapters 8 and 22. (103)

RESPONSE: As explained in the notice of proposal, the Department amended the operating permit rules at N.J.A.C. 7:27-22.16 to add new subsection (q) to require that operating permits contain all applicable requirements at proposed chapter N.J.A.C. 7:27F, as well as sufficient monitoring, recordkeeping, and reporting requirements. Thus, the reports referenced in N.J.A.C. 7:27F- 2.3(a)5 will be submitted pursuant to the requirements at N.J.A.C. 7:27-22 for an operating permit. On adoption, the Department is adding a similar provision to N.J.A.C. 7:27-8.15 to clarify that preconstruction permits include all applicable requirements of N.J.A.C. 7:27F, including sufficient monitoring, recordkeeping, and reporting requirements necessary to ensure compliance.

279. COMMENT: N.J.A.C. 7:27-2.3(c) should be amended to read: “(c) For purposes of determining compliance with the emission limits set forth in this subchapter, the Department will use a 12-month rolling average, calculated by dividing the total CO<sub>2</sub> emissions from the 12-

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month period by the gross electric output from the 12-month period. Compliance shall be demonstrated on a monthly basis of the emission limit and reported on a quarterly basis either on an EGU, Electric Generating Facility, or Electric Generating Portfolio level as determined by the owner or operator.” (103)

RESPONSE: The commenter’s suggested modification to N.J.A.C. 7:27-2.3(c) is part a comprehensive list of proposed modifications to the rules, many of which are based on the commenter’s conceptual disagreements with the Department’s approach to this rulemaking. The Department has not proposed a “portfolio” approach to CO<sub>2</sub> emission reductions. Therefore, the comments are beyond the scope of this rulemaking.

280. COMMENT: The Department should revise the “power purchase agreement” language to “offtake agreement” and amend the date to the date of promulgation rather than the timeframe of historical rules. This modification would require the addition of the following term and definitions: “Offtake agreement” means an agreement between an entity that owns an EGU to provide electric market products as defined by FERC such as electricity, capacity, and/or ancillary services to a buyer, the offtaker. For purposes of this chapter the offtake agreement must have been executed by (the operative date of this new chapter). (103)

RESPONSE: The Department did not intend to provide an extension to an EGU simply because it had entered into a power purchase agreement. This provision is specific to EGUs, known as “dispatch agreement facilities” under the GWRA legislation, that entered into long-term agreements prior to January 1, 2002. See N.J.S.A. 26:2C-46. The Department notes that the only facilities known to the Department to have maintained these power purchase agreements have

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shut down during the pendency of the proposal. Accordingly, the provision is likely extraneous and the Department is not expanding its scope on adoption.

281. COMMENT: Due to the nature of existing EGUs, modifications should not trigger a new emissions limit of 860 lbs/MWh. The new source review (NSR) requirements have hindered combined cycle and simple cycle facilities from optimizing performance and achieving decreased emission rates. This proposal brings another regulatory hurdle and unintendedly consequence on the industry of sub-optimization. There was value on implementing NSR and related requirements on coal fired technologies; however, the rules, regulations, and policies did not adapt to meet the needs and technological innovations of the combined cycle and simple cycle facilities. (103)

RESPONSE: Existing EGUs requesting a permit modification will not be subject to the 860 lbs/MWh limit. As explained in the notice of proposal, an owner or operator that seeks to modify its existing EGU after the operative date of the new rules must propose and comply with a case specific output-based emission limit for CO<sub>2</sub>. 53 N.J.R. at 1949, N.J.A.C. 7:27F-2.5(c) and (e). Though this limit will be determined based on case-specific information, the Department's rules at N.J.A.C. 7:27F-2.5(e)2 provide that the limit must not exceed the three emission limits for existing EGUs by the compliance deadlines set forth at N.J.A.C. 7:27F-2.5(d).

282. COMMENT: Emission limits for new EGUs should take into consideration the subcategorization of combined cycle, combined heat and power, simple cycle, and internal combustion engines. In addition, the Department should contemplate while drafting emission

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limits, the use of air-cooled condensers at combined cycle facilities, backup and emergency generators, backup and emergency fuel oil operation, startup and shutdown vs normal operations.

(103)

RESPONSE: As explained in the notice of proposal, the Department based the emission limit for a new EGU on its analysis of best available control technology for natural gas combined cycle units in the State that are subject to the Federal Prevention of Significant Deterioration (PSD) program. Currently, natural gas combined cycle units represent the most efficient fossil fuel-fired EGU technology as it pertains to CO<sub>2</sub> emissions. Setting less stringent CO<sub>2</sub> emission standards for less efficient technology would not be consistent with the 80x50 goal.

283. COMMENT: The Department's proposal Summary discusses the NSPS standards at 40 CFR Part 60 Subpart TTTT. This is a poorly written standard. However, the EPA's intent was to give combined cycles a 1,000 lbs/MWh rate and simple cycles the natural gas rate of 120 lbs/MMBTU rate and take into account fuel oil operations. (103)

RESPONSE: This comment is not specific to the rules and suggests no modification on adoption. The comment appears to take issue with the Department's characterization of the NSPS emission limits as applying to base load versus non-base load generation, as set forth in the notice of proposal Summary. The characterization, as set forth in the proposal Summary, is irrelevant to the emission limits in the adopted rules.

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284. COMMENT: Why did the Department reproduce N.J.A.C. 7:27-1.36 in the notice of proposal when text was neither added nor deleted? (103)

RESPONSE: The Department deleted text at N.J.A.C. 7:27-1.36(b), as was indicated by the use of the brackets “[ ].” See 53 N.J.R. at 1965.

