



February 28, 2017

Lidia J. Howard
Engineering & Enforcement Division
Connecticut Department of Energy and Environmental Protection
79 Elm Street, 5th Floor
Hartford, CT 06106

RE: Comments of Conservation Law Foundation concerning draft New Source Review Permits 0299, 0300, and 0301 for PSEG Power Connecticut, LLC to construct and operate the Unit 5 Combined Cycle Project

Dear Ms. Howard:

Thank you for the opportunity to provide written comments on draft New Source Review Permits 0299, 0300, and 0301, which would allow PSEG Power Connecticut, LLC ("PSEG") to construct and operate the proposed Unit 5 combined cycle project at Bridgeport Harbor Station in Bridgeport, Connecticut.

Conservation Law Foundation ("CLF") has deep concerns about the tentative permit approvals issued for comment by the Connecticut Department of Energy and Environmental Protection ("CT DEEP"). Specifically, the greenhouse gas ("GHG") limitations in the draft permits are not consistent with the Connecticut Global Warming Solutions Act ("GWSA")¹ because the operation of proposed Unit 5 would result in increased state greenhouse gas ("GHG") emissions in violation of the GWSA's short- and long-term GHG-reduction mandates.² For this reason, CLF respectfully requests that CT DEEP either deny the permit applications or, at a minimum, impose declining annual CO₂e emissions limitations on the facility to ensure its compliance with the GWSA.

Background

On March 2, 2016, PSEG submitted to CT DEEP a Permit Application for Stationary Sources of Air Pollution for the "Unit 5 Project" proposed to be constructed at PSEG's Bridgeport Harbor Station facility.³ The Unit 5 Project comprises a new combined cycle gas turbine generating unit and ancillary units including an auxiliary boiler and an emergency diesel generator.⁴ PSEG's Air Permit Application

¹ Conn. Gen. Stat. § 22a-200 *et seq.*

² Conn. Gen. Stat. § 22a-200a(a)(1)-(2) (requiring a reduction in state emissions of at least 10% below 1990 levels by Jan. 1., 2020 and a reduction of at least 80% of 2001 levels by Jan. 1, 2050).

³ Hereinafter the "Air Permit Application," *available at* http://www.ct.gov/csc/lib/csc/pending_petitions/2_petitions_1201through1300/pe1218/filing/pe1218_bulk_permit_application_ltr.pdf.

⁴ *Id.* at 1.

asserts that its worst-case scenario annual CO₂e emissions would be 1,662,178 tons per year on a project-wide basis.⁵

While PSEG's air permit application was pending, on March 9, 2016, PSEG filed with the Connecticut Siting Council ("Siting Council") a petition for approval to install and operate Unit 5.⁶ Proceedings on PSEG's petition occurred over the course of summer 2016, with the Siting Council issuing a final decision approving Unit 5 on July 22, 2016.⁷ The Siting Council's final decision stated that the Unit 5 Project as proposed would be consistent with the GWSA "through the increased fuel efficiency of the technology used, the selection of natural gas as the primary fuel and the retirement of BHU #3."⁸ BHU #3 is Bridgeport Harbor Station Unit 3, a coal-fired generating unit that for the most recent five-year period of its operation, 2012 through 2016, operated at a 15% capacity factor and averaged 553,489 tons per year of CO₂e emissions.⁹

On December 28, 2016, CT DEEP issued a notice providing that the agency had reached "a tentative determination" to approve air permits for Unit 5.¹⁰ CT DEEP's notice invited public comment on the tentative determination and stated that "a hearing may be held on this application if the Commissioner determines that the public interest will best be served thereby."¹¹ On January 24, 2017, CT DEEP set a hearing date of February 28, 2017 regarding its tentative determination and provided further that written comments would be accepted at the public hearing and through March 10, 2017.¹² CT DEEP's tentative permit approvals would authorize PSEG to emit up to 1,671,463 tons per year CO₂e.¹³

⁵ *Id.* at Table E0-8.

