

STATEMENT OF DALE T. RACZYNSKI, PE

I, Dale T. Raczynski, P.E., hereby state as follows:

1. I am a Massachusetts licensed Professional Engineer in Environmental Engineering and a Principal of Epsilon Associates, Inc. (“Epsilon”). I hold a B.S. in Chemical Engineering and have 34 years of professional experience as an air pollution control engineer.
2. I have over 30 years of experience in engineering and environmental consulting with a primary specialty in air quality engineering and consulting. I have assisted with permitting efforts at a variety of energy facilities including two other proposed clean wood fueled power plant projects.
3. I have been working with Palmer Renewable Energy, LLC (“PRE”) since 2006 with respect to air quality and permitting issues, including providing air quality environmental engineering services, permitting services and expert testimony with respect to the 38 megawatt biomass energy facility that PRE intends to construct in Springfield, Massachusetts (the “Plant”).
4. I worked on permitting issues for the Plant before state agencies, including, but not limited to, the 2008 Major Comprehensive Plan Application, the Amended Non-Major Comprehensive Air Plan Approval Application (9/30/2010) and the Notice of Project Change in 2010.
5. I provided testimony in the adjudicatory hearing conducted by the Massachusetts Department of Environmental Protection (“MassDEP”) which upheld PRE’s June 30, 2011 Air Plan Approval.
6. In addition, I testified before the City Council and Zoning Board of Appeals.
7. I also provided Affidavits in the Land Court case in which Judge Sands overturned the ZBA decision and re-instated PRE’s building permits. Judge Sands concluded that the Plant will not engage in “incineration” and “will not emit poisonous gases.” Palmer Renewable Energy, LLC v. Zoning Bd. of Appeals of Springfield, 12 PS 461494 and 12 PS 468569 (AHS), (Mass. Land Ct. August 14, 2014), *affirmed by Palmer Renewable Energy, LLC v. Zoning Bd. of Appeals of Springfield*, (Mass. App. Ct. Rule 1:28) 14-P-1630 (September 8, 2015); *review denied* (October 30, 2015). The Appeals Court affirmed Judge Sands’ decision. The Supreme Judicial Court rejected the City Council and Petitioner’s application for further appellate review.

8. The Plant will be an electric energy generating facility.
9. The Plant will be located on approximately seven acres of an existing 13 acre industrial facility located at 1000 Page Boulevard in Springfield, Massachusetts ("Site").
10. Abutting parcels to the Site include a Western Massachusetts Electric ("WEMCO") service facility and electric transmission lines. When the Plant is operational, it will provide electricity directly to the regional electric grid via an electrical switching station.
11. The Plant will be located on Cadwell Drive not far from the interchange between Route 291 and Route 20.
12. The Plant will have on-site driveways, parking, loading and unloading areas with hydraulic truck tippers for unloading fuel. The green wood chip fuel will be stored in a three-sided storage building. The Plant will have a conveyor system to bring the fuel from the storage building into the boiler building.
13. The Plant will have an advanced stoker boiler. The stoker boiler will combust the green wood chip fuel to generate steam. The steam will be piped to a steam turbine generator, which will produce electricity for transmission to the regional electric grid.
14. The steam driven turbine at the Plant will generate 38 megawatts of electricity.
15. One megawatt is about the amount of electricity consumed by 1000 homes.
16. Other equipment at the Plant includes an air cooled condenser system, advanced air pollution control equipment, a 275 foot tall stack to release and disperse exhaust gasses, a storage silo for lime and ash, and an aqueous ammonia tank.
17. At the time PRE applied for its special permit from the City Council in 2008, PRE proposed to use recycled wood derived from construction and demolition waste as fuel.
18. When PRE filed its Notice of Project Change in September, 2010, the project proposed to use only green wood chips as fuel. With this new fuel source, the state did not require PRE to obtain a solid waste approval because green wood chips are not considered a waste.
19. PRE included all of the additional air pollution controls that were required when the Plant was going to use construction and demolition waste. When it was approved, PRE's permit set a nationwide standard for the most stringent air pollution control equipment for a green wood fired biomass energy plant to

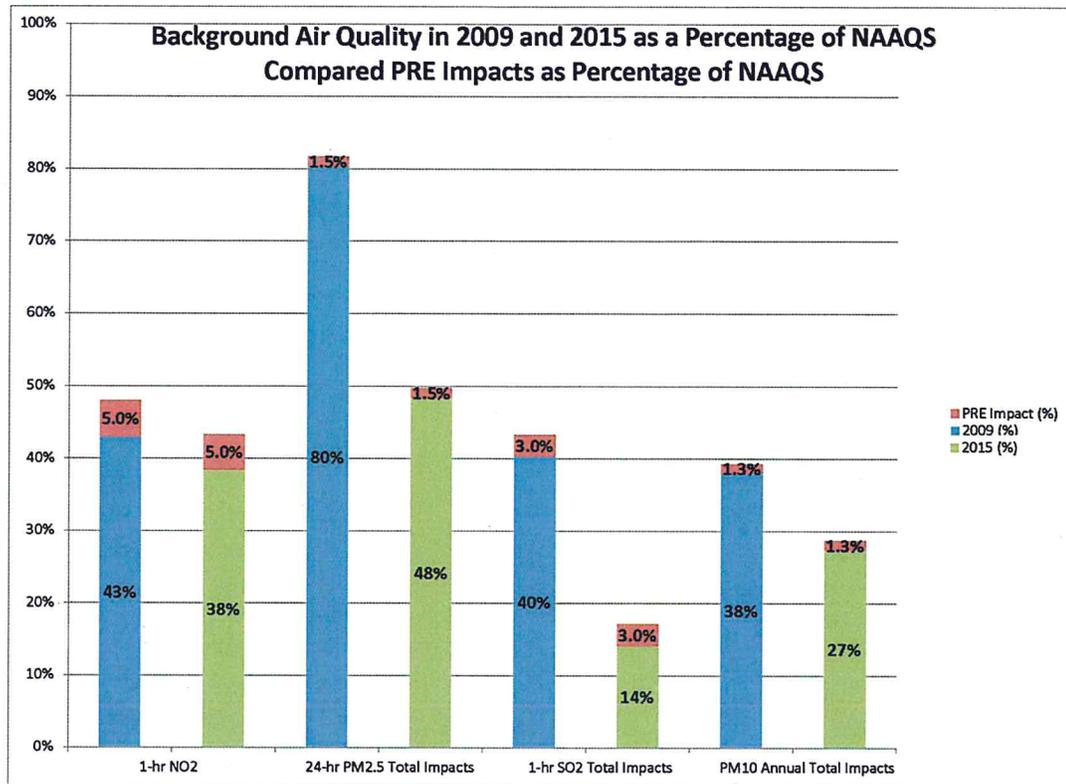
include a dry scrubber, fabric filter, oxidation catalyst and Selective Catalytic Reduction (SCR) system. The dry scrubber and fabric filter reduce acid gases and control particulate matter (PM) emissions, including heavy metals to very low emission rates. The SCR system removes (nitrogen oxides) NO_x, and the oxidation catalyst removes carbon monoxide (CO) and volatile organic compounds (VOC), including toxic organics.

20. PRE complied with the enhanced public participation protocols of the state's Environmental Justice Policy, including providing public notice of the project in Spanish, allowing an extended comment period, and conducting a public hearing in the community. In addition, though it was not required, PRE also performed an "enhanced analysis" under the Environmental Justice Policy to assess multiple air impacts and data on baseline public health conditions. The PRE enhanced analysis incorporated an analysis of technical, site planning and operational alternatives to reduce impacts as well as on-site and off-site mitigation measures to reduce multiple impacts and increase environmental benefits in the community.
21. Some of the comments MassDEP received during the comment period on the draft Air Plan Approval claimed that the PRE Plant was an incinerator and required site assignment. In its response to comments on the draft Air Plan Approval, MassDEP stated "PRE has proposed to only burn clean wood and not solid waste, therefore it is not necessary for the facility to receive a site assignment."
22. On June 30, 2011, MassDEP issued an Approval to Construct authorizing PRE to build the facility as a power plant utilizing a solid fuel to generate steam to power an electricity generating turbine. A copy of the Approval to Construct and the Response to Comments document are available on the MassDEP website at: <http://www.mass.gov/eea/agencies/massdep/about/contacts/palmer-renewable-energy-llc.html>.
23. After MassDEP issued the Approval to Construct, certain project opponents, including some of the Petitioners to the Public Health Council appealed the permit. The Petitioners made many of the same claims in the appeal that they made to the Public Health Council, including assertions that the Plant will cause a condition of air pollution in Springfield.
24. In the adjudicatory hearing on their appeal, the Petitioners submitted testimony from Dr. Jonathan Levy, a professor of environmental health at Boston University. Among other things, the Petitioners argued through Dr. Levy, that the National Ambient Air Quality Standards ("NAAQS") were not sufficiently protective of vulnerable communities.
25. I submitted pre-filed testimony in support of PRE, as did Dr. Peter Valberg, a principal at Gradient and a former member of the faculty at the Harvard School of Public Health.

26. The Presiding Officer received all of the evidence and determined that the NAAQS are “specifically designed to account for particularly susceptible subpopulations and areas that are disparately impacted by pollution,” and that “the PRE emissions would not create unreasonable health risks.”
27. Commissioner Kenneth Kimmel issued a Final Decision on September 11, 2012 adopting the Presiding Officer’s decision finding that the Approval to Construct complied with the law and regulation. A copy of the Final Decision, including the Recommended Final Decision, is attached as Exhibit A.
28. Pursuant to Special Terms and Conditions in the Approval of Construct, the Plant places all conveyors and transfer points for the wood inside a fully enclosed building with a water spray dust suppression system to control air contaminant emissions.
29. The Air Plan Approval contains a Noise Impact Analysis and imposes conditions including limits on noise levels from the facility specifically designed to mitigate any nuisance from noise including “Noise Mitigation Controls” to govern hours of delivery, require a stack silencer, and controls on noise from on-site mobile equipment. (Special Terms and Conditions 25-28). The maximum noise increase at any residential receptor is 3 dBA above the existing ambient levels, which is a very small increase and will not create any nuisance conditions. A noise testing program will be required to demonstrate compliance with approved noise levels from the facility.
30. The Plant also has procedures in place to address the potential for odors from the wood fuel. The Approval to Construct only permits PRE to store a 4.5 days supply of wood. The Plant must following a first-in/first out approach to avoid any potential decomposition of stored wood to ensure there will not be odors.
31. The Air Plan Approval requires stack testing during commissioning and annually, as well as Continuous Emissions Monitoring Systems (CEMS) for nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (PM) and ammonia (NH₃).
32. Although the Plant is not a major source of NO_x, PRE volunteered to offset any ozone impacts from its NO_x emissions. Under Special Conditions 40 of the Air Plan Approval, PRE will calculate the total combined mass-based NO_x emission rate for the preceding ozone season (May 1 through September 30), and then purchase mass-based NO_x emission reduction credits for the amount of NO_x emissions.
33. During the permitting process before MassDEP, Epsilon modeled the emissions from the Plant, including PM_{2.5}, with the average 24-hour background and annual

background concentrations from three prior years (2007-2009) to assess compliance with the NAAQS set by the U.S. Environmental Protection Agency under the Clean Air Act. NAAQS are stringent health-based standards that are specifically designed, to protect public health within an adequate margin of safety, with consideration of the most vulnerable groups of the population. Epsilon's modeling demonstrated that the Plant emissions combined with the background air quality were below all of EPA's then current annual NAAQS, including the NAAQS for PM_{2.5} of 15 µg/m³.

34. In December 2012, after MassDEP issued PRE's Approval to Construct, EPA adopted a lower standard of 12 µg/m³ for the annual average NAAQS for PM_{2.5}.
35. Using the background conditions PRE used in its Notice of Project Change, the PM_{2.5} air quality impacts from the Plant combined with background conditions in Springfield are also below the new lower NAAQS for an annual average of 12 µg/m³ for PM_{2.5}.
36. To prepare for the January 20, 2016 public hearing, Epsilon reviewed the most recent air quality data for the Springfield area from 2010 through 2014. The air quality data from monitors near the project site shows considerable decline in the concentration of PM_{2.5} in the average 24-hour background and annual background concentrations. See Table 1 in Exhibit B. When the estimated worst case emissions from the Plant are combined with the most recent three years of data, the project is well below the NAAQS for annual average PM_{2.5} adopted by EPA in December, 2012.
37. In addition to PM_{2.5}, Epsilon reviewed current background data for the five other "criteria pollutants" regulated by NAAQS set by EPA, including SO₂, NO₂, PM₁₀, CO and lead. Similar to PM_{2.5}, there has been a general decline in the background concentration of the criteria pollutants in the Springfield area, and throughout the state. The chart below illustrates that due to improving background conditions, the project will be well below the NAAQS for SO₂, NO₂, PM₁₀, and PM_{2.5}. The chart also shows the minor contributions from the Plant for these criteria pollutants.



38. In the Air Permit Approval, MassDEP concluded that the “air contaminant emissions from the proposed PRE project will not cause or significantly contribute to violations of the NAAQS for SO₂, NO₂, PM₁₀, PM_{2.5}, CO and lead.” Based on my review of the most recent data for background conditions for the criteria pollutants in Springfield and the estimated worst case emissions from the Plant, this conclusion is still accurate. See Tables in Exhibit B for recent monitoring data for SO₂, NO₂, PM₁₀, PM_{2.5}, and Ozone.
39. As part of the permit application process with MassDEP, PRE performed air modeling to demonstrate compliance with applicable MassDEP regulatory standards, specifically compliance with the MassDEP’s air toxic ambient air guidelines (e.g. Allowable Ambient Limits (“AAL’s”) and Threshold Exposure Levels (“TELs”)). The AALs and TELs are designed to be protective of adverse health effects among members of the general public, include potentially susceptible individuals. PRE calculated worst case emissions of air toxics including Hazardous Air Pollutants (“HAPs”) and ammonia, and conducted air dispersion modeling to assess ambient impacts to determine compliance with the air toxic ambient air guidelines. The results show that the Plant will not result in an exceedance of the ambient air guidelines for any air toxic or HAP.