285. COMMENT: Dependent on timing of actual rules promulgation, the Department should consider striking provisions two and three from N.J.A.C. 7:27F 2.5(d). Regarding the timing, the unit would have to have obtained a permit well before 2035 and possibly all facilities prior to 2027. Also, for discussion, the Department will need to determine compliance timelines. For example, for the January 1, 2024, emission limit, does the Department intend to use calendar year 2023 data or calendar year 2024 data? (103)

RESPONSE: The rules will be operative approximately four years prior to the 2027 emission limit compliance date and approximately 12 years prior to the 2035 emission limit compliance date. The commenter has failed to elaborate on stated concerns about N.J.A.C. 7:27F 2.5(d)2 and 3 in relation to the timing of the rulemaking. The Department’s compliance timelines are clearly stated in the rules: the emission limits go into effect on the months, days, and years specified in N.J.A.C. 7:27F-2.5(d)1 through 3 for existing EGUs, which has been amended on adoption to align with the PJM planning period, as described in Response to Comments 234 and 235. As for the year of data that will determine compliance, the rules go into effect in 2024; therefore, data from calendar year 2023 is premature.

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286. COMMENT: The Department should revise N.J.A.C. 7:27F-2.4 to specify the type of permitting activity the “amendment” is and should waive any fee for permitting activities. The Department should revise N.J.A.C. 7:27F-2.4(a), Permits, as follows: “(a) In order to incorporate the applicable emission limit and other requirements set forth in this subchapter, the Department shall issue a modification permit to the EGU’s current permit pursuant to N.J.A.C. 7:27-8 or 22, or if a renewal permit application is required to be submitted at least one year prior to the initial compliance date then the applicable provisions of this subchapter shall be incorporated during the renewal process.” (103)

RESPONSE: As explained in the notice of proposal, the Department proposed new N.J.A.C. 7:27-22.28(c), which sets the deadlines by which an owner or operator of a facility subject to N.J.A.C. 7:27F-2 must submit an application to incorporate the emission limits into its permit. 53 N.J.R. at 1951. This language follows the CO<sub>2</sub> Budget Trading Program rules, when owners/operators were required to amend their permits to incorporate the requirements of that program. After the adoption of the CO<sub>2</sub> Budget Trading Program rules, the Department posted a form application that owners/operators of “CO<sub>2</sub> budget sources” used to modify their permits. That process was efficient, and the Department fully anticipates implementing a similar process for owners/operators of existing EGUs subject to the new emission limits. Modifications necessary to incorporate the provisions of N.J.A.C. 7:27F into a permit may be submitted as minor modifications, which do not require a fee.



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287. COMMENT: The Department should modify/clarify N.J.A.C. 7:27F-2.5 to include portfolio averaging and delete the “unless otherwise specified.” Additionally, the Department should include emission limits based on subcategorization of new and existing EGUs. (103)

RESPONSE: The commenter’s suggested modifications to the language at N.J.A.C. 7:27-2.5 are part a comprehensive list of proposed modifications to the rules, many of which are based on conceptual disagreements with the Department’s approach to this rulemaking. The Department does not agree that a “portfolio” approach to CO<sub>2</sub> emission reductions nor emission limits based on subcategorization of new and existing EGUs, are necessary to maintain reliability. See Response to Comments 166, 167, 168, 169 and 170 for further response to the suggestion of a portfolio approach.

288. COMMENT: The Department should not reference or model its monitoring and reporting requirements for the proposed rules on the provisions of 40 CFR Part 60 because it will cause confusion in the implementation of the rules for many reasons, including, but not limited to the Federal rule provision’s use of metric units and exemptions, as well as the failure to incorporate bias adjustment factors and missing data provisions. By using 40 CFR Part 60, the CO<sub>2</sub> emission values reported under the rules could be different from values as reported pursuant to RGGI and other Federal reporting programs, which could cause confusion both to the public and regulatory agencies. The Department would be better served by referencing the monitoring and recordkeeping concepts of 40 CFR Parts 75 and 98 in its rules because those provisions already apply to the majority of existing EGUs and will be applicable to the majority of new EGUs. By

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using 40 CFR Parts 75 and 98, the Department will decrease the administrative burden and duplication. (103)

RESPONSE: As set forth in the notice of proposal, the Department incorporated by reference the Federal requirements for monitoring, compliance demonstration, and recordkeeping as found at 40 CFR 60.5535, 60.5540, and 60.5560. 53 N.J.R. at 1950. The Department did not incorporate the reporting requirements of the Federal rules. *Ibid.* The Department acknowledges that 40 CFR 60.5535, does indicate that CO<sub>2</sub> mass emission rates should be calculated in kilograms as part of its monitoring provisions. However, N.J.A.C. 7:27F-2.6(a) provides that “monitoring, compliance demonstration, and recordkeeping requirements at 40 CFR 60.5535, 60.5540, and 60.5560 shall be adhered to in a manner consistent with the purpose of monitoring and recording for output-based CO<sub>2</sub> emissions and determining compliance with the applicable output-based emission limit set forth at N.J.A.C. 7:27F-2.5.” The emission limits of the Department’s rules are listed in pounds, not kilograms. Therefore, monitoring, compliance demonstrations, and recordkeeping should be done in accordance with the pound measurements. However, to avoid any confusion the Department is modifying N.J.A.C. 7:27F-2.6(b)4 on adoption to indicate that the hourly CO<sub>2</sub> mass emission rates may be calculated in pounds (lb) instead of kilograms, using the conversion factor of one short ton equals 2,000 lb.