⁶ Hereinafter "Siting Council Petition," available at http://www.ct.gov/csc/lib/csc/pending_petitions/2_petitions_1201through1300/pe1218/filing/pe1218_1_filing.pdf.

⁷ Hereinafter "Siting Council Decision," available at http://www.ct.gov/csc/lib/csc/pending_petitions/2_petitions_1201through1300/pe1218/finaldecision/pe1218-decisionpackage.pdf.

⁸ Siting Council Decision ¶ 125.

⁹ See U.S. EPA Air Markets Program Data, available at <https://ampd.epa.gov/ampd/>. This figure was derived by dividing Unit 3's gross load from 2012 through 2016 by Unit 3's nameplate capacity over that same period. Other methods of determining capacity factor may yield lower figures. For example, by the above-referenced method, Unit 3 operated at a 19% capacity factor in 2015, while other analyses suggest a lower capacity factor of 17% in 2015. See Synapse Energy Economics, *New England's Shrinking Need for Natural Gas* at Table 9 (Feb. 7, 2017), available at <http://www.synapse-energy.com/sites/default/files/New-Englands-Shrinking-Need-for-Natural-Gas-16-109.pdf>.

¹⁰ CT DEEP, *Notice of Tentative Determination to Approve a Point Source New Source Review Permit Application* (Dec. 28, 2016), available at <http://www.ct.gov/DEep/cwp/view.asp?A=2586&Q=588854>.

¹¹ *Id.*

¹² CT DEEP, *Notice of Public Hearing* (Jan. 24, 2017), available at <http://www.ct.gov/deep/cwp/view.asp?A=2586&Q=589622>.

¹³ Permit 015-0299, Part III(H)(4).

I. The proposed Unit 5 air permit would result in a dramatic increase in Connecticut GHG emissions.

CT DEEP’s draft permits for Unit 5 will result in increased GHG emissions on the order of a million tons per year CO₂e.

Proposed Unit 5 has a worst-case-scenario GHG emission rate of approximately 1.66 million tons per year CO₂e according to PSEG,¹⁴ and CT DEEP’s draft permits would actually set a slightly higher limit of 1.67 million tons per year.¹⁵ This level of annual GHG emissions would vastly exceed the recent GHG emissions associated with Bridgeport Harbor Station Unit 3, the coal-fired unit that Unit 5 is proposed to replace. Over the past five years, Unit 3 has had actual emissions in CO₂e tons per year of 156,454 (2012), 765,427 (2013), 910,432 (2014), 692,803 (2015), and 242,327 (2016), for an average annual rate of 553,489 CO₂e tons per year across that time period.¹⁶ That means that PSEG could operate Unit 5 in full compliance with the draft permits and its CO₂e emissions could actually triple relative to operation of Unit 3.

PSEG attempted to obscure this fact by presenting the following table to the Connecticut Siting Council, comparing emissions between Units 3 and 5¹⁷:

TONS PER YEAR EMISSION RATES COMPARISON			
Pollutant	Unit 3 Actual Emission Rates Adjusted to 80% Capacity Factor (tons/yr)	Unit 5 Projected Actual Emission Rates at 80% Capacity Factor (tons/yr)	Percent Decreases
NO _x	1,957	103	(94.7%)
SO ₂	3,145	19	(99.4%)
CO ₂	2,983,183	1,315,283	(55.9%)
PM-10	177	52	(70.6%)
CO	403	83	(79.4%)
VOC	48	30	(37.5%)

The table, which the Connecticut Siting Council adopted as a finding of fact,¹⁸ purports to show a 55.9% reduction in annual CO₂e emissions. But it has three fatal problems.

First, PSEG selected Unit 3’s 2015 emissions as the basis for comparison. But Unit 3’s 2015 emissions were higher than the unit’s 5-year average and were almost triple the unit’s 2016 emissions of

¹⁴ See *supra* note 4.