40. PRE also modeled contributions from mobile sources and determined that the Plant will neither cause nor contribute to a violation of the NAAQS in the terrain surrounding the project site. Gradient utilized the detailed information on contributions from mobile sources as part of its Health Risk Assessment. To mitigate emissions from mobile sources associated with the operation of the Plant, PRE voluntarily agreed to diesel retrofits for 25 diesel trucks owned by Palmer Paving or Northern Tree Service, and/or municipal trucks. The retrofits will include Catalyzed Diesel Particulate Filters (CDPF), which will reduce PM, CO, and VOC emissions from trucks. Unlike the stack from the Plant which effectively disperses emissions over a larger area, emissions from mobile sources can have a more direct impact in the immediate area. This mitigation effort will decrease the potential emissions contribution from mobile sources in the area around the Plant. Regardless, with or without this additional mitigation, the emissions from mobile source are well within all health based guidelines.
41. In addition to the control technologies utilized at the Plant and the Conditions in the Air Plan Approval, PRE agreed to provide \$2 million to the City of Springfield as mitigation for the project. As a condition of PRE's Approval to Construct issued by MassDEP, \$1.33 million in mitigation will be dedicated specifically to funding local health improvements in the Springfield community.
42. At the suggestion of the Massachusetts Department of Public Health, the Air Plan Approval imposes a "post-construction air monitoring" protocol to measure PM_{2.5} at the fence-line of the property. This monitoring data will be publicly accessible to inform the community about the extent of any impact from the Plant to the immediate neighborhood.
43. Section 1511.1 of the Springfield Zoning Ordinance ("Ordinance") establishes that the City of Springfield uses compliance with the MassDEP air pollution regulations as the standard for determining compliance with the Performance Standards to protect against noxious, hazardous or offensive uses with respect to air pollution. Since the Plant has an Approval to Construct from MassDEP that complies with the laws and regulations under the Massachusetts and federal Clean Air Acts, the Plant complies with the performance standards for air pollution under the Ordinance and is categorically not "noxious, hazardous or offensive" as a matter of law.

Based on the foregoing and my years of experience working on this project, it is my professional opinion that the Palmer Renewable Energy, LLC project will not result in a nuisance or be harmful to the inhabitants, injurious to their estates, dangerous to the public health, or be attended by noisome and injurious odors.


Dale T. Raczynski, P.E.

EXHIBIT

A

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

THE OFFICE OF APPEALS AND DISPUTE RESOLUTION

July 9, 2012

In the Matter of
Palmer Renewable Energy, LLC

OADR Docket No. 2011-021 & -022
Springfield, MA

RECOMMENDED FINAL DECISION AFTER REMAND

INTRODUCTION

These consolidated appeals concern the Conditional Approval to Construct for the Comprehensive Plan Approval (“Permit” or “CPA”) that was issued pursuant to 310 CMR 7.02 by the Western Regional Office of the Massachusetts Department of Environmental Protection (“MassDEP” or “Department”) for the power plant proposed by Palmer Renewable Energy, LLC (“PRE”) at 1000 Page Boulevard, Springfield.¹ The plant is designed to generate electricity from the combustion of wood, making it a biomass energy source. The appeals are being pursued by the Conservation Law Foundation (“CLF”), on behalf of: itself and its members, the Toxics Action Center (“TAC”) and its members, Arise for Social Justice (“Arise”) and its members, and a Citizen Group, consisting of sixteen citizens of the Commonwealth (all petitioners are collectively “the Petitioners”). The members of the Citizen Group reside as follows in these municipalities: eight in Springfield, two in Chicopee, one in Westfield, one in Longmeadow, two in Leverett, one in Whately, and one in Indian Orchard.

¹ Because the appeals have been consolidated, they will be referred to herein as a single appeal.

CLF is a nonprofit environmental advocacy organization with offices throughout New England. Arise is a “non-profit, low-income, membership, anti-oppression advocacy group in Springfield, Massachusetts that aims to build awareness and political power for the poor.” Arise is located in Springfield, less than three miles from where the plant would be constructed. Bewsee Aff., p. 1.² TAC is an environmental group that works with communities to prevent and cleanup pollution at the local level. TAC is located in Boston.

The site is presently owned by Palmer Paving Corporation. An existing asphalt plant will remain on site. Approximately seven of the existing thirteen acres at the site will be dedicated to the biomass facility. The asphalt plant will continue operating, but the biomass facility will displace an asphalt recycling operation currently located on the northern part of the site. The site is bounded by Page Boulevard (Route 20) and a Friendly’s Restaurant to the south, Cadwell Drive to the east (a private roadway accessing a Western Massachusetts Electric Company (WMECO) service facility and a printing company), and WMECO transmission lines and the Route 291/Route 20 interchange to the west. Electricity generated from the plant will be supplied to the regional grid via an on-site or off-site switch gear and connection to the abutting 115 kV WMECO transmission lines.

The Permit was required under 310 CMR 7.02(1)(b) because the proposed plant would emit contaminants to the ambient air. PRE filed an application for Comprehensive Plan Approval under 310 CMR 7.02(5)(a). See Permit, p. 17. The Permit was issued following a lengthy permitting process. See Permit, pp. 1-66. As originally proposed in 2008, the plant was to be a 38 megawatt biomass-fired plant, using construction and demolition debris as its principal fuel. Permit, p. 1. It was classified as a “major source” with a potential to emit more than 50 tons per year (or “tpy”) of nitrogen oxides (NOx) and more than 100 tons of carbon monoxide

² “Aff.” shall refer to affidavits and “PFT” shall refer to pre-filed testimony.

(CO). Id. at 2; 310 CMR 7.02; 310 CMR 7.00: Appendix C (definition of Major Source). In response to regulators and the public, PRE later revised its application to eliminate the use of construction and demolition debris and proposed green wood chips derived from tree pruning and land clearing as its primary fuel source. The change enabled PRE to reduce its potential emissions below the major source thresholds and obtain “non-major source” classification. See 310 CMR 4.10(2)(b) and 4.10(2)(c) (discussing non-major and major CPA category descriptions).

The plant is presently designed to generate 35 megawatts of electricity from green wood chips. Permit, p. 2. The Permit specifies the types of wood that must be used, limiting the facility to using “clean wood fuel,” as defined in the Permit. Generally, no forest timber may be harvested for the purpose of PRE’s use. The Permit not only details the types and sources of wood that can be used and not used, it also requires monitoring, testing, and record keeping to ensure compliance with the clean wood and source specifications. Permit, p. 14.

The Petitioners claim that the plant will emit harmful air pollutants, adversely impacting individuals, including some of the Citizen Group’s members, who live close to the plant. The Petitioners add that some of the individuals who live in proximity to the plant are particularly susceptible to harm because they suffer from asthma, other respiratory illnesses, cardiovascular disease, or age-related disabilities. In their Notice of Claim, the Petitioners contend that because of the plant’s proximity to particularly vulnerable individuals “no conceivable permutation of this air permit for a utility scale biomass power plant using existing technology at this particular location could be consistent with the Department’s statutory obligations to protect against damage to the environment and public health.” CLF Notice of Claim, p. 9.

In particular, the Petitioners assert that the Permit will allow the plant to exceed various emission thresholds for “PM2.5 particulates” and cause or contribute to a condition of air pollution, constituting a violation of 310 CMR 7.02(3)(j)(3). PM2.5 particulates are known as air pollutants with a diameter of 2.5 micrometers or less. These particles generally come from activities that burn fossil fuels, such as traffic, smelting, and metal processing. The Petitioners also contend that the plant will emit more carbon monoxide than projected, requiring PRE to be permitted as a major source, instead of a non-major source. Lastly, the Petitioners contend that the Permit inadequately addressed potential greenhouse gas (“GHG”) emissions because MassDEP did not perform a Best Available Control Technology (“BACT”) analysis and did not comply with the Global Warming Solutions Act.³

The parties submitted written testimony and exhibits and elected to have this appeal resolved without a hearing and cross examination of the witnesses. See 310 CMR 1.01(13)(g). PRE and MassDEP previously moved to dismiss the appeals on numerous grounds, including standing. The Petitioners opposed those motions. After reviewing the pleadings and applicable law and hearing argument on the issues, I recommend that MassDEP’s Commissioner issue a Final Decision upholding the Permit and allowing MassDEP’s and PRE’s motions to dismiss with respect to standing. The MassDEP decisional law on this standing issue is split and ambiguous. Given this, my recommendation is primarily grounded in the plain meaning of the

³ “BEST AVAILABLE CONTROL TECHNOLOGY means an emission limitation based on the maximum degree of reduction of any regulated air contaminant emitted from or which results from any regulated facility which the Department, on a case-by-case basis taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems and techniques for control of each such contaminant. The best available control technology determination shall not allow emissions in excess of any emission standard established under the New Source Performance Standards, National Emission Standards for Hazardous Air Pollutants or under any other applicable section of 310 CMR 7.00, and may include a design feature, equipment specification, work practice; operating standard, or combination thereof.” 310 CMR 7.00 (definition of BACT).

statutory and regulatory bases asserted by Petitioners for standing (G.L. c. 30A §10A and 310 CMR 1.01(6) and(7)) and two recent decisions from the Supreme Judicial Court.⁴ See Board of Health of Sturbridge v. Board of Health of Southbridge, 461 Mass. 548 (2012); School Committee of Hudson v. Board of Education, 448 Mass. 565 (2007). The Citizen Group could have attempted to intervene in the Permit proceedings under Matter of Riverside Steam & Electric Co., Docket No., 88-132, Decision and Order on Motions to Intervene (July 15, 1988) but it failed to do so. In sum, I have concluded that there is no constitutional, statutory, or regulatory right supporting the Petitioners' standing for an administrative appeal. Analysis of the applicable statutory language demonstrates that the prior MassDEP line of decisions finding no standing under G.L. c. 30A § 10A is more persuasive than the Riverside line of cases. This outcome pertains solely to the Petitioners' rights for administrative review of the Permit, and not whatever legal recourse may exist outside of the administrative realm. See e.g. G.L. c. 214 § 7A (right of action for citizen groups to bring claims in the superior court when damage to the environment is occurring or is about to occur); Ten Persons of the Commonwealth v. Fellsway Development, LLC, 460 Mass. 366 (2011) (discussing scope of c. 214 § 7A and allowing a claim to proceed against Department of Conservation and Recreation).

In addition, I find a preponderance of the evidence shows that the Permit does not violate Massachusetts regulatory and statutory provisions, as alleged by the Petitioners. First, I find that the Permit sufficiently regulates emissions of PM2.5, avoiding a condition of air pollution as alleged by the Petitioners. The PM2.5 cumulative emissions in the area will be below the current primary National Ambient Air Quality Standards ("NAAQS") and even the lower NAAQS

⁴I previously made this recommendation in a Recommended Final Decision. The Commissioner, however, subsequently issued an Interlocutory Remand Decision stating that he was taking the issue of standing under advisement pending a resolution of the appeal on the merits. The standing analysis below varies in some respects from the prior Recommended Final Decision, but reaches the same result.

standards that are recommended to be more protective of the public health. PRE's PM2.5 emissions will represent a very small fraction (.16%) of the total cumulative PM2.5 emissions. The primary NAAQS are specifically designed to be protective of the public health, with an adequate margin of safety. The public health is defined broadly to include particularly susceptible populations, such as people living in urban areas with respiratory and cardiovascular impairments. The primary NAAQS are derived from robust scientific and policy analyses that are based upon the entire spectrum of scientific research, with input from a broad range of stakeholders, including an independent scientific and policy group. Compliance with the NAAQS under these circumstances demonstrates that the Permit conditions will not allow PM2.5 emissions that cause or contribute to a condition of air pollution. PRE's compliance with the NAAQS was bolstered by a site specific risk assessment, also showing that PRE's emissions will not cause or contribute to a condition of air pollution.

Second, MassDEP and PRE properly calculated the plant's potential to emit carbon monoxide, or CO. The Permit contains a federally enforceable limit on the amount of CO that may be emitted and requires continuous monitoring and record keeping for such emissions. The potential to emit calculations were also derived from the most representative data available.

Third, MassDEP sufficiently exercised its discretion in not requiring a BACT analysis for GHG emissions. The U.S. Environmental Protection Agency ("EPA") recently issued a three-year regulatory deferral for BACT analysis by biogenic sources of GHG, like PRE. The deferral was issued to allow EPA time to determine how to properly account for GHG emissions from biogenic sources, given that the GHG emissions would occur through natural decomposition processes. Massachusetts law does not specifically require that biogenic sources of GHG perform a CO2 BACT analysis. Indeed, the Massachusetts BACT definition is based upon

pollutants that are regulated under the Federal Clean Air Act but presently there is a regulatory deferral for biogenic sources of GHG.

For all of the above reasons, I recommend that MassDEP's Commissioner issue a Final Decision dismissing the appeal and upholding the Permit.