The Department disagrees that using 40 CFR Part 60 creates confusion, rather than efficiency. As explained in the notice of proposal, the CO<sub>2</sub> Budget Trading Program uses the same monitoring and compliance demonstration requirements (the NSPS program) as the adopted rules. See 53 N.J.R. at 1950. Since many, if not all, of the EGUs covered under the CO<sub>2</sub> Budget Trading Program rules are also covered by the adopted rules, the Department attempted

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to minimize the administrative burden on both the Department and the regulated community by maintaining consistency in monitoring and compliance demonstration for the two programs. *Ibid.*

289. COMMENT: The Department should modify N.J.A.C. 7:27F-2.6, Monitoring, compliance demonstration, and recordkeeping. It should eliminate subsections (b), (c), and (d) because they are duplicative of subsection (a). Subsection (e) should clarify that monitoring begins as of the January 2024, January 2027, and January 2035 for “existing EGUs,” while monitoring shall begin for “new EGUs” according to the Acid Rain Program (ARP) or if not ARP then upon commercial operation or 40 CFR Part 98 provisions. (103)

RESPONSE: The Department acknowledges that N.J.A.C. 7:27F-2.6(b), (c), and (d) appear to duplicate N.J.A.C. 7:27F-2.6(a). However, subsection (a) describes the general obligation of an owner or operator and enumerates the extent of the incorporation by reference of the requirements at 40 CFR 60.5535, 60.5540, and 60.5560. Subsections (b), (c), and (d) elaborate on the more specific directives an owner or operator must follow when demonstrating compliance with the monitoring, compliance demonstration, and recordkeeping requirements at 40 CFR 60.5535, 60.5540, and 60.5560. The Department is not modifying subsection (e) as suggested, because the monitoring provisions in the rules are not tied to the emission limit compliance dates. The Department intends for monitoring to begin as specified in subsection (e), as proposed.

290. COMMENT: The Department should explain N.J.A.C. 7:27F-2.6. Please clarify how an emission limit in 7:27F-2.5 could differ from the emission limit in a permit. (103)

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RESPONSE: N.J.A.C. 7:27F-2.6(a) indicates that an owner or operator shall demonstrate compliance with “the applicable emission limits specified at N.J.A.C. 7:27F-2.5 and/or in its permit” because a specific numerical emission limit is not prescribed by the rules for every EGU covered by the rules. For example, a new EGU with a nameplate capacity less than 25 MWe that is located at an EGU facility will have to meet a case specific, output-based emission limit for CO<sub>2</sub>. See N.J.A.C. 7:27F-2.5(c). In that scenario, the emission limit would not be specified in N.J.A.C. 7:27F-2.5, but it will be specified in the permit for the EGU. Further, an existing EGU may have a more stringent limit in its permit than one or more of the emission limits set forth at N.J.A.C. 7:27F-2.5(d)1 through 3. In that case, the more stringent limit would continue to apply.

291. COMMENT: The notice of proposal indicates that the monitoring requirements of the proposed rules will require minor modifications to existing systems of EGU. What modifications does the Department anticipate? (103)

RESPONSE: As explained in the notice of proposal, the Department has determined that most EGUs subject to N.J.A.C. 7:27F-2 already have systems installed to monitor SO<sub>2</sub> and NO<sub>x</sub> emissions, as well as CO<sub>2</sub> emissions because they are subject to the CO<sub>2</sub> Budget Trading Program rules. 53 N.J.R. at 1961. Therefore, only minor modifications to their existing systems will be necessary. *Ibid.* The Department anticipates that minor modifications to an existing system that already records SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> emissions would likely include programming changes to the data acquisition system to do the compliance calculations for the new rules.

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292. COMMENT: The Department should modify N.J.A.C. 7:27F-2.7 as follows: the reporting provision should be more definitive; EGUs should report the sum of CO<sub>2</sub> emissions per part 75 over the sum of gross electric for the rolling 12-month compliance periods; EGUs should submit a quarterly report that will have three demonstrations of compliance for the three months in the quarter; this provision should state that if a unit did not operate in a month then the report will state such; and the Department should eliminate the duplicative use of N.J.A.C. 7:27-8.15 and 7:27-22.19 and cite 22.19(h) instead. (103)

RESPONSE: The commenter's suggested modifications to N.J.A.C. 7:27F-2.7 are part a comprehensive list of proposed modifications to the rules, many of which are based on conceptual disagreements with the Department's approach to this rulemaking, including the commenter's insistence on a "portfolio" approach to emissions reductions for purposes of reliability. The Department notes that the suggested modifications would complicate the reporting process; whereas, the Department's approach is intended to streamline the process by including the reporting requirements in individual permits, so that they can be aligned with other reporting requirements, such as NO<sub>x</sub> or SO<sub>2</sub>. While the Department acknowledges the commenter's desire to eliminate duplicative provisions, the Department is not modifying the rules on adoption to eliminate the references to N.J.A.C. 7:27-8.15 and 22.19. The references to these provisions assist in clarifying an owner's or operator's obligations.

293. COMMENT: What is meant by the Department's statement in the notice of proposal that there are no comparable Federal standards for existing EGUs? The Department references 40 CFR Part 60 throughout the proposal. (103)

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RESPONSE: As explained in the notice of proposal, the Department performed a comparison of the proposed rules at N.J.A.C. 7:27F-2, Carbon Dioxide Emission Reductions from Electric Generating Units, to Federal regulations at 40 CFR Parts 51 and 52, prevention of significant deterioration (PSD), and 40 CFR Part 60, Subpart TTTT, new source performance standards (NSPS), which apply to fossil fuel-fired electric generating units. Based upon the Department's review, the Department has determined there are no comparable Federal standards for existing EGUs. 53 N.J.R. at 1962. The Department determined that 40 CFR Part 60 was not comparable to the proposed rules because the Federal rules establish greenhouse gas emission standards for EGUs that commence construction after January 8, 2014, or commence modification or reconstruction after June 18, 2014. See 40 CFR 60.5508. Thus, the Federal emission standards apply at the time a new facility is built or are triggered by modification or reconstruction. On the other hand, the Department's rules pertain to "existing EGUs", which are defined as "any fossil fuel-fired electric generating unit that commenced construction before" the operative date of these rules. 53 N.J.R. at 1969. The standards for existing EGUs are not comparable because the Department's rules apply to all covered EGUs constructed prior to the rules' operative date. The applicability extends to any EGU that commenced construction prior to the operative date. In New Jersey, that includes EGUs that commenced construction as far back as the 1970s.