¹⁵ See *supra* note 14.

¹⁶ See U.S. EPA Air Markets Program Data, available at <https://ampd.epa.gov/ampd/>.

¹⁷ PSEG Late Filed Exhibit 4, Connecticut Siting Council Petition No. 1218.

¹⁸ Siting Council Decision at ¶ 126.

242,327 tons CO₂e. And in any event, Unit 3's actual, unadjusted 2015 emissions were not the almost three million tons appearing in the table but 692,803 tons CO₂e – almost a million tons less than Unit 5 would be allowed to emit in a year under CT DEEP's draft permits.

Second, PSEG adjusted the Unit 3 emissions to reflect an 80% Capacity Factor. But Unit 3 has not operated anywhere near an 80% capacity factor over the last six years for which data are readily available, and PSEG has presented no evidence to suggest that it ever will in the future. ISO-New England's ("ISO-NE") dispatch algorithms mean that older, more expensive, coal-fired units like Unit 3 generally have capacity factors of less than 20%. In fact, over the past six years, Unit 3's *highest* annual capacity factor was 25% in 2014.¹⁹ And Unit 3's actual capacity factor in 2015 – the year PSEG selected for comparison, and a relatively high-emission year – was a mere 19%.²⁰ And its capacity factor in 2016 was a mere 6%.²¹

Third, PSEG adjusted the Unit 5 emissions to an 80% capacity factor as well. But PSEG is seeking, and CT DEEP is proposing to grant, terms that would allow Unit 5 to operate as a base load unit with a capacity factor approaching 100%. PSEG's adjustment to 80% capacity therefore obscures its true potential emissions of over 1.6 million tons CO₂e per year. If PSEG wishes to present its emissions to regulators adjusted to an 80% capacity factor, then the terms of its permits should limit its operation to an 80% capacity factor.

The fact is that PSEG is proposing to retire a seldom-operated unit that has a high per-MWh CO₂e emissions rate but a relatively low annual emissions rate and to replace that unit with one that has a relatively low per-MWh CO₂e emissions rate but a high annual emissions rate. As proposed, CT DEEP's draft permits for Unit 5 would result in a dramatic annual CO₂e emissions increase, likely on the order of at least 1,000,000 tons per year.

II. The proposed Unit 5 air permit would violate the GWSA.

If CT DEEP approves the draft air permits for Unit 5, the result will be an annual increase in GHG emissions during periods when Connecticut is instead required by law to steadily and dramatically reduce its GHG emissions.

The GWSA sets mandatory GHG emissions reduction goals of 10% below 1990 levels by 2020 and 80% below 1990 levels by 2050.²² Recently, however, statewide GHG emissions have been on the rise, in violation of the GWSA. CT DEEP acknowledged that GHG emissions were on the rise in its *2013 Connecticut Greenhouse Gas Emissions Inventory*, which stated that "[b]etween 2012 and 2013, there was a slight uptick in economy-wide emissions for both the consumption- and generation-based accounting methodologies."²³ A more recent report using data from the United States Environmental

¹⁹ See *supra* note 9.

²⁰ *Id.*

²¹ *Id.*

²² Conn. Gen. Stat. § 22a-200a.

²³ Available at

http://www.ct.gov/deep/lib/deep/climatechange/2012_ghg_inventory_2015/ct_2013_ghg_inventory.pdf.

Protection Agency's State Inventory Tool – the same tool Connecticut uses for its GHG accounting and reporting²⁴ – assessed 2014 GHG emissions as well and found that from 2012 to 2014, Connecticut's statewide GHG emissions had increased by 4.4%.²⁵ In fact, the report found that Connecticut's 2014 emissions exceeded the state's target for emissions in 2020 by approximately 1.5 million tons CO₂e.²⁶ Finally, the report found that statewide GHG emissions through 2015 appeared to be increasing even beyond 2014's noncompliant levels.²⁷ In light of such evidence, DEEP cannot authorize new in-state emissions at the levels contemplated in the draft air permit without directly violating the GWSA.