BACKGROUND

Under 310 CMR 7.02(3)(j)1, PRE was required to ensure that the proposed plant's emissions would not result in air quality exceeding either the Massachusetts or National Ambient Air Quality Standards ("NAAQS"). NAAQS are health based standards established under the Federal Clean Air Act that are designed to preserve public health and protect sensitive subpopulations including people with diseases (e.g. asthma, cardiovascular disease), children, and the elderly with an adequate margin of safety as stated in the Federal Clean Air Act. Permit, p. 2; see 42 U.S.C. 7409; 40 CFR 50.⁵

Under the Permit, the plant's emissions are projected not only to comply with the current NAAQS, but also to be below the Clean Air Act Advisory Committee's lowest proposed new particulate matter NAAQS. These are the same limitations advocated by the New England Environmental Commissioners and endorsed by the United States Environmental Protection Agency's ("EPA") Clean Air Scientific Advisory Committee. The proposed NAAQS include an acceptable range of emissions, and it is undisputed that the plant's allowable emissions will be below the bottom of the range. MassDEP's regulations provide, in part, that a permit "will be issued by the Department where: 1. The emissions from a facility do not result in air quality exceeding either the Massachusetts or National Ambient Air Quality Standards." 310 CMR 7.02(3)(j)1. To ensure compliance in the future, the Permit established detailed monitoring requirements.

⁵ See generally <http://www.epa.gov/ttn/naaqs/>

In addition to achieving compliance with the NAAQS, the Petitioners do not contend that the plant's emissions will exceed Ambient Allowable Limits ("AALS") or Threshold Effects Exposure Limits ("TELS"), both of which are thresholds established by MassDEP to protect against health effects from non-criteria pollutants. Permit, p. 32. Indeed, the emissions allowed under the Permit will satisfy all applicable legal thresholds.

The Department also required PRE to meet BACT for specified emissions. BACT is an emission limitation based on the maximum degree of reduction of any "regulated air contaminant emitted from or which results from any regulated facility which the Department on a case-by-case basis, taking into account energy, environmental, and economic impacts, determines is achievable for such facility" 310 CMR 7.00; see supra. at n. 3.

The plant proposal was also reviewed by the Secretary of the Executive Office of Energy and Environmental Affairs ("EOEEA") pursuant to the Massachusetts Environmental Policy Act ("MEPA"), G.L. c. 30 §§ 61-62H, and its regulations. PRE filed an Environmental Notification Form ("ENF") with the Secretary, pursuant to 301 CMR 11.03(7), because the plant would exceed the 25 megawatt threshold. Those regulations did not require the filing of an Environmental Impact Report ("EIR"). Even though not required, PRE also submitted a greenhouse gas emissions analysis pursuant to the EOEEA Greenhouse Gas Emissions Policy (or "GHG Policy"). The Secretary of EOEEA concluded that the GHG analysis complied with the basic requirements of the GHG Policy. The Permit incorporated mitigation measures to reduce GHG emissions. PRE also submitted a health risk assessment, which concluded there would be no adverse effect on the public health.

Although the EOEEA Environmental Justice Policy (October 2, 2002) does not apply here because certain MEPA thresholds were not triggered, the permitting process included

enhanced public participation and enhanced analysis of impacts and mitigation. Permit, p. 3.

Although not required by regulation or statute, the EOEEA Secretary stated that MassDEP would make the draft Permit available for public comment, which MassDEP did. Notice of the hearing was published in at least three local newspapers. A public hearing was held on April 5, 2011 at a local public school, and the Department extended the public comment period from April 9, 2011 to April 29, 2011.

Most, if not all, of the sixteen individuals in the Citizen Group, in addition to many other individuals, separately provided written or verbal comments during the permitting process and at the April 5, 2011 public hearing. The Citizen Group itself, however, had not formed at that time, and no comments were submitted by the group. The group was not constituted until approximately July 20 or 21, 2011, the latter date being the deadline for appealing the Permit. In addition to submitting comments, CLF moved on behalf of itself to intervene in the ongoing permitting process. The Department never acted on the motion.

MassDEP issued the Permit on June 30, 2011. CLF and TAC filed their separate appeals on July 21, 2011. CLF's appeal was filed on behalf of itself and its members, Arise, and the Citizen Group. Since then, the appeals were consolidated and CLF counsel entered an appearance on behalf of TAC. Appended to CLF's Notice of Claim were affidavits from the members of the newly formed Citizen Group, claiming that they "intend to intervene in the Department of Environmental Protection proceeding regarding a Conditional Comprehensive Plan Approval for Palmer Renewable Energy, LLC on the issue of damage to the environment, and elimination or reduction thereof, and as set forth in the Motion to Intervene, with Conservation Law Foundation serving as my authorized representative."

BURDENS OF PROOF, STANDARD OF REVIEW, AND WITNESSES

As the party challenging MassDEP's issuance of a permit, the Petitioners have the burden of going forward by producing credible evidence in support of their position. Matter of Town of Freetown, Docket No. 91-103, Recommended Final Decision (February 14, 2001), adopted by Final Decision (February 26, 2001) ("the Department has consistently placed the burden of going forward in permit appeals on the parties opposing the Department's position."). So long as the initial burden of production or going forward is met, the ultimate resolution of factual disputes depends on where the preponderance of the evidence lies. Matter of Town of Hamilton, Docket Nos. 2003-065 and 068, Recommended Final Decision (January 19, 2006), adopted by Final Decision (March 27, 2006).

"A party in a civil case having the burden of proving a particular fact [by a preponderance of the evidence] does not have to establish the existence of that fact as an absolute certainty. . . . [I]t is sufficient if the party having the burden of proving a particular fact establishes the existence of that fact as the greater likelihood, the greater probability." Massachusetts Jury Instructions, Civil, 1.14(d).

The relevancy, admissibility, and weight of evidence that the parties seek to introduce are governed by G.L. c. 30A, § 11(2) and 310 CMR 1.01(13)(h)(1). Under G.L. c. 30A, § 11(2):

[u]nless otherwise provided by any law, agencies need not observe the rules of evidence observed by courts, but shall observe the rules of privilege recognized by law. Evidence may be admitted and given probative effect only if it is the kind of evidence on which reasonable persons are accustomed to rely in the conduct of serious affairs. Agencies may exclude unduly repetitious evidence, whether offered on direct examination or cross-examination of witnesses.

Under 310 CMR 1.01(13)(h), "[t]he weight to be attached to any evidence in the record will rest within the sound discretion of the Presiding Officer. . . ."

The Petitioners submitted testimony from the following witnesses.

1. Bruce A. Egan. Dr. Egan is an air pollution specialist with over 40 years of experience. He has a bachelor's and master's degree with specialty in fluid dynamics and thermodynamics and a master's and doctorate degree in environmental health sciences. He is president of Egan Environmental, Inc.
2. Jonathan Levy. Dr. Levy holds a bachelor's degree in applied mathematics and a doctorate in environmental health, health policy, and management. He is employed as a professor of environmental health with Boston University and also works on an adjunct basis at the Harvard School of Public Health.
3. Donna Hawk. Ms. Hawk is a registered respiratory therapist and certified asthma councilor who is employed with Baystate Medical Center, Springfield. She has been employed in the respiratory and pulmonary care field for approximately 30 years.

PRE provided testimony from the following witnesses:

1. Peter A. Valberg. Dr. Valberg is a public health professional who has worked in the field for approximately forty years. He was a faculty member at the Harvard School of Public Health for approximately twenty years. He holds bachelor's, master's, and doctorate degrees in physics and a master's degree in human physiology and inhalation toxicology. He is a principal at Gradient, a health risk environmental consulting firm.
2. Dale Raczynski. Mr. Raczynski has served as a principal of Epsilon Associates since 1997, supervising a team of air quality engineers. He is a registered professional engineer and holds a bachelor's degree in chemical engineering. He has approximately thirty years of experience.

MassDEP introduced testimony from the following witnesses:

1. Carol Rowan West. Ms. West has served since 1985 as Director of MassDEP's Office of Research and Standards. She has approximately thirty years of experience and holds a bachelor's degree in microbiology and a master's degree in environmental health. She has fully completed coursework towards a doctorate in toxicology.
2. Courtney A. Danneker. Ms. Danneker has been employed with MassDEP for approximately five years as an environmental analyst, working primarily on air quality related matters. She held a similar position for five years with the Pennsylvania Department of Environmental Protection. She holds a bachelor's degree in mechanical engineering.

DISCUSSION

I. The Petitioners Do Not Have Standing

Standing "is not simply a procedural technicality." Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667, 672 (1975). Rather, it "is a jurisdictional prerequisite to being allowed to press the merits of any legal claim." R.J.A. v. K.A.V., 34 Mass. App. Ct. 369, 373 n.8 (1993); Ginther v. Commissioner of Insurance, 427 Mass. 319, 322 (1998) ("[w]e treat standing as an issue of subject matter jurisdiction [and] ... of critical significance"); see also United States v. Hays, 515 U.S. 737, 115 S.Ct. 2431, 2435 (1995) ("[s]tanding is perhaps the most important of the jurisdictional doctrines").

In Save the Bay, the Supreme Judicial Court emphasized the practical importance of standing:

Whether a party is properly before a tribunal to invoke its judicial powers affects the good order and efficiency with which the matter

proceeds. We emphasize that the Department in these hearings was engaged in adjudicatory proceedings wherein the legal rights and duties were to be determined and that therefore appropriate limitations could properly be placed on those persons to intervene The multiplicity of parties and the increased participation by persons whose rights are at best obscure will, in the absence of exact adherence to requirements as to standing, seriously erode the efficacy of the administrative process. We do not say that increased citizen participation is bad. On the contrary, such interest ensures full review of all issues. However, to preserve orderly administrative processes and judicial review thereof, a party must meet the legal requirements necessary to confer standing.

Save the Bay, 366 Mass. at 672 (emphasis added).

Here, neither the applicable air pollution control statute nor the regulations contain provisions specifically addressing standing for administrative appeals of air permits. See G.L. c. 111 §§ 142 A-J; 310 CMR 7.00. Given this, the Citizen Group relies upon the state administrative procedure act, G.L. c. 30A §10A, as an alleged basis for standing; and all Petitioners rely upon MassDEP's rules for adjudicatory proceedings, 310 CMR 1.01, for standing.

MassDEP decisional law on standing under G.L. c. 30A § 10A is conflicting and ambiguous.⁶ Moreover, it does not address the full extent of the Citizen Group's argument. I therefore begin my analysis with the applicable statutes and regulations in order to establish the foundation and parameters for my recommended decision. I then address prior MassDEP decisions. I undertake my analysis mindful of the balance between the importance of rights of participation in administrative proceedings and the need for participants to meet the legal requirements for standing. Save the Bay, 366 Mass. at 672 (emphasis added).

⁶ See infra. at pp. 16-30.

Standing Based on G.L. c. 30A § 10A

The Citizen Group contends it has standing to appeal the Permit pursuant to G.L. c. 30A, § 10A, which provides:

Notwithstanding the provisions of section ten, not less than ten persons may intervene in any adjudicatory proceeding as defined in section one, in which damage to the environment as defined in section seven A of chapter two hundred and fourteen, is or might be at issue; provided, however, that such intervention shall be limited to the issue of damage to the environment and the elimination or reduction thereof in order that any decision in such proceeding shall include the disposition of such issue. . . . The intervention shall clearly and specifically state the facts and grounds for intervening and the relief sought, and each intervening person shall file an affidavit stating the intent to be part of the group and to be represented by its authorized representative. . . . Any such intervener shall be considered a party to the original proceeding for the purposes of notice and any other procedural rights applicable to such proceeding under the provisions of this chapter, including specifically the right of appeal. (emphasis added)

In interpreting and applying this provision, I have adhered to a number of bedrock principles. The primary duty in interpreting a statute is “to effectuate the intent of the Legislature in enacting it.” International Org. of Masters v. Woods Hole, Martha’s Vineyard & Nantucket S.S. Auth., 392 Mass. 811, 813, 467 N.E.2d 1331 (1984). The language of the statute is the “principal source of insight into legislative intent.” Providence & Worcester R.R. v. Energy Facilities Siting Bd., 453 Mass. 135, 142, 899 N.E.2d 829 (2009) (quoting New Bedford v. Energy Facilities Siting Council, 413 Mass. 482, 485, 597 N.E.2d 1032 (1992)). Where the words are “plain and unambiguous” in their meaning, they are viewed as “conclusive as to legislative intent.” Serilite Corp. v. Continental Cas. Co., 397 Mass. 837, 839, 494 N.E.2d 1008 (1986); see O’Brien v. M.B.T.A., 405 Mass. 439, 443-444, 541 N.E.2d 334 (1989) (“a basic tenet of statutory construction is to give the words their plain meaning in light of the aim of the

Legislature, and when the statute appears not to provide for an eventuality, there is no justification for judicial legislation”), quoting Commonwealth v. Vickey, 381 Mass. 762, 767, 412 N.E.2d 877 (1980).⁷ An administrative agency interpretation must not be arbitrary, unreasonable, or inconsistent with the plain terms of the statutory language being interpreted. Massachusetts Hosp. Ass'n v. Department of Med. Sec., 412 Mass. 340, 345-346 (1992) (If an agency’s statutory interpretation “is contrary to the plain language of the statute and its underlying purpose,” it must be rejected.)