294. COMMENT: The notice of proposal acknowledges the continued advancement of technologies needed to achieve the goal and states, "Though the Department anticipates that the first large-scale offshore wind projects will be brought online in New Jersey and other PJM states as early as 2025, and that battery technology will continue to develop, the Department also

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recognizes that these essential components of a net zero electric generation sector are goals that are expected to be realized at future dates.” This statement should be modified to include advancements in other technologies, including, but not limited to, green hydrogen and renewable natural gas. Green hydrogen can help maximize the value and applications of zero-carbon power supplied by large-scale offshore wind and solar generation, while also providing a viable, and environmentally responsible long duration storage solution for these renewable resources in a cost-effective manner. As New Jersey installs higher percentages of intermittent renewable power, excess generation from wind and solar can be converted to green hydrogen and safely stored in natural gas pipelines for weeks, months or across seasons with virtually zero energy loss. This safe, readymade long-duration storage solution can complement shorter-duration batteries and help avoid the costs and environmental impacts of a large-scale, battery-only build out. (85)

RESPONSE: These comments are not specific to the rules and suggest no changes on adoption. Nonetheless, the Department acknowledges the sentiment. Many different technologies are expected to have a role in the transition to zero-carbon power.

### **Fuel oil provisions**

295. COMMENT: The rules seek to ban the combustion of No. 4 and No. 6 fuel oils, which produce emissions. Since the sale and storage of fuel oils have little to no emissions associated, the Department should not ban those activities. (129)

296. COMMENT: The Department has never banned a fuel before; nor, to our knowledge, has any other state. This ban sets a bad precedent. If the Department intends to adopt the proposed

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rules, it should modify the rules to allow the storage of No. 4 and No. 6 fuel oils, since those fuels are used for sale in other states and for other purposes. For instance, these fuels can be used as feedstock for other non-combustible uses such as in asphalt for road construction. Thus, the Department should clarify the rules on adoption to allow the storage of these fuels so long as they are not intended to be used for combustion in New Jersey. (22)

297. COMMENT: The Department's notice of proposal states that according to 2018 data from the US EIA, there were no reported sales of commercial No. 4 fuel oil in New Jersey and only 75 thousand gallons of No. 6 fuel oil were sold in the State that year. The notice of proposal also states that it is safer to burn what oil remains than to transport it out of State for use or disposal. So, what is the real impact of this ban? (35 and 131)

298. COMMENT: The Department's outright ban on No. 4 and No. 6 fuel oils is problematic, because these fuel oils are a byproduct of refinery operations. Given the fact that the storage of these heavy oils results in inherently minimal emissions and regulations would permit storage of No. 4 and No. 6 fuel oils for sale for marine consumption, we recommend that a provision be included that allows for storage and use outside of New Jersey, and for sale and use within New Jersey for non-combustion uses (e.g. raw material feedstock). (72)

299. COMMENT: The proposed rules, in relevant part, seek to ban the use of No. 4 and No. 6 fuel oils in New Jersey. The notice of proposal specifically asserts the ban is associated with the Department's efforts to reduce carbon dioxide emissions and improve air quality in New Jersey. However, as proposed, the definitions of No. 4 and No. 6 fuel oils would include partially refined feedstocks and blendstocks manufactured, used and/or stored in the refining process. The proposed rules would therefore potentially impair refining operations in New Jersey as well as



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affect other currently permitted products manufactured, consumed and/or stored in New Jersey for potential sale to in-State, interstate, or international customers that generate substantial societal benefits, including ECA marine fuel and asphalt (collectively, Existing Manufacturing Uses). To avoid a negative impact on manufacturers, blenders, storers, transporters, and marketers of fuels, the Department should revise the rules on adoption to exempt the ban on these fuels for Existing Manufacturing Uses. These uses are distinct from the Department's stated intention to reduce emissions from fossil fuel oils when burned/combusted. (23 and 128)

RESPONSE TO COMMENTS 295, 296, 297, 298 AND 299: As explained in the notice of proposal, the Department determined that a ban on No. 4 and No. 6 fuel oils was appropriate for multiple reasons. See 53 N.J.R. at 1951. First, these fuels have two of the highest CO<sub>2</sub> emissions factors among all fuel oils. *Ibid.* Second, the use of these fuels has dramatically decreased over the last few decades. *Ibid.* Third, permit data indicates that the majority of permitted facilities have already upgraded their equipment to burn fuels with a lower CO<sub>2</sub> emission factor. *Ibid.* For these reasons, banning the future combustion of these fuels is a pragmatic measure, within a more comprehensive strategy, needed to reach the 80x50 goal. While the actual emissions reductions anticipated from the fuel oil provisions of the rules may be minimal, the action is consistent with the State's goal to reduce emissions of greenhouse gases.