Accounting models afford PSEG no refuge from the conclusion that Unit 5 would violate the GWSA under CT DEEP's proposed permits. Connecticut has indicated support for a consumption-based approach rather than an in-state generation approach in accounting for electric-sector CO₂e emissions for purposes of assessing GWSA compliance.²⁸ But nowhere in PSEG's Air Permit Application was there any mention of Unit 5's potential effect on overall regional power-sector GHG emissions, the information that would be necessary for CT DEEP to determine Unit 5's effect on CT's share of energy consumption with the ISO-NE footprint. Absent this information, the best CT DEEP can do is to assess Unit 5 on an in-state generation accounting model (as PSEG did in its Siting Council Petition) in order to determine GWSA compliance. And an in-state generation assessment shows only that Unit 5 would add 1,000,000 tons to Connecticut's CO₂e emissions annually. At a time when Connecticut's GHG emissions are already increasing, another million-ton increase would effectively destroy Connecticut's chances of achieving its statutory GHG-reduction mandate in 2020, if not beyond.

To summarize, approval of CT DEEP's draft permits would result in a net addition of 1,000,000 tons of CO₂e emissions per year to Connecticut's emissions portfolio and would therefore explode Connecticut's chances of complying with the GWSA's mandatory emissions-reduction target of 10% by 2020.²⁹ In other words, approval of these permits would violate the GWSA.³⁰

²⁴ See CT DEEP, *Taking Action on Climate Change: 2014 Progress Report* at 6, note 5 (Jun. 2, 2014), available at http://www.ct.gov/deep/lib/deep/climatechange/2011progressreport-2014-10-27/taking_action_on_climate_change_-_2014_progress_report_-_final.pdf.

²⁵ Acadia Center, *New Analysis Shows Connecticut's Greenhouse Gas Emissions Have Increased Since 2012; No Longer on Track to Meet State's 2020 Target* (May 23, 2016), available at <http://acadiacenter.org/new-analysis-shows-connecticuts-greenhouse-gas-emissions-have-increased-since-2012-no-longer-on-track-to-meet-states-2020-target/>; see also Acadia Center, *Updated Greenhouse Gas Emissions Inventory for Connecticut* (June 13, 2016), available at <http://acadiacenter.org/wp-content/uploads/2016/06/CT-GHG-Emissions-Inventory-Report-2.pdf>.

²⁶ *Id.*

²⁷ *Id.*

²⁸ Connecticut Governor's Council on Climate Change, *GC3 Exploratory Report* at 33-34 (2016), available at http://www.ct.gov/deep/lib/deep/climatechange/gc3/gc3_exploratory_report_2016.pdf.

²⁹ Conn. Gen. Stat. § 22a-200a.

³⁰ *Id.*

III. An appropriate declining annual emissions cap would ensure GWSA compliance.

Examples from Massachusetts show that a declining annual emissions cap applied to Unit 5 through its air permit would allow CT DEEP to ensure that Connecticut can meet the GWSA's emission-reduction mandates.

Like Connecticut, Massachusetts has a Global Warming Solutions Act that sets mandatory GHG emission-reduction levels, most notably 25% below 1990 levels by 2025 and 80% below 1990 levels by 2050.³¹ The Massachusetts Department of Environmental Protection ("MassDEP") has determined that an annual declining GHG emissions cap imposed on a generating facility can be a viable method for ensuring GWSA compliance in the absence of more comprehensive, economy- or sector-wide controls.³² Importantly, as should be the case here, MassDEP imposed these controls separately from, and without reliance on determinations made by the state siting board regarding potential GWSA compliance.³³

Including a declining annual GHG emissions limit in any air permit granted for construction and operation of Unit 5 would allow CT DEEP to ensure compliance with the GWSA. Instead of the flat 1,700,000 tons per year CO₂e limit in CT DEEP's current draft permit, CT DEEP should impose a thoughtful schedule of emissions limits that declines over time and is tailored to the GWSA's 2020 and 2050 targets. Such a schedule should begin with no more than a status quo limit of about 554,000 tons per year CO₂e based on Unit 3's five-year GHG-emissions average.³⁴ From there, the schedule should ratchet down at a level sufficient to ensure Connecticut meets its 2020 emission limit, and then at a rate that ensures Connecticut will likewise meet its 2050 limit. For the reasons set forth above, anything less than this would violate the GWSA.