Intervention. Here, the statutory language appears clear and capable of a rational application. The legislature sought to create certain rights of “intervention” for citizen groups in administrative proceedings occurring under G.L. c. 30A in which damage to the environment is or may be at issue. Chapter 30A does not define intervene. MassDEP points out that intervention has not been interpreted as being coterminous with initiating or requesting an adjudicatory proceeding and hearing. Instead, it means “entering a lawsuit as a third party to protect an alleged interest,” citing American Heritage Dictionary, Second College Edition (1985). MassDEP adds that as a “legal term, intervention means the procedure by which a third person, not originally a party to the suit, but claiming an interest in the subject matter, comes into the case, in order to protect his right to interpose his claim.” MassDEP Reply, p. 20 (citing Black’s Law Dictionary, 6th ed., 1990). This is consistent with the Department’s adjudicatory proceeding rules providing that any person who is not initially a party to an adjudicatory

⁷ See also Bulger v. Contributory Retirement Appeal Bd., 447 Mass. 651, 661, 856 N.E.2d 799 (2006), quoting Commissioner of Revenue v. Cargill, Inc., 429 Mass. 79, 82, 706 N.E.2d 625 (1999) (“Where, as here, the language of the statute is clear, it is the function of the judiciary to apply it, not amend it.”). Where the meaning of a statute is not plain from its language, then it is appropriate to consider “the cause of its enactment, the mischief or imperfection to be remedied and the main object to be accomplished, to the end that the purpose of its framers may be effectuated.” DiFiore v. American Airlines, Inc., 454 Mass. 486, 490, 910 N.E.2d 889 (2009) (quoting Industrial Fin. Corp. v. State Tax Comm’r, 367 Mass. 360, 364, 326 N.E.2d 1 (1975)).

proceeding may seek to intervene in it. 310 CMR 1.01(7). The Massachusetts Rules of Civil Procedure also indicate that intervention occurs when there is a preexisting legal “action” that has already commenced pursuant to Rule 3. Mass. R. Civ. P. 24. The Supreme Judicial Court recently reaffirmed this distinction between intervention versus initiating or requesting an adjudicatory proceeding or other review. See Board of Health of Sturbridge v. Board of Health of Southbridge, 461 Mass. 548, n. 19, 962 N.E.2d 734 (2012). It pointed out that under G.L. c. 30A § 14 all parties to the proceeding before the agency had the right to “*intervene*” in the proceeding for review but the right to “*bring*” the action for judicial review was restricted to aggrieved parties. Id. (emphasis in original). The right of intervention and the right to bring or initiate an appeal in the first instance are distinctly different rights. 461 Mass. at 561-62, 962 N.E.2d 745. Interveners have a right to become a party if someone with the right to appeal in fact lodges an appeal. Id. Nowhere does G.L. c. 30A § 10A provide a ten citizen group with the right to bring or initiate an adjudicatory proceeding.

Adjudicatory Proceeding. This interpretation of intervention is consistent with the plain terms of c. 30A, which provides that a citizen group may intervene in “any adjudicatory proceeding” in which damage to the environment is or may be at issue. G.L. c. 30A § 10A. “Adjudicatory proceeding” means “a proceeding before an agency in which the legal rights, duties or privileges of specifically named persons are required by constitutional right or by any provision of the General Laws to be determined after opportunity for an agency hearing.” G.L. c. 30A § 1 (emphasis added). An adjudicatory proceeding is a relatively formal adversarial process, and must comply with the requirements of G.L. c. 30A, §§ 10 and 11. Madera v. Secretary of the Executive Office of Communities & Develop., 418 Mass. 452, 458 (1994); Forsyth Sch. for Dental Hygienists v. Board of Registration in Dentistry, 404 Mass. 211, 214

(1989). Sections 10 and 11 of c. 30A set forth the procedures for an adjudicatory proceeding, including the right to present evidence, call witnesses, and cross examine witnesses. The Department's adjudicatory proceeding rules are consistent with c. 30A. They ground the definition of adjudicatory proceeding in c. 30A, providing that it is a "proceeding under G.L. c. 30A that may culminate in an adjudicatory hearing and the Commissioner's issuance of a final decision." 310 CMR 1.01 (emphasis added). The definition goes on to provide a verbatim recitation of the definition under G.L. c. 30A.

The Supreme Judicial Court recently clarified the meaning of adjudicatory proceeding under G.L. c. 30A. See Board of Health of Sturbridge v. Board of Health of Southbridge, 461 Mass. 548, 558 and n. 28, 962 N.E.2d 734, 742 (2012); School Committee of Hudson v. Board of Education, 448 Mass. 565, 576 (2007).⁸ Only five months ago the court held that an adversarial permit application process for a landfill modification was not an adjudicatory proceeding under G.L. c. 30A § 1. Sturbridge, 461 Mass at 556-59, n. 28. The court held that it was a public hearing and not an adjudicatory proceeding, as the applicable regulation "explicitly states," even though there was presentation and cross examination of witnesses, introduction of exhibits, motion practice, opening and closing statements, and a statutory statement that the board's final decision is "a final decision in an adjudicatory proceeding." Id. The court reached that conclusion based upon the nature and character of the board's proceeding. Id. at n. 28.

Similarly, Hudson involved the state Board of Education's consideration and approval of a group's application to operate a Commonwealth charter school. The board is vested with substantial discretion in deciding whether to grant a charter and what conditions, if any, should

⁸ To be clear, in this appeal the Petitioners are presently seeking administrative review, not judicial review, as in Hudson and Sturbridge. The cases are nevertheless instructive regarding what constitutes an adjudicatory proceeding and the court's affirmation that standing under c. 30A must accord with the statutory terms and not create any greater rights than appear in the statute.

be attached to the charter. Hudson, supra., at 568-76. Before issuance of the charter, the board conducted an extensive application process, which involved providing local school committees an opportunity to comment on the application, which they opposed, and holding public hearings. Id. After the board issued the charter, the school committees appealed, seeking, among other things, judicial review under G.L. c. 30A. There were no statutory or regulatory provisions permitting an appeal from the board's decision. Id. at 572.

The court concluded that the application process and the decision to grant a charter were not part of an adjudicatory proceeding under c. 30A, and thus not subject to review under c. 30A. Hudson, at 577 (“no adjudicatory proceeding occurred in the charter school application process”). The court’s conclusion was based upon the nature of the charter school application process.⁹ The court analyzed whether the proceedings were judicial or quasi-judicial in nature. It observed that the hearings were “not adversarial in nature and were not conducted as such.” Hudson, at 577. It added that “[u]nder the statutory and regulatory scheme, the board is not required to take formal testimony, hear or cross-examine witnesses, or assess the credibility of witnesses or information submitted at any public hearing. Nor is the board required to make any written decision or particular findings of fact after any public hearing. Rather, the public hearing provides an opportunity for the public, including the local school committees if they so desire, to comment on the final application for the proposed charter school.” Id. at 577-78. The court stated that if “the proceeding or hearing involves unsworn statements by interested persons advocating or disapproving the proposed new policy” rather than “sworn testimony by witnesses

⁹The court relied upon two somewhat similar decisions, where the courts analyzed the proceedings to determine whether they were adjudicatory. See Sierra Club v. Department of Env'tl. Mgt., 439 Mass. 738, 746, 747, 791 N.E.2d 325, 333 (2003) (no adjudicatory proceeding when commissioner issued findings regarding application to expand ski area); Reid v. Acting Comm'r of the Dep't of Community Affairs, 362 Mass. 136, 140, 143, 284 N.E.2d 245 (1972) (statutory public hearing held by department of community affairs was not an adjudicatory proceeding).

subject to cross-examination in a hearing preceded by specific charges,” the hearing is more likely to be legislative or regulatory, rather than quasi-judicial, in nature. Id. at 576.

Here, the Citizen Group did not become involved in this appeal until CLF filed the Notice of Claim on the group’s behalf twenty-one days after the Permit issued. The Citizen Group did not seek to intervene in the application process.¹⁰ It asserts, however, that under G.L. c. 30A §10A the right to intervene “includes the right to appeal,” and thus it has standing in this appeal. CLF Notice, p. 3. The statute and regulations are at odds with the Citizen Group’s argument.

There is no Alleged Legal Basis to Create a Right to an Adjudicatory Proceeding. G.L. c. 30A § 10A includes only the right to intervene in an adjudicatory proceeding, not the right to request or initiate an adjudicatory proceeding. According to the plain definition of adjudicatory proceeding, it is one that the agency is “required” to provide by constitutional or statutory right.¹¹ Absent a statutory right, no proceeding is “required” until the agency renders a decision that adversely and sufficiently impinges upon a legally “cognizable interest,” such as a property interest, thereby “requiring” constitutional due process protections for the holder of such right. Matter of Massachusetts Protein Products Limited Partnership, Docket No. 86-006, Final Decision (January 7, 1987); Matter of Brockton Wood, Docket No. 94-021, Final Decision (August 1, 1995) (city did not have right to adjudicatory proceeding under G.L. c. 30A § 10A to challenge air permit). Indeed, MassDEP has stated that the constitutional component of the adjudicatory proceeding definition is grounded in principles of procedural due process. See id.

¹⁰ CLF did submit a written request to intervene on behalf of its members. It is undisputed, however, that CLF constitutes a single “person” for purposes of standing.

¹¹ As discussed above, “adjudicatory proceeding” means “a proceeding before an agency in which the legal rights, duties or privileges of specifically named persons are *required by constitutional right or by any provision of the General Laws to be determined after opportunity for an agency hearing.*” G.L. c. 30A § 1 (emphasis added).

According to Protein Products, one must at least have a protected interest that is adversely and sufficiently impacted and is entitled to due process procedures to require an adjudicatory proceeding, as defined by G.L. c. 30A. Protein Products, supra. As a consequence, in Protein Products, MassDEP determined that an abutting landowner did not have standing to request an adjudicatory proceeding to challenge an air permit issued to its abutter. MassDEP found that despite the alleged air pollution from the neighboring business there was no standing to request an adjudicatory proceeding because no property interest was at stake and the abutter was not a “specifically named person” whose legal rights, duties or privileges were determined. Id.

In a more recent case involving an agency’s denial of a license to operate a collection agency, Justice Cratsley held, consistent with a long line of cited cases, that the applicant must have a property interest in a favorable agency decision and receipt of the license to be entitled to an adjudicatory proceeding under G.L. c. 30A. Cadle v. Massachusetts Div. of Banks, 2006 WL 4119647 (Mass. Super. 2006) (Cratsley, J.) (citing cases and Alexander Cella, Administrative Law and Practice § 844, at 202 (1986 & Supp.2006)). Such interest exists when there is a legitimate claim of entitlement to it. Generally there is no such claim when the agency decision whether to grant the license involves broad discretion based upon a statute or regulation that establishes subjective criteria to be met, as opposed to objective criteria, for a license interest in which the applicant does not have a “substantial vested interest.” Id. (citing cases).

From Protein Products, Brockton Wood, and Cadle (and the cases cited therein), it is evident that an agency decision on a permit application that does not detrimentally and sufficiently impinge upon a legally cognizable interest does not give rise to the “requirement” that there be an adjudicatory proceeding under G.L. c. 30A. As a consequence, the adjudicatory proceeding, by its own terms, does not commence until it is “required” by statute or

constitutional right and requested by the holder of the legally cognizable interest. To hold otherwise and conclude, as the Petitioners advocate, that an adjudicatory proceeding commenced upon receipt of the application and commencement of the application process would lead to the anomalous conclusion that in every such case the agency is “required” by statute or constitutional right to provide an opportunity for an agency hearing—even in cases where the legally cognizable interest has not been adversely impacted and thus no constitutional right arises. There is no constitutional or statutory basis for such position. Thus, absent a statutory right, there is no requirement to provide an *opportunity* for adjudicatory proceeding until the agency renders a decision that adversely and sufficiently impinges upon a cognizable interest, giving rise to procedural due process protections.¹² See Protein Products, *supra.*; Cadle, *supra.* Moreover, as discussed in Hudson and Sturbridge, the application process has no qualities resembling an adjudicatory proceeding.

Here, because there is no statutory right to an adjudicatory proceeding, it would have to be provided, if at all, pursuant to constitutional rights asserted by PRE—PRE’s constitutional rights could possibly be at stake if PRE alleged a cognizable interest that was adversely and sufficiently impacted by the Permit or a refusal to issue the Permit.¹³ The adjudicatory proceeding would thus be provided under G.L. c. 30A to protect any such rights that PRE may have had. In these circumstances, the right to an adjudicatory proceeding could thus only be

¹² It is noteworthy that in Hudson the court suggests that even if there was an actual adjudication implicit in the charter itself, it was the adjudication of the applicant’s rights, not the plaintiffs, and thus the plaintiffs have no rights for review under G.L. c. 30A. Hudson, 448 Mass. at 577.

¹³ The Petitioners could have attempted to assert a constitutional right to a hearing, but they have not done so. See Matter of Massachusetts Protein Products Limited Partnership, *supra.*; *cf.* Hudson, 448 Mass. at 577 (only “specifically named persons” are entitled to an adjudicatory proceeding under G.L. c. 30A). It is noteworthy that the regulatory definitions of adjudicatory appeal and adjudicatory hearing, 310 CMR 1.01(1)(c), are predicated on the c. 30A § 1 definition of adjudicatory proceeding. They serve to clarify the different stages of the adjudicatory proceeding once a proceeding has been sought by one having a statutory or constitutional right to such proceeding and it commences under c. 30A and Hudson.

invoked, or pursued, by PRE.¹⁴ PRE, however, did not seek an adjudicatory proceeding and thus there has been no adjudicatory proceeding into which to intervene.

This important dichotomy between intervention and standing to bring an action under c. 30A was recently reinforced by the Supreme Judicial Court's decisions in Sturbridge, 461 Mass. at 561, n. 28, 962 N.E.2d at 744, and Hudson. Indeed, in Sturbridge the plaintiffs relied upon CLF's amici brief to assert an argument similar to the one here. Id. Relying upon G.L. c. 30A § 10A, the plaintiffs argued that they had "standing to appeal" to court the permit decision the board issued after a hearing. In that hearing, the plaintiff ten citizen groups were admitted as interveners with full party status before the board. 461 Mass. at 561, 962 N.E.2d at 745. Nevertheless, the court held that they did not have standing rights to initiate an appeal to superior court because the hearing before the board was not an adjudicatory proceeding, and thus the "right of appeal" that interveners have under G.L. c. 30A § 10A did not attach. 461 Mass. at 561 and n. 28, 962 N.E.2d at 744. The court concluded that the plaintiffs would have had the right to intervene and become parties in an appeal had someone with the right to initiate an appeal done so. But they were "not entitled directly to initiate an action for judicial review." 461 Mass. at 561, 962 N.E.2d at 745. Although Sturbridge involved judicial review, the distinction between rights of intervention and standing and what constitutes an adjudicatory proceeding are relevant here. Moreover, both Hudson and Sturbridge are reminders that while rights of participation are important, the statutory language is controlling with regard to those rights.