As noted by almost all of the commenters, the notice of proposal repeatedly referred to the reduction in CO<sub>2</sub> emissions that results from the combustion or burning of these fuel oils. As stated throughout the proposal, it is the Department's intent to ban the *combustion* of these fuel oils in New Jersey. The Department acknowledges the comments indicating that the proposed rules do not achieve the stated intent. The Department does not intend to ban the use of these

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fuels in existing manufacturing uses, such as refining, in which the fuels are not burned and there are little to no emissions associated with the activity. The Department is modifying the rules on adoption to exempt non-combustion-related activities, as well as the storage and sale of these fuel oils for use out of State.

300. COMMENT: Not only will banning No. 4 and No. 6 fuel oils achieve little carbon emission reductions, but it is not clear that the Department has the authority to adopt rules banning the use of any fuel. While the Air Pollution Control Act clearly allows the Department to set emission standards and require control devices on emitting facilities, it does not allow the Department to simply ban a fuel. There is no authority for this ban in the GWRA, either. This type of action requires legislative authorization. (22)

301. COMMENT: The proposal to end the sale and use of No. 4 and No. 6 fuel oil will help achieve health and climate goals by eliminating two of the dirtiest fuels around. However, the Department should strengthen its proposed fuel oil phase out by expanding it to cover other types of fuel oil, such as No. 5 and No. 2 fuel oil. All fuel oils emit significant climate and health-harming pollution. For example, No. 2 fuel oil emits about 99 percent as much CO<sub>2</sub> as No. 4 oil. (117)

302. COMMENT: The Department could strengthen the rules by expanding the fuel oil phase out to include No. 2 fuel oil. (65 and 116)

RESPONSE TO COMMENTS 300, 301 AND 302: New Jersey's Air Pollution Control Act gives the Department broad authority to promulgate rules “preventing, controlling and prohibiting air pollution throughout the State,”. N.J.S.A. 26:2C:8. The statute defines "air

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pollution" to include "the presence in the outdoor atmosphere of one or more air contaminants in such quantities and duration as are, or tend to be, injurious to human health or welfare, animal or plant life ..." N.J.S.A. 26:2C-2. The GWRA finds and declares that greenhouse gases "increase temperatures in the atmosphere" and that "if steps are not taken to reverse these trends, the effects on human, animal and plant life on Earth may be catastrophic." N.J.S.A. 26:2C-38. The Legislature further declared that a comprehensive strategy to reduce greenhouse gas emissions 80 percent below the 2006 level by the year 2050 is in the public interest. N.J.S.A. 26:2C-38. Likewise, the GWRA declares that the State should implement cost-effective measures to reduce emissions of greenhouse gases. N.J.S.A. 26:2C-45. As noted in the notice of proposal, the Department believes these adopted rules are necessary to prevent further detrimental impacts on human, animal, and plant life. See 53 N.J.R. at 1963. The reduction in CO<sub>2</sub> emissions expected as a result of the proposed rules will serve as one step in the State's comprehensive approach toward reducing emissions of greenhouse gases. See 53 N.J.R. at 1946.

As discussed more fully in Response to Comments 295, 296, 297, 298 and 299, the Department is clarifying on adoption that the ban is on the sale of these fuels for purposes of combustion in New Jersey. That is because the combustion of these fuels, not their use in certain manufacturing processes, results in CO<sub>2</sub> emissions. As explained in the notice of proposal, the Department's analysis included factors such as the CO<sub>2</sub> emission factor when combusted, the availability of alternative, lower-CO<sub>2</sub>-emitting fuels, the use of those fuels both historically and currently, as well as the costs associated with a transition to an alternative fuel. See 53 N.J.R. at 1951. Based upon these factors, the Department determined that a ban on the combustion of

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these fuels was appropriate, much like the analysis the Department would use to set an emission standard or require a control device.

Comments concerning the expansion of the rules to ban more fuels are beyond the scope of this rulemaking. However, the Department will continue to evaluate emissions and fuel usage from permitted facilities and may determine when or whether it would be appropriate to expand the ban to include other fuel oils with high emission factors based upon the data and a determination that there is an economical alternative(s).

**Summary of Agency-Initiated Changes upon Adoption:**

The Department is modifying N.J.A.C. 7:27F-2.6, Monitoring, compliance demonstration, and recordkeeping, to include a provision that requires the submission of a monitoring plan to the Department. N.J.A.C. 7:27F-2.6 requires an owner or operator of a covered EGU to demonstrate compliance with the applicable emission limits through compliance with the monitoring, compliance demonstration, and recordkeeping requirements at 40 CFR 60.5535, 60.5540, and 60.5560. But 40 CFR 60.5535(a) indicates that monitoring plans should be submitted to the EPA. The Department is clarifying upon adoption, that N.J.A.C. 7:27F-2.6 requires submission of the monitoring plan to the Department. In addition, the Department is correcting the spelling of Celsius as used in the definition of the term “ISO conditions” in NJAC 7:27F-1.2, Definitions.

**Federal Standards Statement**

N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c. 65), require State agencies that adopt, readopt, or amend State rules to which the statute applies, to provide a Federal standards statement. If those

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rules exceed any Federal standards or requirements, the agency must also include in the rulemaking document a Federal standards analysis.

**N.J.A.C. 7:27F-2, Carbon Dioxide Emission Reductions from Electric Generating Units**

The Department performed a comparison of the adopted rules at N.J.A.C. 7:27F-2, Carbon Dioxide Emission Reductions from Electric Generating Units, to Federal regulations at 40 CFR Parts 51 and 52, prevention of significant deterioration (PSD), and 40 CFR Part 60, Subpart TTTT, new source performance standards (NSPS), which apply to fossil fuel-fired electric generating units. Based upon the Department's review, the Department has determined there are no comparable Federal standards for existing EGUs. The adopted rules pertaining to new EGUs greater than 25 MWe are comparable to the Federal PSD standards and the Federal NSPS, except for the emission rate, which is more stringent than the Federal NSPS. The Department's analysis is below.