³¹ See M.G.L. c. 21N.

³² See, e.g., MassDEP, *Final Air Quality Plan Approval, West Medway Generating Station* at 2-3 (Dec. 19, 2016), available at <http://www.mass.gov/eea/docs/dep/air/approvals/final2016/exelonwm-faqpa.pdf>. The Footprint Power facility in Salem, Massachusetts is also subject to a facility-specific declining annual emissions cap designed to ensure GWSA compliance in the absence of more comprehensive, economy- or sector-wide controls. See Final Decision, *In the Matter of the Initial Petition and Application of Footprint Power Salem Harbor Development LP for a Certificate of Environmental Impact and Public Interest*, Docket EFSB 13-1 (granting Footprint Power's application subject to conditions including a declining annual emissions cap), available at <http://170.63.40.34/DPU/FilerRoomAPI/api/Attachments/Get/?path=EFSB+13-1%2f22514efsbfnrc.pdf>.

³³ While supportive of the imposition, in the absence of broader emissions controls, of facility-specific declining emissions caps for new electricity generators in Massachusetts, CLF has appealed the cap proposed by MassDEP for the Exelon West Medway II facility on the basis that the cap, as structured, is too permissive such that it would not serve to limit emissions—potentially at all—over the life of the proposed plant.

³⁴ By ensuring that emissions are limited in the near term to no more than current site emissions, DEEP would ensure that the cap resulted in actual volumetric in-state emissions reductions and would thus avoid repeating a key deficiency in the Exelon West Medway II cap imposed by MassDEP.

IV. CT DEEP is the appropriate agency to ensure power generators' compliance with the GWSA.

The GWSA binds the state of Connecticut to “reduce the level of emissions of greenhouse gas ... [n]ot later than January 1, 2020, to a level at least ten per cent below the level emitted in 1990.”³⁵ CT DEEP is the agency with the greatest responsibility for bringing the state into compliance: it determines GHG levels, it is the designated recipient of reports from the Governor’s Committee on Climate Change, it has the responsibility of reporting actual emissions reductions to the Connecticut General Assembly, and it has a mandate to recommend to relevant state agencies the actions necessary for the state to achieve GWSA compliance.³⁶ Although the Siting Council must also consider the GWSA’s GHG-emission-reduction mandates, CT DEEP is the agency most integral to the state’s GWSA compliance.³⁷ Given its primacy in GWSA implementation, then, CT DEEP is not bound by any Siting Council decision regarding the potential compliance of Unit 5 with the GWSA. This is true for several reasons.

First, on its face, the Siting Council Decision does not preclude CT DEEP from imposing more stringent limitations on Unit 5 through its air permit program. The Siting Council Decision states based on insufficient analysis that Unit 5 would be consistent with the GWSA simply because of “increased fuel efficiency of the technology used, the selection of natural gas as the primary fuel and the retirement of BHU #3.”³⁸ But those elements alone do not in any way guarantee that operating Unit 5 will decrease, rather than dramatically increase, Connecticut emissions. Indeed, in support of its finding, the Siting Council Decision erroneously adopted PSEG’s table claiming a 55.9% reduction in CO₂ emissions would result from replacing Unit 3 with Unit 5.³⁹ CLF has already explained the faulty accounting and false comparisons that severely undercut these conclusions.