The Citizen Group's Asserted Bases for Standing. The Citizen Group disagrees with this analysis, making a three-pronged argument in furtherance of the alleged "right to appeal." First, it points to "right to appeal" language in the last sentence of §30A, which provides: "any intervener shall be considered a party to the original proceeding for the purposes of notice and

¹⁴See Matter of Massachusetts Protein Products Limited Partnership, supra.

any other procedural rights applicable to such proceeding under the provisions of this chapter, including specifically the right to appeal.” This language does not support the group’s argument. Reading the “right to appeal” language in the context of the entire statute and according it its plain meaning, it refers to notice of rights to appeal to court after the intervener has become a party to the proceeding and an appealable final decision has been rendered.

Second, the Citizen Group claims that it must be considered as intervening in an ongoing adjudicatory proceeding. They claim that the adjudicatory proceeding commenced once PRE filed its application for the Permit and it continued until expiration of the appeal period after issuance of the Permit. Opposition, pp. 11-12. They argue that neither “the statute nor any existing regulations establishes a requirement that Section 10A Interveners file a motion to intervene prior to the issuance of the final air permit.” Opposition, pp. 12-13. The group’s argument is without merit. As discussed above, there has been no adjudicatory proceeding “required” by statute or constitutional right under G.L. c. 30A §§ 1 and 10A, and thus no rights of intervention exist. See supra, at pp. 18-20. The adjudicatory proceeding, by its own terms, does not commence until an opportunity for it is “required” by statute or constitutional right. See Protein Products, supra; Cadle, supra. There is no such requirement until a cognizable interest has been adversely impacted, requiring the opportunity for due process protection. To hold otherwise and conclude, as the Petitioners advocate, that an adjudicatory proceeding commenced upon receipt of the application and commencement of the application process would lead to the unprecedented conclusion that in every such case the agency is “required” by statute or constitutional right to provide an opportunity for an agency hearing—even in cases where the legally cognizable interest has not been adversely impacted and thus no constitutional right arises. Thus, absent a statutory right, there is no requirement to provide an *opportunity* for

adjudicatory proceeding until the agency renders a decision that adversely and sufficiently impinges upon a cognizable interest, giving rise to procedural due process protections. See id.

Third, the Citizen Group relies heavily upon the decision in Matter of Riverside Steam & Electric Co., Docket No., 88-132, Decision and Order on Motions to Intervene (July 15, 1988). Opposition, pp. 14-17. As PRE and the Department argue, the group's reliance on that decision is misplaced for several reasons. In Riverside, the citizen group formally petitioned to intervene and participated as a group in the application process prior to issuance of the permit. Upon issuance of the permit, the Department notified the group of appeal procedures. The administrative law judge found that the group could "seek[] further agency action by way of a request for an adjudicatory hearing." Here, unlike the group in Riverside, the Citizen Group cannot seek "further agency action" as a group that previously intervened. Instead, the group here is becoming involved as a group for the first time by attempting to initiate an adjudicatory appeal. Neither Riverside nor the plain meaning of c. 30A § 10A support such claim.¹⁵ PRE also persuasively added that as a matter of policy requiring intervention during the permit process has the practical beneficial effect of identifying who has rights in the proceeding, formalizing their participation, and requiring a positional statement prior to the permit's issuance.

¹⁵ Other language in the Riverside decision indicates that it is predicated on the condition that *the group* at least previously moved to intervene and participate as a group. The decision states that the c. 30A focus on a "specifically named party" to define "adjudicatory proceeding," is "not to exclude interveners in the proceeding from seeking further agency action by way of a request for an adjudicatory hearing." (emphasis added) The decision further explains that in "order to make §10A's grant of intervention fully effective, it necessarily carries with it the ability not only to intervene, but also to take the steps that are needed to continue the agency process so that the purposes of the intervention can be carried out. In this case that means that the interveners must be able to request an adjudicatory hearing, the next step in agency review of the permit decisions." (emphasis added)

Moreover, the Petitioners' reliance on Riverside is misplaced because it is not the only prior decision on this standing issue—prior decisions are generally split and ambiguous. Indeed, one line of decisions has, like Riverside, construed c. 30A §10A intervention rights quite broadly to provide standing,¹⁶ while another line of decisions seems to more closely adhere to the interpretation of the statutory language discussed above, resulting in denial of standing.¹⁷

Further, the Supreme Judicial Court's recent decisions in Sturbridge and Hudson beg the question whether Riverside and similar cases continue to be persuasive authority for the proposition that a citizen group may request an appeal when they had previously "intervened" in the permit application process. Hudson and Sturbridge, in conjunction with the definition of adjudicatory proceeding in G.L. c. 30A § 1, indicate such process is not an adjudicatory proceeding under G.L. c. 30A. Rather, there would be no adjudicatory proceeding until the party whose rights, duties, or privileges were adversely implicated by the permit could assert a constitutional right or a statutory right to an adjudicatory proceeding under G.L. c. 30A. Until

¹⁶Matter of Northland Residential Corporation, Docket No. 2003-138 and 2003-146, Motion Rulings (April 26, 2004) (allowing standing in sewer permit case based on c. 30A §10A without addressing whether the group intervened in the application process, but decision not adopted as final decision because dismissed as moot), Final Decision—Order of Dismissal (June 28, 2004); Matter of Town of Hanson, Docket No. 2000-081, Ruling on Motion to Dismiss for Lack of Standing (January 31, 2001) (finding standing based upon a combination of c. 30A §10A and 310 CMR 36.40); Matter of Rocky Mountain Spring Water Company, Docket No. 2000-106, Ruling on Motion to Dismiss (June 5, 2001) (ten citizen group allowed to appeal Water Management Act permit based on c. 30A §10A, but decision not adopted as part of final decision, which only reviewed proposed settlement) .

¹⁷See Matter of McLean Hospital Corporation, Docket No. 2006-055, Final Decision (April 15, 2008) (declining to adopt standing argument grounded in c. 30A §10A); Matter of Duffy Brothers Management Co. Inc., Docket No. 98-088, Final Decision (August 9, 1999) (appeal rights based on wetlands regulations and c. 30A §10A provided no standing to request an adjudicatory appeal when the group had not intervened in the permitting process); Matter of Nantucket Marine Dept., Docket No. 96-023, Decision and Order Re Standing (August 20, 1996) (citizen group lacked standing to initiate wetlands appeal "in the first instance"); Matter of Labrie Stone Products, Inc., Docket No. 93-066, Final Decision (February 11, 1994) (citizens group did not have standing to request appeal based on c. 30A § 10A, despite prior participation—they had the "right to intervene in an existing appeal brought by another person where damage to the environment is, or might be, in issue. However, neither G.L. c. 30A §10A nor 310 CMR 1.01(9)(f) grants to such a group any right to bring the appeal in the first instance.").

then no adjudicatory proceeding is “required” under G.L. c. 30A. This conclusion, derived here from the plain meaning of c. 30A §§ 1 and 10A, Hudson, and Sturbridge, was criticized by the administrative law judge in Riverside. She stated that it “would be wholly anomalous if, as Riverside contends, the special statute designed to allow interveners to raise issues of damage to the environment could be invoked only when an agency had denied a permit application, and the applicant appealed . . . but it could not be invoked when a permit is granted” But this assertion ignores the plain meaning of the statute and a rational basis that the legislature may have had for the plain terms—the legislature may (for example) have rationally intended to limit citizen group participation in *administrative* proceedings to intervening when the permit applicant seeks to challenge the Department’s position and obtain a result that is less protective of the environment.¹⁸ The legislature may have determined that in other administrative contexts the Department’s judgment, subject to applicable judicial review or oversight, would be sufficiently representative of the public interest. The legislature may have also determined that G.L. c. 30A should provide no greater hearing rights than what are embodied in specific program statutes or the constitution. These views are complemented by the legislature’s *simultaneous* creation of broader rights of action in G.L. c. 214 § 7A (enacted at the same time as G.L. c. 30A § 10A). There, the legislature explicitly provided citizen groups with standing to bring a claim

¹⁸ The decision relied upon by Riverside, Borden, Inc. v. Commissioner of Public Health, 388 Mass. 707, 448 N.E.2d 367 (1983), does not compel a different outcome. There, the pivotal issue was whether there were any specifically named persons whose rights, duties, or privileges were being determined. The Court found there was not when the commissioner of the Department of Public Health issued regulations banning formaldehyde insulation. There was, however, when a named supplier was required to repurchase the product from a consumer. *Id.* at 717. The same is true of Riverside’s reliance on General Chemical Corp. v. Commissioner of Dep’t of Entl. Quality Eng., 19 Mass. App. 287, 474 N.E.2d 183 (1985). In that case it was decided that a property interest was at stake and thus an adjudicatory hearing should have been provided under G.L. c. 30A § 1(1), and judicial review could proceed under G.L. c. 30A § 14. See also Forsyth Sch. for Dental Hygienists v. Board of Registration in Dentistry, 404 Mass. 211, 214 (1989) (distinguishing Milligan, the case relied upon in Riverside for a property interest being at stake, and finding no adjudicatory proceeding where board denied school’s application to amend curriculum; “the school’s right to engage in a lawful calling, however, is not equivalent to a right to practice its calling free from State regulation”).

(not intervention rights) in the Superior Court when damage to the environment is occurring or is about to occur. See G.L. c. 214 § 7A; see generally *Ten Persons of the Commonwealth v. Fellsway Development, LLC*, 460 Mass. 366 (2011) (discussing scope of § 7A and allowing a claim to proceed against Department of Conservation and Recreation). In the administrative context under c. 30A, the legislature specified that the form of participation was through intervention in existing adjudicatory proceedings. G.L. c. 30A § 10A. Had the legislature intended otherwise, it would have so stated, as it did in G.L. c. 214 § 7A. In fact, when the legislature simultaneously enacted G.L. c. 30A § 10A it referenced the definition of “damage to the environment” in G.L. c. 214 § 7A but chose to maintain the distinction of intervention versus standing that exists in the two statutes.

None of this is to say that MassDEP may not seek to create via regulations the right for a citizen group to request an adjudicatory proceeding, assuming such regulations are not contrary to MassDEP’s general enabling legislation, the more specific statutes authorizing and requiring MassDEP to regulate air pollution, or other statutes. MassDEP has done that, for example, in its wetlands program. See 310 CMR 10.05.

Standing Based on 310 CMR 1.01(6) and (7)

CLF argues that each of the sixteen individuals in the Citizen Group has standing to appeal under 310 CMR 1.01(6) and (7) based upon the “direct, personal, concrete harms” that each will allegedly suffer. Alternatively, CLF argues that these regulatory provisions provide each of the individual organizations, CLF, Arise, and TAC, with representational standing. They point out that each of the sixteen individuals are members of these organizations. With the exception of CLF, none of the sixteen individuals or groups sought to intervene in the permit

application process. Although CLF moved to intervene in the permit application process, that motion was never acted upon by MassDEP.

As PRE and MassDEP assert, there are several flaws with the Petitioners' standing arguments, rendering them without merit. Perhaps most importantly, the Petitioners have not identified a right to appeal based either on applicable regulations or statutes. As PRE and the Department argue, 310 CMR 1.01(6) does not support CLF's argument. It provides only that "[a]ny person having a right to initiate an adjudicatory appeal shall file a written notice of claim for an adjudicatory appeal." This does not create a right to appeal, and instead only specifies what one who has a right to initiate an appeal shall do to commence the appeal. The Permit itself did not create a right of appeal for the individual petitioners. Instead, it was specifically directed to PRE and stated: "if you [PRE] are aggrieved by this action you may request an adjudicatory hearing." Permit, p. 61.

Further, 310 CMR 1.01(7) does not help to sustain the Petitioners' argument. That provision explicitly applies to "Intervention and Participation." It sets forth the procedures according to which a person may move to intervene in an ongoing "adjudicatory proceeding." In addition to setting forth the formal requirements to request intervention, it also states that "[i]ntervenors shall be persons substantially and specifically affected by the adjudicatory proceeding, or persons who have the constitutional or statutory right to intervene without showing that they are substantially and specifically affected."

By its terms, this regulation creates a right of intervention in an adjudicatory proceeding, not the right to initiate an adjudicatory proceeding. The regulations provide that an adjudicatory proceeding is "a proceeding under M.G.L. c. 30A that may culminate in an adjudicatory hearing and the Commissioner's issuance of a final decision. It is a proceeding before the Department in

which the legal rights, duties or privileges of specifically named persons are required by constitutional right, by provision of M.G.L. c. 30A, or by any other provision of the General Laws to be determined, after opportunity for a Department hearing” 310 CMR 1.01(1)(c). Here, there has been no adjudicatory proceeding pursuant to c. 30A. See supra. at pp. 12-24. And no one with a right to an adjudicatory proceeding has requested such proceeding. There is therefore no basis for intervention. See e.g. Matter of Mitchell, Docket No. 98-169, Decision on Motion for Reconsideration (November 29, 1999) (ten citizen group's motion to intervene in petitioner's appeal was denied because petitioner's appeal was jurisdictionally defective, for lack of standing, resulting in no valid appeal in which to intervene).