*New source performance standards*

In 2015, the EPA issued final NSPS for new and reconstructed fossil fuel-fired EGUs greater than 25 MW that commenced construction or reconstruction activities after January 8, 2014. 80 FR 64,510 (Oct. 23, 2015). In establishing the NSPS for fossil fuel-fired EGUs, the EPA distinguished among stationary combustion turbines, steam generating units, and IGCC units. The NSPS for a new steam generating or IGCC unit is 1,400 lb/MWh. The NSPS for a reconstructed steam generating or IGCC unit is 1,800 lb/MWh or 2,000 lb/MWh, depending on the maximum amount of heat input the unit can combust on a steady state basis.

The Federal NSPS established different emission limits for stationary combustion turbines based on fuel (natural gas or multi-fuel). The NSPS further distinguished between "base

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load” and “non-base load” natural gas-fired stationary combustion turbines. The EPA “use[d] the term base load natural gas-fired units to refer to stationary combustion turbines that (1) burn over 90 percent natural gas; and (2) sell electricity in excess of their design efficiency (not to exceed 50 percent) multiplied by their potential electric output.” 80 FR at 64,601. For base load natural gas-fired units, the EPA established a NSPS for CO<sub>2</sub> of 1,000 lb/MWh (an output-based limit), calculated on a 12-operating-month rolling average basis. *Ibid.* For non-base load natural gas-fired units, the EPA established a NSPS for CO<sub>2</sub> of 120 lb CO<sub>2</sub>/MMBtu (an input-based limit), calculated on a 12-operating-month rolling average basis. *Ibid.* For multi-fuel-fired units, the EPA established a NSPS for CO<sub>2</sub> of 120 to 160 lb CO<sub>2</sub>/MMBtu (an input-based limit), calculated on a 12-operating-month rolling average basis.

In contrast to the EPA’s approach, the Department’s rules require a new EGU, regardless of type or fuel, that has a nameplate capacity equal to or greater than 25 MWe and provides more than 10 percent of its annual gross electric output to the electric grid to comply with an output-based CO<sub>2</sub> emission limit of 860 lb/MWh. As explained in the notice of proposal Summary, a new EGU includes a fossil fuel-fired EGU that commenced construction or was reconstructed on or after the operative date of the rules.

The CO<sub>2</sub> emission limit for new EGUs in the adopted rules is more stringent than the NSPS. However, no new steam generating unit has been built in the State since the early 1990s and the Department has not received an application for a permit to construct a new IGCC unit in the State since 2011. As for natural gas-fired stationary combustion turbines, the purpose of N.J.A.C. 7:27F-2 is to require that all new fossil fuel-fired EGUs meet emission limits based on the CO<sub>2</sub> emissions achieved by the most efficient EGUs operating in the State. In New Jersey,

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the most efficient EGUs are natural gas-fired stationary combustion turbines that are combined cycle units. Because combined cycle fossil fuel-fired EGUs constructed in the State since 2010 operate at emission rates less than 860 lb/MWh, the Department does not believe that requiring a new EGU to meet this limit, rather than the output or input based limits of 1,000 lb/MWh and 120 to 160 lb CO<sub>2</sub>/MMBtu, will result in any added costs. Though there may be added initial costs to construct or reconstruct a more efficient unit, those costs are made up in more efficient operations.

To the extent there are added costs, the Department believes that the costs are justified. As explained in the notice of proposal Summary, the adopted rules are intended to be a first step in a comprehensive plan to lower greenhouse gas emissions in the State in order to meet the 80x50 goal. The 2019 EMP and the 2050 Report recognize that the State must take a measured approach to reduce greenhouse gas emissions from the electric generating sector to net zero by 2050, given the variables of renewable electric generation availability, storage capacity, and expected increased electric demand as the State electrifies other sectors, such as the transportation and building sectors. Thus, the adopted rules are a necessary initial step toward decarbonizing the electric generating sector by requiring new EGUs to meet stringent CO<sub>2</sub> emission limits and existing EGUs to meet CO<sub>2</sub> emission limits that become increasingly stringent in three phases.

For purposes of this rulemaking, the Department has balanced the need to mitigate the impacts of climate change on health and the environment against any economic impacts of the rules. The Department has determined that the adopted rules are achievable under current technology and are cost-effective. The Department has determined that the emission limit for

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new EGUs, even though more stringent than the Federal NSPS, is essential to begin the process of decarbonizing the electric generating sector as the State strives to achieve the 80x50 goal to protect the environment and the public health.

In sum, the Department anticipates the benefits of the rules and amendments to be an increase in the quality of life and protection of human health and the environment. The primary environmental benefit will be a reduction in the emission of CO<sub>2</sub>, the most prevalent greenhouse gas. The Department believes that the rules are necessary for the State to transition to a clean energy economy, so that the State can meet the 80x50 goal and prevent further detrimental impacts on human, animal, and plant life. See N.J.S.A. 26:2C-38.

**N.J.A.C. 7:27F-3, Carbon Dioxide Emission Reductions from Fuels**

Adopted N.J.A.C. 7:27F-3 bans the storage, offering for sale, sale, delivery, or exchange in trade, for purposes of combustion in New Jersey, of No. 4 and No. 6 fuel oils for use in the State upon the operative date of this rulemaking. However, the rules do include a grace period to allow facilities that stored No. 4 or No. 6 fuel oils prior to the operative date of the rulemaking to dispose of that fuel oil by using what remains in storage within two years after the operative date of the rules. Further, to ensure compliance with the Clean Air Act, the rules exempt marine vessels from the ban. Because there are no comparable rules or Federal standards, no further analysis is required.