Even if one were to overlook these flaws, nothing in the language of the Siting Council Decision purports to limit CT DEEP’s regulatory powers to ensure GWSA compliance through duly issued air permits. That is consistent with the Siting Council’s role under the Public Utility Environmental Standards Act, which is to exercise “jurisdiction over the *siting* of generating facilities” – not their air emissions.⁴⁰ And CT DEEP’s central role in implementing the GWSA (not to mention the GWSA’s enactment in the same chapter of the General Statutes as CT DEEP’s air permitting program) dictates that it is up to CT DEEP to ensure GWSA compliance through its air permits.⁴¹ CT DEEP appears to have implicitly recognized that it retains this authority, as despite its integral statutory role in implementing the GWSA, its comments to the Siting Council omitted reference to the Act.⁴² As is described above, to

³⁵ Conn. Gen. Stat. § 22a-200a.

³⁶ Conn. Gen. Stat. §§ 22a-200a & 200b.

³⁷ The Connecticut Siting Council is housed by statute within CT DEEP “for administrative purposes only” but is insulated by statute from the normal management structure and functions of CT DEEP. Conn. Gen. Stat. § 16-50j.

³⁸ See *supra* note 8.

³⁹ See *supra* note 18.

⁴⁰ Conn. Gen. Stat. § 16-50k(a).

⁴¹ Conn. Gen. Stat. ch. 446c; Conn. Gen. Stat. § 22a-184.

⁴² See May 4, 2016 letter from Frederick L. Riese, Senior Environmental Analyst, CT DEEP, to Robert Stein, Chairman, Connecticut Siting Council, *available at*

achieve real emissions reductions will require CT DEEP either to deny PSEG air permits for Unit 5 or to impose declining annual GHG emission limits sufficient in the near-term to meet Connecticut's 2020 mandate and beyond that, through 2050.

Additionally, nothing in the Public Utility Environmental Standards Act gives the Siting Council the power to determine a facility's ultimate compliance with the GWSA.⁴³ If a facility like Unit 5 could not *possibly* comply with the GWSA, that impossibility would provide grounds for the Siting Council to deny its approval.⁴⁴ But nothing in the Act or its implementing regulations gives the Siting Council jurisdiction to determine GWSA compliance beyond that bare minimum.⁴⁵ The Siting Council Decision's statement regarding GWSA compliance should receive no weight, given that the Siting Council's limited jurisdiction does not extend to GHG emissions.

Under Connecticut law, it is up to CT DEEP to ensure compliance with the GWSA through its air permitting regime. With respect to Unit 5, ensuring GWSA compliance means either denying air permits or imposing GHG emissions limits much more strict than those that appear in CT DEEP's draft permits.

Conclusion

CT DEEP's draft air permits for Bridgeport Harbor Station Unit 5 would result in a significant increase in statewide GHG emissions - -approximately 1,000,000 tons of CO₂e – at a time when not only sound policy principles but also binding state law require that GHG emissions be reduced. CLF therefore respectfully requests that CT DEEP either deny air permits for Unit 5 or dramatically reduce the annual CO₂e emissions cap and impose declining annual CO₂e emissions limitations in order to assure that the state can comply with the GWSA.

Sincerely,



Max Greene
Staff Attorney
Conservation Law Foundation
mgreene@clf.org
401-351-1102 x2013

http://www.ct.gov/csc/lib/csc/pending_petitions/2_petitions_1201through1300/pe1218/partiesandintervenors/pe1218-sacrcdpi-deep-bridgeport.pdf.

⁴³ Conn. Gen. Stat. § 16-50k.

⁴⁴ See Conn. Gen. Stat. § 16-50k(a) (for facilities proposed to be located "at a site where an electric generating facility operated prior to July 1, 2004," "the council shall ... approve by declaratory ruling ... *unless the council finds a substantial adverse environmental effect*" (emphasis added)).

⁴⁵ See Conn. Gen. Stat. ch. 277a; Regulations of Conn. State Agencies subtit. 16-50j.