Even if, for purposes of argument, CLF's request on behalf of itself to intervene in the application process somehow created a right to request an adjudicatory hearing for CLF,¹⁹ it has not met the standing requirement under 310 CMR 1.01(7) that it be “substantially and specifically affected.” See Matter of City of Marlborough, Easterly Wastewater Treatment Facility, Docket No. 05-193-196, Ruling on Motion to Intervene (February 3, 2006) (no standing for CLF when it failed to show concrete injury); Matter of Ipswich, Docket No. 2002-109, Decision and Order on Motions to Dismiss (November 2, 2005) (watershed association did not establish concrete injury); Matter of Quarry Hill Associates, Docket Nos. 97-110 and 97-129, Final Decision (March 11, 1998) (association did not establish injury to itself by alleging injury to its members). A party claiming that it is substantially and specifically affected by a DEP decision must show both (1) a concrete injury that it is likely to suffer as a result of the DEP's decision and (2) a nexus between the relief sought and the subject matter of the proceeding.

¹⁹ It's not clear what would be the basis of such right, but I address the claim simply for purposes of argument. Indeed, this type of claim was rejected in Sturbridge, supra., where the interveners in the application process were not allowed to take a direct appeal of the permit absent a showing of aggrievement under the applicable laws.

Matter of City of Marlborough, *supra*. The party also must show that its interests are “arguably within the zone of interests to be protected by the statute or regulation in question,” and that “the relief it seeks would alleviate the harm, or injury, that it alleges.” *Id.*

In a prior similar appeal involving a waterbody, CLF was found not to have standing because it failed to show that it would suffer a concrete injury as an organization. See Matter of City of Marlborough, Easterly Wastewater Treatment Facility, Docket No. 05-193-196, Ruling on Motion to Intervene (February 3, 2006). In Marlborough, like here, CLF submitted affidavits from some of its members who resided close to the site and claimed they would be harmed by the permitted action. There, the permitted action allowed a wastewater treatment facility to discharge certain pollutants to waterbodies near where the individuals lived and recreated (e.g., swimming, kayaking, hiking). They alleged the pollution would prevent them from doing these activities and would give off putrid odors.

CLF was found not to have shown that it is likely to suffer a concrete injury. Particularly apt here, the decision stated:

While CLF contends that the permit will harm Hop Brook, the organization has no connection to, or involvement with, Hop Brook or its ponds. By way of example only, CLF owns no property on Hop Brook; it conducts no programs, studies or other activities along the brook. Absent any kind of connection to or involvement with Hop Brook, it is impossible to find that CLF is likely to suffer a concrete injury as a result of the permit and certification. . . . The fact that CLF is an environmental organization involved in advocacy activities throughout New England simply is not sufficient to establish a concrete injury. *Nor do the affidavits from five of its members establish any injury.* The affidavits simply show that five members of CLF walk near or past Hop Brook, and that three of the five would like to use Hop Brook for other recreational activities. This fails to show that CLF has any connection to Hop Brook, or that CLF is likely to suffer any injury as a result of this proceeding. Indeed, the members' recreational activities near or around Hop Brook are wholly unrelated to CLF. (emphasis added)

Id. (citing Matter of Quarry Hills Associates, Inc., Docket Nos. 97-110 and 97-128, Final Decision (Mar. 11, 1998) (association could not establish standing by alleging injury to its members, but had to assert that it - the association - had been or may be injured by the disputed project). Similarly, in Quarry Hills it was found that “while the record is replete with assertions that individual RDBA members have already suffered unique injuries as a result of truck traffic to and from the work sites and the accompanying dust and mud, RDBA has not asserted that it has been or may be injured in any way directly or indirectly as a result of the alleged injuries to its members.” As a consequence, RDBA was found not to have shown a concrete injury.

In contrast, in similar cases involving waterbodies or watersheds the groups that had standing or intervention rights “had been formed specifically to preserve the particular watershed at issue, owned property along the disputed watershed, performed studies and conducted programs to protect the watershed, and/or actively worked to conserve and enhance the watershed.” Matter of City of Marlborough, *supra*. (citing Matter of NNB Associates, Docket No. 85-91, Decision on Status of Charles River Watershed Association, 5 MELR 1067 (Feb. 24, 1987) (watershed association allowed to intervene); Matter of Town of Hanson, Docket No. 2000-081, Ruling on Motion to Dismiss for Lack of Standing, 8 DEPR 17 (Jan. 31, 2001) (watershed association allowed to intervene); Matter of Rocky Mountain Spring Water Co., Docket No. 2000-106, Ruling on Motion to Dismiss (June 5, 2001) (petitioner watershed association permitted to maintain permit appeal)); *cf.* Matter of Massachusetts Highway Dept., Docket Nos. 96-036 and 96-041, Ruling on Request to Intervene (October 30, 1996) (intervention allowed to town where the “increased US 7 traffic will translate into intensified congestion” in town “that will have a direct, substantial and specific impact on local mobility

within the Town both by increasing queue lengths and by extending the duration of congested conditions.”).²⁰

Here, as in Marlborough, CLF merely contends that it is a regional environmental organization throughout New England, with expertise in litigation and advocacy concerning environmental issues. Likewise, the sixteen individuals assert they are members of CLF and that they will suffer health problems if PRE is allowed to operate. One individual lives just over a mile from the site, while others generally live three to four or over twenty miles from the site. CLF, however, has not alleged any distinct, concrete injury to itself.²¹

For all the above reasons, the Petitioners do not have standing based upon G.L. c. 30A or 310 CMR 1.01(6) and (7).

II. The Permit Sufficiently Regulates PM2.5

A. Introduction

The Petitioners’ primary objection to the Permit is that it allows PRE to emit an amount of PM2.5 that they contend will pose unreasonable adverse health risks, constituting a “condition of air pollution” in violation of the regulations promulgated under the Massachusetts Clean Air

²⁰See also Matter of Massachusetts Water Resources Authority, Docket No. 2003-166, Decision and Order on Motions to Dismiss and to Amend (July 8, 2004), confirmed by Recommended Final Decision, (Aug. 29, 2005), Recommended Final Decision modified by Final Decision on other grounds, (Sept. 30, 2005), aff’d sub nomine Friends of the Blue Hills v. Dep’t of Environmental Protection, C.A. No. 05-2145, Memorandum of Decision and Order on Motion for Judgment on the Pleadings (Norfolk Super. Ct., Oct. 6, 2006) (where charitable trust organized specifically to protect and preserve the Blue Hills Reservation claimed that this purpose would be frustrated and impeded by an uncompensated loss of wetlands resulting from the demolition of the Blue Hills Reservoir and its partial conversion to an underground water storage facility, it asserted a unique injury to the trust’s legal interests, and it had standing, thus, to appeal a wetlands variance allowing the reservoir work).

²¹ See also Matter of Brockton Wood Limited Partnership, Docket No. 94-021, Final Decision (August 1, 1995) (city was not aggrieved for appeal of an air permit allowing the construction of a wood fired boiler as part of an electric generating facility because the city’s conclusory statement that the permit would limit its ability to protect public health and welfare was not supported by facts showing how that responsibility was affected directly by the permit and the city did not claim that the permit affected its property interests.).

Act, G.L. c. 111 § 142A, and applicable Air Pollution Control Regulations, 310 CMR 7.00. Petitioners' Closing Reply, p. 2. The Permit, they argue, fails to account for the distinctive characteristics of the local population and the surrounding environment. They advocate an approach that focuses more on the community and not simply the pollutants being emitted. Petitioners' Closing Brief, p. 8. In particular, they contend that the local population has heightened sensibilities to PM_{2.5} because of existing abnormal health burdens and air quality that is significantly worse than most of the Commonwealth. These factors render them more susceptible to adverse health impacts from PM_{2.5}. The resulting abnormally significant adverse health consequences, they conclude, fall squarely within the regulatory prohibition against creating a condition of air pollution. See 310 CMR 7.01(1) and 310 CMR 7.02(8)(a)(7).

MassDEP and PRE disagree with the Petitioners. They claim that the projected cumulative PM_{2.5} emissions for the community fall well below the current PM_{2.5} NAAQS and even the more stringent recommended NAAQS. They argue that the NAAQS are specifically designed to protect the public health, including particularly vulnerable subpopulations, and thus compliance with the NAAQS is sufficiently protective of public health.

The Petitioners counter that compliance with the NAAQS or even the recommended NAAQS is insufficient because the standards do not take into account the particular vulnerabilities and community characteristics that render nearby residents especially susceptible. They claim that in addition to determining whether there would be compliance with the NAAQS there should have been a health risk assessment performed for the projected emissions. Petitioners' Closing Reply, p. 12. They also claim that there is "no level of PM_{2.5} emissions that will fully avoid negative human health impacts, and the high level of respiratory disease in Springfield that would lead to many experiencing negative health outcomes and exacerbated

symptoms of existing diseases as a result of additional pollution” Closing Reply, p. 12. MassDEP and PRE respond that the PM_{2.5} emissions will be reasonable based upon current scientific research and a health risk assessment was performed, even though it was not necessary.

I find that a preponderance of the evidence shows the Permit will comply with the Massachusetts Clean Air Act and the Air Control Regulations. First, the primary NAAQS are specifically designed to account for particularly susceptible subpopulations and areas that are disparately impacted by pollution. The NAAQS thresholds are set according to what is appropriate, with an adequate margin of safety, for these subpopulations and communities, not the communities with typical or average levels of pollution or existing health risks. By establishing an ambient, public health threshold, the primary NAAQS contemplate multiple source contributions and establish a protective limit on cumulative pollution levels that should ordinarily prevent an adverse air quality impact on public health. Second, although the Petitioners claim generally that the NAAQS thresholds are not sufficiently protective of them and nearby communities, they have not demonstrated specifically what is deficient about the NAAQS. They have not shown how the NAAQS fail to take into account the alleged existing inequities of various subpopulations or communities. In the absence of such showing, it should be presumed that the NAAQS adequately protect the public health. Third, a specific health risk assessment of the area was performed, and it demonstrated that the PRE emissions would not create unreasonable health risks.

B. Regulatory Framework, Findings of Fact, and Conclusions of Law

The Massachusetts Clean Air Act gives MassDEP authority to adopt regulations “to prevent pollution or contamination of the atmosphere.” G.L. c. 111 § 142A. MassDEP has the power to adopt ambient air quality standards and is required to adopt a plan to implement and

maintain the attainment of such standards, and such standards must be at least as stringent as the minimum federal standards. G.L. c. 111 § 142D. MassDEP has promulgated primary Massachusetts Ambient Air Quality Standards. See 310 CMR 6.04(2). Primary ambient air quality standards “define levels which the Department judges are necessary, with an adequate margin of safety, to protect public health.” 310 CMR 6.00. MassDEP has issued standards for PM10 but not PM2.5, the pollutant at issue here. The Massachusetts PM10 standard is equivalent to the current federal standard.

The air pollution control regulations, 310 CMR 7.00, establish a permitting program whereby persons can apply for, and receive, permission to emit various types and amounts of air pollution. 310 CMR 7.02 recites that its purpose is to provide an orderly procedure for the issuance of a plan approval for any construction, substantial reconstruction, alteration or operation of a facility through the review of a comprehensive or limited plan application. A comprehensive plan application is required for the construction, substantial reconstruction, or alteration of facilities meeting certain specified thresholds; a limited plan application is required for facilities falling below those thresholds. 310 CMR 7.02(4).

If a facility has the potential to emit greater than ten tons per year of a single air contaminant, the facility is subject to Comprehensive Plan Approval. 310 CMR 7.02(5)(a)(1). The regulations specify a number of criteria that must be met to receive plan approval. Among other things, they state that “plan approval will be issued” by MassDEP when: “1. The emissions from a facility do not result in air quality exceeding either the Massachusetts or National Ambient Air Quality Standards; . . . and 3. The emissions from the facility do not result in a violation of any provision of 310 CMR 7.00” 310 CMR 7.02(3)(j) (emphasis added).²²

²² PRE argues that if there is compliance with the NAAQS to satisfy element 1 (the more specific regulatory criteria), then as a matter of law there must not be a condition of air pollution, as proscribed by

Here, although the Permit indisputably satisfies the preceding element 1 (compliance with NAAQS), the Petitioners contend that it violates element 3 because it will allow a condition of air pollution, which is prohibited by 310 CMR 310 CMR 7.01(1), providing:

no person owning, leasing, or controlling the operation of any air contaminant source shall willfully, negligently, or through failure to provide necessary equipment or take necessary precautions, permit any emission from said air contamination source or sources of such quantities of air contaminants which will cause, by themselves or in conjunction with other air contaminants, a condition of air pollution.

The definition of air pollution in 310 CMR 7.00 reads:

AIR POLLUTION means the presence in the ambient air space of one or more air contaminants or combinations thereof in such concentrations and of such duration as to:

- (a) cause a nuisance;
- (b) be injurious, or be on the basis of current information, potentially injurious to human or animal life, to vegetation, or to property; or
- (c) unreasonably interfere with the comfortable enjoyment of life and property or the conduct of business.

MassDEP's Regulatory Charge. The Supreme Judicial Court has elaborated upon MassDEP's obligations for regulating air quality in Town of Brookline v. Commissioner of the Department of Environmental Quality Engineering, 398 Mass. 404, 411, 497 N.E.2d 9, 13 (1986). In that case a company sought an air permit for an energy plant that was to generate electricity from diesel engines. The plaintiffs claimed that the diesel emissions would cause air pollution and thus should not be permitted.

The court stated that MassDEP is "charged with evaluating the technical evidence and reaching a decision on the risk attributable to the new source. That decision includes a

the more general regulatory criteria (element 3). While I find this to be an intriguing argument, it is not necessary to resolve in this decision.

determination of the boundary within which the risk will be acceptable.” Brookline, 398 Mass. at 411, 497 N.E.2d at 13. The court acknowledged that any level of diesel emissions may create some risk, but the creation of risk that affects others is true of almost all industrial and consumer activities. Id. at 414.