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**Full text** of the adoption follows (additions to proposal indicated in boldface with asterisks

**\*thus\***; deletions from proposal indicated in brackets with asterisks **\*[thus]\***):

Chapter 27, AIR POLLUTION CONTROL

SUBCHAPTER 8. PERMITS AND CERTIFICATES FOR MINOR FACILITIES (AND MAJOR FACILITIES WITHOUT AN OPERATING PERMIT)

7:27-8.15 Reporting requirements

(a)-(d) (No change)

**\*(e) A preconstruction permit shall contain all applicable requirements at N.J.A.C. 7:27F, Control and Prohibition of Carbon Dioxide Emissions, including but not limited to sufficient monitoring, recordkeeping, and reporting requirements necessary to ensure compliance with all applicable requirements.\***

CHAPTER 27F, CONTROL AND PROHIBITION OF CARBON DIOXIDE EMISSIONS

SUBCHAPTER 1. GENERAL PROVISIONS

7:27F-1.1 Purpose and scope

(a) This chapter establishes the criteria that shall govern and reduce emissions of carbon dioxide from **\*the combustion of\*** **\*[fossil fuel-fired electric generating units, fossil fuel-fired boilers, and]\*** fossil fuels.

(b)-(d) No change from proposal.)

7:27F-1.3 Definitions

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The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise:

“Air contaminant” \*[means any substance, other than water or distillates of air, present in the atmosphere as solid particles, liquid particles, vapors, or gases.]\* **\*shall have the same meaning as the term “air contaminant” as defined at N.J.A.C. 7:27-1.4.\***

...

“Distillates of air” \*[means helium (He), nitrogen (N<sub>2</sub>), oxygen (O<sub>2</sub>), neon (Ne), argon (Ar), krypton (Kr), and xenon (Xe).]\* **\*shall have the same meaning as the term “distillates of air” as defined at N.J.A.C. 7:27-1.4.\***

...

“Fossil fuel” means natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such material \*[for the purpose of creating useful heat]\*.

...

“ISO conditions” means 288\*.15\* Kelvin, or 15 degrees \*[Celsius]\* **\*Celsius\***, 60 percent relative humidity, and 101.3 kilopascals pressure.

**\*[KWh] kWh\*** means kilowatt hour\*[s]\*.

...

“Natural gas” means a fluid mixture of hydrocarbons (for example, methane, ethane, or propane), composed of at least 70 percent methane by volume or that has a gross calorific value between 35 and 41 megajoules per dry standard cubic meter (950 and 1,100 BTU per dry standard cubic foot), that maintains a gaseous state under ISO conditions. Natural gas does not include the following gaseous fuels: landfill gas, digester gas, **\*biomass gas, biogas,\*** refiner

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gas, sour gas, blast furnace gas, coal-derived gas, producer gas, coke oven gas, or any gaseous fuels produced in a process which might result in highly variable CO<sub>2</sub> content or heating value.

## SUBCHAPTER 2. CARBON DIOXIDE EMISSION REDUCTIONS FROM ELECTRIC GENERATING UNITS

### 7:27F-2.1 Definitions

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise:

...

“Combined cycle unit” means an electric generating unit that uses a stationary combustion turbine from which the heat from the turbine exhaust gases is recovered by a \*[heat recovery steam generating unit\*] **\*HRSG\*** to generate additional electricity.

...

“Electric generating unit” or “EGU” means a combustion or steam generating source used for generating electricity that delivers all or part of its power to \*[the electric power distribution grid]\* **\*NYISO OR PJM\*** for commercial sale.

...

“Gross electric output” means the total amount of electric energy produced by a generating unit and measured at the generating terminal\*s\* in \*[KWh]\* **\*kWh\*** or MWh. \*[It includes the electricity used in the plant auxiliaries and the transformers.]\*

...

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**\*“Natural gas curtailment period” means a period of time during which the supply of natural gaseous fuel to an affected electric generating unit is restricted or halted for reasons beyond the control of the EGU facility. The act of entering into a contractual agreement with a supplier of natural gas established for curtailment purposes does not constitute a reason that is under the control of an EGU facility for the purposes of this definition. An increase in the cost or unit price of natural gas due to normal market fluctuations not during periods of supplier delivery restriction does not constitute a period of natural gas curtailment or supply interruption. On-site gaseous fuel system emergencies or equipment failures qualify as periods of supply interruption when the emergency or failure is beyond the control of the EGU facility.\***

\*[“Net-electric output” means the gross amount of electricity generation a generator produces, including, but not limited to, output from steam turbine(s), combustion turbine(s), and gas expander(s), as measured at the generator terminals, less the electricity used to operate the plant (that is, auxiliary loads); such uses includes fuel handling equipment, pumps, fans, pollution control equipment, other electricity needs, and transformer losses as measured at the transmission side of the step up transformer (for example, the point of sale).]\*

...

“RMR unit” means a unit that is requested by PJM or NYISO to remain operational beyond its announced retirement date, or come back into operation, to maintain reliable operation of the \*[interstate]\* transmission system, pursuant to a duly approved section of a PJM **\*or NYISO\*** Tariff or a FERC-approved service agreement.

...

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7:27F-2.3 General provisions

(a)-(b) (No change from proposal.)