The court concluded that the “Legislature did not impose a zero-risk standard, but placed the authority to regulate in [MassDEP.] The statute permits [MassDEP] broad authority to control pollution” and determine what are reasonable and unreasonable risks. Id. at p. 414. The exercise of that judgment should be upheld unless it is “patently wrong, unreasonable, arbitrary, whimsical, or capricious” Id. at 414; see also id. at 415 (agency’s method of decision making relative to assessment of risks is reviewed for whether it is “rational and conforms to the law.”). In Brookline, the court accepted MassDEP’s exercise of discretion when it relied upon a single study as the “best available evidence on the risk of cancer due to diesel exposure.” Id. at 408. From that study and other modeling information it determined that inhalation of the expected emissions would increase the risk of lung cancer for a person continuously exposed for one year by .005%, which it found acceptable. Id. at 409; see also Town of Brookline v. Commissioner of the Department of Environmental Quality Engineering, 387 Mass. 372, 387-91, 439 N.E.2d 792 (1982) (further discussing deference to agency expert decision between two conflicting choices).

Here, in the case of PM2.5, MassDEP has chosen to exercise its regulatory charge by relying upon the NAAQS to determine whether the plant will cause or contribute to a condition of air pollution. MassDEP’s approach is to examine whether the facility’s modeled emissions combined with background ambient levels will exceed the NAAQS. Rowan West PFT, p. 5; Rowan West Rebuttal PFT, p. 2. MassDEP’s method properly recognizes that not all risk of

adverse health effects from air pollution can be eliminated, and instead focuses on eliminating unreasonable risks. Rowan West PFT, p. 5. In light of the health based focus of the primary NAAQS, as discussed below, and the Petitioners failure to show that the NAAQS are insufficient, I find that MassDEP's reliance upon the NAAQS under these circumstances constitutes a proper exercise of its broad discretion, is a reasonable means for implementing its statutory and regulatory obligations, and complies with Brookline.

The NAAQS. The federal Clean Air Act, 42 U.S.C. § 7401 et seq., is the primary regulatory vehicle under which air emissions in the United States are managed. Under the Act, EPA is responsible for developing acceptable levels of airborne emissions, known as NAAQS, “the attainment and maintenance of which ... are requisite to protect the public health.” 42 U.S.C. § 7409(b)(1).

NAAQS are established on a pollutant-by-pollutant basis and are currently in effect for several air contaminants. See 40 C.F.R. §§ 50.4 and 50.5 (SO₂), 50.9 and 50.15 (ozone), 50.11 (NO_x), and 50.13(PM_{2.5}). In areas deemed to be in “attainment” for any of these pollutants, air quality meets or is cleaner than the NAAQS for that pollutant. 42 U.S.C. § 7407(d)(1)(A)(i). In “unclassifiable” areas, air quality cannot be classified on the basis of available information as meeting or not meeting the NAAQS. 42 U.S.C. § 7407(d)(1)(A)(iii). Areas may also be designated as “nonattainment,” meaning that the concentration of a pollutant in the ambient air exceeds the NAAQS for that pollutant. 42 U.S.C. § 7407(d)(1)(A)(ii).

NAAQS are further subdivided into Primary NAAQS, 42 U.S.C. § 7409(b)(1), and Secondary NAAQS, 42 U.S.C. § 7409(b)(2). Primary NAAQS are intended to protect individuals, while Secondary NAAQS are set to protect the surrounding environment. The statute defines Primary NAAQS as “ambient air quality standards the attainment and

maintenance of which in the judgment of the [EPA] Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health.” 42 U.S.C. § 7409(b) (1); Valberg PFT, p. 2. The adequate margin of safety is designed to help protect public health from unknown risks associated with the pollutant, including “uncertainties in the state of the science and the possibility of additional harms that might be identified in the future.”

Valberg PFT, p. 2. Thus, in selecting primary standards that provide an adequate margin of safety, the “Administrator is seeking not only to prevent pollution levels that have been demonstrated to be harmful but also to prevent lower pollutant levels that may pose an unacceptable risk of harm, even if the risk is not precisely identified as to nature or degree.”

Policy Assessment for the Review of Particulate Matter National Ambient Air Quality Standards (“Policy Assessment”), p. 1-3.²³ What is even more important here is that Congress defined

public health broadly. NAAQS must protect not only average “healthy individuals, but also “sensitive citizens”—children [and the elderly], for example, or people with asthma, emphysema, or other conditions rendering them particularly vulnerable to air pollution. . . . If a pollutant adversely affects the health of these sensitive individuals, EPA must strengthen the entire national standard.”²⁴ American Lung Ass’n v. EPA, 135 F.3d 288 (C.A.D.C. 1998) (citations

omitted); accord American Farm Bureau Federation v. EPA, 559 F. 3d 512 (D.C. Cir. 2009);

Valberg PFT, p. 2.

In addition, the NAAQS are designed to be protective of both short and long term health effects by using different averaging times. Such averaging times vary from 1 hour to 1 year,

²³ The Policy Assessment is available at http://www.epa.gov/ttnnaqs/standards/pm/s_pm_2007_pa.html

²⁴ See also Policy Assessment, n. 4 (“The legislative history of section 109 [42 U.S.C. 7409] indicates that a primary standard is to be set at “the maximum permissible ambient air level . . . which will protect the health of any [sensitive] group of the population,” and that for this purpose “reference should be made to a representative sample of persons comprising the sensitive group rather than to a single person in such a group S. Rep. No. 91-1196, 91st Cong., 2d Sess. 10 (1970).”).

with the 1 hour standard intended to be protective of potential short term effects and the annual average standards intended to be protective of potential long term effects. Valbert PFT, p. 2.

To establish the NAAQS the EPA Administrator must produce “criteria,” defined as the latest scientific data on “all identifiable effects on public health” caused by that pollutant. Id. § 7408(a)(2). The Administrator must then decide what margin of safety will protect the public health from the pollutant's adverse effects, both known and those that are scientifically uncertain. American Lung Ass’n, 135 F.3d 288. Then, without reference to cost or technological feasibility, the Administrator must promulgate national standards that “limit emissions sufficiently to establish that margin of safety.” Id.; see 42 U.S.C. § 7409(b)(1); American Petroleum Inst. v. Costle, 665 F.2d 1176, 1181-82 (D.C.Cir.1981) (describing NAAQS promulgation procedure); Lead Industries, 647 F.2d at 1148-50 (Congress deliberately subordinated economic and technological feasibility concerns to the achievement of public health goals).

States bear primary responsibility for attaining, maintaining, and enforcing these standards. See 42 U.S.C. § 7410. Each state is required to create and submit to the EPA a State Implementation Plan (SIP) “which provides for implementation, maintenance, and enforcement of [NAAQS] ... within such State.” Id. While states are responsible for promulgating SIPs, they must do so consistently with extensive EPA regulations governing preparation, adoption by the state, and submission to the EPA, 40 C.F.R. § 51, and all SIPs must be submitted to the EPA for approval before they become final. 42 U.S.C. § 7410(a)(1), (k)(2) & (3). Once a SIP is approved, however, “its requirements become federal law and are fully enforceable in federal court.” Her Majesty the Queen, 874 F.2d at 335 (citing 42 U.S.C. § 7604(a)).

The states are responsible for regulating “the modification and construction of any stationary source within the areas covered by the [SIP],” 42 U.S.C. § 7410(a)(2)(C), and must implement a permit program that limits the amounts and types of emissions that each permit holder is allowed to discharge, 42 U.S.C. §§ 7661a(d)(1), 7661c(a). Sources are prohibited from operating without such a permit. Virginia v. Browner, 80 F.3d 869, 873 (4th Cir.1996).

Fine Particulate Matter. This case involves the NAAQS for fine particulate matter, known as PM_{2.5}. Fine particulate matter consists of airborne particles that are 2.5 micrometers in diameter or smaller (less than one-thirtieth the thickness of a human hair). A causal relationship exists between long- and short-term PM fine exposures and mortality and cardiovascular effects and a likely causal relationship exists with respect to respiratory effects. There may be a causal relationship between fine PM and other adverse health outcomes. Rowan West PFT, p. 4.

Fine particulate matter includes both “primary” particles (e.g., carbonaceous particles and so-called “crustal” particles like dust) that pollution sources emit directly into the atmosphere, as well as “secondary” particles (e.g., sulfate and nitrate particles) that form in the atmosphere as a result of chemical reactions between PM_{2.5} precursors that sources emit. American Farm Bureau Federation, 559 F.3d at 524-26. There are many different sources of both types of particles. Power plants, diesel and gasoline powered engines in mobile sources like cars and trucks, and other industrial sources produce most carbonaceous particles; agriculture, mining, and other activities that cause soil or metals to be suspended in the atmosphere account for the crustal component. Id. The chemical precursors to secondary PM_{2.5} include sulfur dioxide (SO₂), emitted in substantial part by power plants; nitrogen oxides (NO_x), emitted in substantial part by mobile sources, power plants, and other industrial sources; and ammonia, emitted from

agricultural sources, mobile sources, and power plants. Atmospheric chemical reactions between these gases yield secondary PM_{2.5} in the form of sulfate and nitrate particles.²⁵ *Id.*

Developing NAAQS Thresholds. The specific scientific and policy processes for developing the NAAQS thresholds, like those applicable to PM_{2.5}, are scientifically rigorous and robust.²⁶ Valberg PFT, p. 2; Rowan West PFT, pp. 3-4; Rowan West Rebuttal PFT, p. 2. MassDEP actively engages in and becomes informed of those processes. Its Office of Research and Standards and Bureau of Waste Prevention, in conjunction with the Northeast States for Coordinated Air Use Management (“NESCAUM”), actively participate in the NAAQS evaluation and development processes. Rowan West PFT, pp. 5-6; MassDEP Closing Brief, p. 6, Exhibit 2.

EPA also obtains input from many diverse groups. It conducts and reviews detailed analysis of the current scientific research, including analysis with respect to thresholds for vulnerable subpopulations and determinations respecting how much weight to assign to different bodies of scientific research. American Farm Bureau Federation, 559 F.3d at 516, 524-26. The process also involves input from EPA scientists, the external scientific community, stakeholder groups, the public, and a congressionally mandated, independent panel, known as the Clean Air

²⁵ People are generally exposed to higher PM_{2.5} levels indoors than outdoors and a majority of their time is spent indoors. Valberg PFT, p. 5. PM_{2.5} can originate from indoor activities such as cleaning, cooking, baking, and frying. Indeed, there is sound scientific evidence demonstrating that indoor air exposure is more important in asthma exacerbation than outdoor exposures. Valberg PFT, p. 8.

²⁶ See In re Shell Gulf of Mexico, Inc. and Shell Offshore, Inc., OCS Appeal Nos. 10-01 through 10-04, slip. op. at 71-75 (December 30, 2010) (citing e.g. Final Rule 75 Fed. Reg. at 6478 (“The studies assessed in the ISA [integrated science assessment] and REA [risk and exposure assessment], and the integration of the scientific evidence presented in them, have undergone extensive critical review by EPA, CASAC, and the public. The rigor of the review makes these studies, and their integrative assessment, the most reliable source of scientific information on which to base decisions on the NAAQS”); *id.* at 6483 (“The Administrator’s final decisions draw upon scientific information and analyses related to health effects, population exposures, and risks; judgments about the appropriate response to the range of uncertainties that are inherent in scientific evidence and analyses; and comments received from CASAC and the public.”)).

Scientific Advisory Committee (“CASAC”). Valberg PFT, p. 2; 42 U.S.C. § 7409(d)(2).

CASAC is comprised of nongovernment scientists and technical experts selected from the medical, academic, and research communities. Valberg PFT, p. 2.

During the promulgation process EPA generates a Criteria Document that “accurately reflects the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare which may be expected from the presence of such pollutant in the ambient air.” Id. § 7408(a)(2). Although not required by the statute, in practice EPA staff also develop a Staff Paper, which discusses the information in the Criteria Document that is most relevant to the policy judgments the EPA makes when it sets the NAAQS. In setting both standards, the EPA takes into account the Criteria Document, the Staff Paper, and the recommendations of CASAC. American Farm Bureau Federation, 559 F.3d at 516. The CASAC oversees and independently reviews drafts of the various components of the NAAQS review process, including the integrated science assessment and the risk and exposure assessment. See e.g. Final Rule, 75 Fed. Reg. at 6476-77 (describing the NO₂ NAAQS review process). The EPA must review the air quality criteria and the NAAQS and revise them as necessary at least once every five years. Id. § 7409(d)(1); American Farm Bureau Federation, 559 F.3d at 516.

The NAAQS Thresholds. In 2006, EPA promulgated revised primary NAAQS for 24 hour average and annual concentrations of PM_{2.5} at 35 µg/m³ and 15 µg/m³, respectively. Since then, the PM NAAQS review has been ongoing. On April 22, 2011, EPA issued its Policy Assessment for the Review of Particulate Matter National Ambient Air Quality Standards (“Policy Assessment”) along with its regular five year review of PM_{2.5} NAAQS.²⁷ Valberg

²⁷ The Policy Assessment is available at http://www.epa.gov/ttnnaqs/standards/pm/s_pm_2007_pa.html

PFT, p. 3. The Policy Assessment is a thorough 458 page analysis of PM science and policy, which is extensively peer reviewed. Valberg PFT, p. 3. The Policy Assessment makes recommendations based on the latest scientific evidence for changes to current standards. Valberg PFT, p. 3. The Policy Assessment is “intended to ‘bridge the gap’ between the relevant scientific evidence and technical information and the judgments required of the EPA Administrator in determining whether, and if so how, to revise the PM NAAQS.” Policy Assessment, p. ES-1.