(c) For purposes of determining compliance with the emission limits set forth in this subchapter, the Department will use a 12-operating-month rolling average basis, calculated by dividing the annual total of CO<sub>2</sub> emissions over the relevant 12-month period by the annual electric and/or the mechanical output plus the useful thermal output (output-based limit) over the same 12-month period. **\*If a fossil fuel-fired electric generating unit subject to this subchapter temporarily combusts fuel oil or other liquid fuel in place of natural gas pursuant to a natural gas curtailment period , the CO<sub>2</sub> emissions from that EGU during the period of curtailment shall not be included in the 12-operting-month rolling average used to determine compliance with the emission limits of this subchapter, so long as:**

- 1. The EGU's permit authorizes fuel switching pursuant to N.J.A.C. 7:27-19;**
- 2. The owner or operator is not practicably able to obtain a sufficient supply of natural gas;**
- 3. The owner or operator's inability to obtain natural gas is due to circumstances beyond the control of the owner or operator, such as a natural gas curtailment;**
- 4. The EGU ceases using fuel oil or other liquid fuel in place of natural gas and resumes using natural gas as soon as a sufficient supply of natural gas becomes practicably available; and**
- 5. The owner or operator keeps records of curtailment periods and incorporates such records into the reports submitted to the Department as required by N.J.A.C. 7:27-22. Such records shall include the following information:**

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- i. Information sufficient to identify each EGU for which the owner or operator claims an exemption under this section, including a brief description of the source (for example, "dry-bottom coal-fired boiler serving an electric generating unit"), its location, its permit number, any other identifying numbers, and any other information necessary to distinguish it from other equipment also owned or operated by the owner or operator of the electric generating unit;**
- ii. A statement that the owner or operator is not practicably able to obtain a sufficient supply of natural gas;**
- iii. The date and time at which the owner or operator first became practicably unable to obtain natural gas; and**
- iv. A description of the circumstances causing the owner's or operator's inability to obtain natural gas.\***

(d) (No change from proposal.)

7:27F-2.5 Emission limits

(a)-(c) (No change from proposal.)

(d) An existing EGU with a nameplate capacity equal to or greater than 25 MWe shall meet the following emission limits by the specified compliance date:

1. On or before \*[January 1, 2024]\* **\*June 1, 2024\***, an emission rate of 1,700 pounds of CO<sub>2</sub> per MWh gross energy output;
2. On or before \*[January 1, 2027]\* **\*June 1, 2027\***, an emission rate of 1,300 pounds of CO<sub>2</sub> per MWh gross energy output; and

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3. On or before \*[January 1, 2035]\* **\*June 1, 2035\***, an emission rate of 1,000 pounds of CO<sub>2</sub> per MWh gross energy output.

(e) (No change from proposal.)

(f) The owner or operator of an electric generating unit required to comply with the limits at (d) above may request an extension of the compliance date at (d)1, 2, or 3 for any of the following reasons:

1. The BPU issues an order determining that the unit \*[must continue operating]\* **\*is needed to maintain reliable grid operations\***;

2. The EGU is designated as an RMR unit **\*or PJM or NYISO has requested, in writing, that the EGU remain operational to maintain reliable grid operations\***; or

3. The electric generating unit is subject to a power purchase agreement that is in its initial term and in effect as of (the operative date of this section).

(g) An owner or operator of an existing electric generating unit who requests an extension pursuant to (f) above shall submit documentation **\*to the Bureau of Stationary Sources\*** verifying the basis for which the extension is requested. If the owner or operator provides such verification and, after consultation with the BPU, the Department confirms the EGU meets the applicable condition at (f) above, the Department will extend the compliance date for the EGU for the term of the order or designation\*, **or as identified in the written request by PJM OR NYISO\*** as described at (f)1 or 2 above, or the initial term of the power purchase agreement described at (f)3 above, as applicable.

(h). (No change from proposal.)

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**7:27F-2.6 Monitoring, compliance demonstration, and recordkeeping**

(a) (No change on adoption.)

(b) An owner and operator of an EGU subject to this subchapter shall, in accordance with 40 CFR 60.5535:

1. Install all monitoring systems necessary to monitor CO<sub>2</sub> emissions;
2. Successfully complete all certification test requirements applicable to the monitoring systems installed;
3. Record and quality-assure the data from the monitoring systems required; \*[and]\*
4. Use monitoring procedures pertaining to EGUs with an output-based emission limit for CO<sub>2</sub> **\*except that the hourly CO<sub>2</sub> mass emission rates may be calculated in pounds instead of kilograms, using the conversion factor of one short ton equals 2,000 lbs; and**
5. **The submission of the monitoring plan required by 40 CFR 60.5535(a) will be submitted to the Department as part of any permit action required pursuant to NJAC 7:27F-2.4.\***

(c)-(e) (No change on adoption.)

SUBCHAPTER 3. CARBON DIOXIDE EMISSION REDUCTIONS FROM FUELS

7:27F-3.2 Carbon standard for fuels



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\*(a)\* No person shall store, offer for sale, sell, deliver, or exchange in trade \*[, for use in New Jersey,]\* No. 4 fuel oil or No. 6 fuel oil, **\*for purposes of combustion in New Jersey,\*** on or after (the operative date of this section), except *\*[as provided at (c) below.]\** **\*that\***

\*(b) No person shall use No. 4 fuel oil or No. 6 fuel oil on or after (the operative date of this section), except as provided at (c) below.

(c)\* Number 4 fuel oil or No. 6 fuel oil that was stored in New Jersey before (the operative date of this section), may be **\*combusted,\*** used, stored, offered for sale, sold, delivered, or exchanged in trade, in New Jersey, for two years after (the operative date of this section).

#### 7:27F-3.3 Exemption

This subchapter shall not apply to *\*[fuel oil used by ocean-going vessels]\** **\*any person that stores, offers for sale, sells, delivers, or exchanges in trade No. 4 fuel oil or No. 6 fuel oil that meets Emission Control Area (ECA) marine fuel criteria established by federal regulation at 40 CFR 80.2 and is for use by interstate and international shipping lines\*.**