The Policy Assessment recommends that the PM_{2.5} annual standard be lowered from 15 $\mu\text{g}/\text{m}^3$ to somewhere in the range of 11 to 13 $\mu\text{g}/\text{m}^3$ and the 24 hour PM_{2.5} standard either remain the same at 35 $\mu\text{g}/\text{m}^3$ or be lowered to 30 $\mu\text{g}/\text{m}^3$. The recommendations are based upon “observational epidemiological studies that have reported statistical associations between health effects” and “PM levels below the current PM standards, and in the range of the proposed draft standards.” Valberg PFT, p. 3. Importantly here, the recommended NAAQS are in accord with what was recommended by NESCAUM, which included MassDEP. Rowan West West PFT, p. 8.²⁸

PRE’s PM_{2.5} Emissions and the NAAQS. It is undisputed that the cumulative impacts with PRE’s modeled emissions will be below not only the current NAAQS but also the recommended NAAQS. PRE’s pollutant dispersion modeling not only conformed to standard practices, it may have been more conservative than typical models. The PRE emission models

²⁸ On June 14, 2012, EPA proposed to strengthen the NAAQS for PM_{2.5} as follows: “Strengthen the annual health standard for fine particles by setting the standard at a level within the range of 12 $\mu\text{g}/\text{m}^3$ to 13 $\mu\text{g}/\text{m}^3$. The current annual standard, 15 $\mu\text{g}/\text{m}^3$, has been in place since 1997. Retain the existing 24-hour fine particle standard, at 35 $\mu\text{g}/\text{m}^3$. EPA set the 24-hour standard in 2006.” See Overview of EPA’s Proposal to Revise the Air Quality Standards for Particle Pollution. <http://www.epa.gov/pm/2012/fsoverview.pdf>

relied upon inhalation risks that would occur at the maximum point of impact, instead of the more typical reliance upon emissions at the facility's property line. The models are consistent with MassDEP and Massachusetts Department of Public Health recommendations for this plant. Rowan West PFT, p. 6. "This provides for a more health protective risk assessment." Rowan West PFT, p. 6. PRE's experts modeled *average* PM2.5 concentrations for the area within 3.1 miles of the plant to be .015 $\mu\text{g}/\text{m}^3$ on an annual average basis. This results in a PM2.5 cumulative concentration for Springfield on an annual average basis to be 9.3 $\mu\text{g}/\text{m}^3$, a level that is below both the current PM2.5 NAAQS level of 15 $\mu\text{g}/\text{m}^3$ and the recommended range of 11 to 13 $\mu\text{g}/\text{m}^3$. The modeled plant contribution will represent only .16% of the current PM2.5 levels in Springfield. Valberg PFT, p. 3. PRE's *maximum* projected PM2.5 impact is modeled to be .05 $\mu\text{g}/\text{m}^3$, for a maximum cumulative impact of 9.335 $\mu\text{g}/\text{m}^3$. Valberg PFT, p. 4.

The outcome for the 24 hour maximum emissions was similar. The PRE Risk Assessment modeled that it would be .57 $\mu\text{g}/\text{m}^3$ and the *maximum* cumulative impact for the area would be 29.97 $\mu\text{g}/\text{m}^3$ (24 hour average), which is well below the current threshold of 35 $\mu\text{g}/\text{m}^3$ and below the most conservative recommended threshold of 30 $\mu\text{g}/\text{m}^3$. Rowan West PFT, pp. 6-7. Beyond 3.1 miles from the plant, the modeled emission concentrations are even lower. See also Rowan West PFT, pp. 4-7 (summarizing PM NAAQS).

The Risk Assessment performed by PRE also modeled the impact of stack emissions on several surrounding schools. Rowan West PFT, p. 7. The highest 24 hour and annual modeled PM2.5 concentrations were at Springfield Central High School. The results were .24 $\mu\text{g}/\text{m}^3$ (24 hour average) and .04 $\mu\text{g}/\text{m}^3$ (annual average). Combining these emissions with air monitoring data from the area yielded cumulative impacts of 29.64 $\mu\text{g}/\text{m}^3$ and 10.54 $\mu\text{g}/\text{m}^3$ for the 24 hour and annual averages, respectively. Again, these levels are below the most conservative

recommended levels. These levels would represent .8% of the 24 hour cumulative particulate concentration and .4% of the annual cumulative particulate concentrations in the Springfield Central High School. Rowan West PFT, p. 7. “Stack modeling of the PM2.5 levels at 3 other nearby schools with elevated pediatric asthma prevalence rates were shown to be lower than those predicted for the Springfield Central High School.” Rowan West PFT, p. 7.

What Risk Levels are Appropriate? The Petitioners’ expert, Levy, opined and provided some supporting scientific studies showing that adverse health effects from fine particulate matter, such as PM2.5, exist below the current NAAQS and the recommended NAAQS. Levy PFT, pp. 2-3; Levy Rebuttal PFT, pp. 2-4. Levy also testified with some supporting evidence that there is a linear or other non-threshold population response at low doses of PM2.5; this simply means that presently there is no clear point at which adverse health effects become markedly less. Levy PFT, p. 3; Levy Rebuttal PFT, p. 2. Therefore, he argues that although compliance with the NAAQS is necessary it is not sufficient because of this evidence of linearity and adverse health effects below the NAAQS.

It is, however, undisputed that there may be adverse health effects from PM2.5 below even the recommended NAAQS. But simply pointing to such evidence misses the task at hand. As the Supreme Judicial Court stated in Brookline, the creation of risk to the public is true of many industrial and consumer related activities. Thus, MassDEP is charged with determining the “boundary within which the risk will be acceptable.” Brookline, 398 Mass. at 411, 414, 497 N.E.2d at 13. The “Legislature did not impose a zero-risk standard, but placed the authority to regulate in [MassDEP.] The statute permits [MassDEP] broad authority to control pollution” and determine what are reasonable and unreasonable risks. Id. at p. 414. It may be the case that no clear threshold can be identified for which adverse health effects can be avoided. American

Petroleum Institute v. Costle, 665 F.2d 1176, 1186 (C.A.D.C. 1981) (“a clear threshold of adverse health effects cannot be identified with certainty for ozone.”). Nevertheless, the threshold should generally be upheld if it is not the result of “sheer guesswork” but rather evidences that the “conclusion as to an adequate margin of safety [is based upon] a reasoned analysis and evidence of risk” American Petroleum Institute v. Costle, 665 F.2d 1176, 1187 (C.A.D.C. 1981).

EPA and others charged with the responsibility of recommending or determining the appropriate threshold have explicitly acknowledged the same type of criticism lodged by Levy. EPA staff concluded that no “discernable thresholds or exposure levels without a potential risk of adverse effect were identified in the assessed epidemiologic studies of fine particulate matter.” This is consistent with CASAC’s findings. Rowan West PFT, p. 4. But that does not lead to the conclusion that PM_{2.5} emission thresholds should be zero or even less than current or recommended thresholds. Instead, EPA has offered rational scientific and policy bases for the NAAQS thresholds. In sum, the scientific evidence is not presently strong enough to support regulating below the recommended NAAQS. EPA identified levels where the “scientific evidence of association is the strongest” between PM levels and adverse health effects (the quantitative estimate of health risk) and where there is “appreciably less confidence” in the estimates of risk because of uncertainties or limitations. Rowan West PFT, p. 4. In the Policy Assessment, EPA specifically found that “recognizing the uncertainties inherent in identifying any particular point at which our confidence in reported associations becomes appreciably less, we conclude that the available evidence does not provide a sufficient basis to consider alternative annual standard levels below 11 $\mu\text{g}/\text{m}^3$.” Valberg PFT, p. 3. CASAC, the independent scientific panel mandated by Congress, concurred with the EPA’s assessment that at 10 $\mu\text{g}/\text{m}^3$ and lower

the confidence relationship between PM fine exposures and health risk is substantially lower. Rowan West PFT, p. 5; Rowan West Rebuttal PFT, p. 1. EPA was “mindful that the [federal Clean Air Act (CAA)] requires standards to be set that are requisite to protect public health with an adequate margin of safety, such that the standards are to be neither more nor less stringent than necessary; the CAA does not require that the NAAQS be set at zero-risk levels, but rather at levels that avoid unacceptable risks to public health.” Rowan West PFT, p. 3.

There are other reasons why Levy’s criticism is problematic from a scientific and policy and permitting perspective. Valberg Rebuttal PFT, pp. 1-2; Rowan West Rebuttal PFT, p. 2. Reviewing favorable studies in isolation, as Levy does, excludes consideration of conflicting studies that do not show adverse health effects at levels below the NAAQS. In fact, Valberg pointed to studies showing that certain adverse health outcomes²⁹ either decreased, stayed the same, or had a negligible effect with *increased* PM2.5 levels. Valberg Rebuttal PFT, pp. 1-2. Such results, Valberg validly contends, point to “significant remaining uncertainties in the PM associations, and the difficulty in using them for reliable, facility-specific risk assessments.” Valberg Rebuttal PFT, p. 2. Instead, in promulgating the NAAQS and the recommended NAAQS, EPA reviewed the totality of the information, including studies relied upon by Levy, and other similar studies.³⁰ Valberg Rebuttal PFT, p. 6; Rowan West Rebuttal PFT, p. 2.

In addition to casting doubt on Levy’s testimony for the above reasons, PRE’s experts raised several scientific bases, including studies of occupational health, clinical and experimental data, and toxicological data, the omission of alternative exposures (indoor air), and potential

²⁹ The adverse health outcomes included incidence of strokes and cardiovascular disease.

³⁰ Valberg also points out that while there is evidence of association between urban air pollution and increased mortality it is difficult to disentangle to what extent the increased mortality is simply due to stresses associated with urban environments and activities or the PM2.5 per se. Valberg Rebuttal PFT, pp. 7-8.

flaws in the scientific model, that cast doubt on the theory that PM2.5 health effects follow a linear, no threshold model. Valberg PFT, pp. 4-5. I make no findings regarding whether this evidence undermines the linearity model, but recite it to show that it is not universally accepted. Valberg pointed out that the linear model relies solely on observation, epidemiological correlative studies, without incorporation of contrary evidence from laboratory experiments or toxicological principles, which support a no effect threshold. Valberg PFT, p. 4. Levy responded with some research based upon laboratory experiments or toxicological principles. And Valberg responded with other studies not accounted for in the linear model that show no linear relationship. For purposes of this appeal, it is not necessary to agree with Valberg or Levy on this linearity issue. The point is that there is additional evidence that undermines regulating below the recommended NAAQS. In addition, Valberg opined, based upon this and other evidence, that “it is not plausible that the incremental level of outdoor PM from the PRE facility in the Springfield area will lead to increases in disease statistics in the Springfield area, given that people’s everyday exposures to much higher levels do not.” Valberg PFT, p. 5.

Lastly, as in Brookline, to facilitate and contextualize risk assessment it is helpful to consider the risk at issue relative to other risks. Brookline, 398 Mass. at 415, 497 N.E.2d at 13. PRE’s expert, Valberg, provided the following examples equating the amount of PM2.5 inhaled by one individual from PRE *for a year* as equal to: (1) less than five minutes a week driving in a car on an urban freeway, (2) about three minutes a week cooking in the home, (3) less than ten minutes mowing the lawn, (4) approximately twenty minutes a month dry dusting, (5) about two hours breathing air inside of a home where someone smokes, (6) about one day inside a house with a clean burning woodstove, (7) about six hours inside a house with a traditional woodstove, (8) about five minutes a week burning candles in the home, (9) about two and one-half hours

riding New York City subways, and (10) smoking one cigarette in a seventy-five year time.

Although these analyses were provided on an individual basis and the PRE plant would expose the public, the analogies are nonetheless relevant to contextualizing and better understanding the relative risks. Indeed, a number of the referenced activities are commonly performed by large segments of the population.

Whether the NAAQS are Representative of the Springfield Area. The Petitioners' argument that MassDEP's reliance on NAAQS does not sufficiently consider the particularly susceptible subpopulations in the area is not persuasive. In order to protect the public health, the Primary NAAQS are designed to be protective of such subpopulations, not simply the average individual, with an adequate margin of safety and without regard to cost. The scientific studies and methodologies used to promulgate the NAAQS consider urban subpopulations with specific susceptibilities like those presented by the Petitioners. See e.g. Policy Assessment, § 2.1.3 (describing study methodology, including urban air studies representative of susceptible urban populations throughout the U.S.); Policy Assessment, § 2.2.1 (same); Policy Assessment, § 2.2.2 (same); Policy Assessment, p. 2-40 (specifically discussing the extent to which the Harvard Six Cities study is representative of susceptible urban populations); Policy Assessment, p. 2-40 (concluding that "study areas are generally representative of urban areas in the U.S. likely to experience relatively elevated levels of risk related to ambient PM_{2.5} exposure."). Without a sufficient showing that the NAAQS are somehow not adequately representative for this appeal, it should be presumed that they are appropriately protective of the public health. This regulatory approach is consistent with how EPA has addressed environmental justice claims arising out of Title VI in PSD appeals.³¹ Although the Petitioners have withdrawn their Title VI claim in this

³¹ See In re Shell Gulf of Mexico, Inc. and Shell Offshore, Inc., OCS Appeal Nos. 10-01 through 10-04, slip. op. at 71-75 (December 30, 2010) (Order Denying Review in Part and Remanding Permits); In re

case, the gist of their PM_{2.5} argument is nevertheless comparable to a Title VI claim. That is, they claim that they are differently situated because of their degraded environmental surroundings and because of subpopulations that are more susceptible to environmental pollution.³² Thus, they claim they will be disparately impacted.

The EPA's Environmental Appeal Board has stated that "[i]n the context of an environmental justice analysis, compliance with the NAAQS is emblematic of achieving a level of public health protection that, based on the level of protection afforded by a primary NAAQS, demonstrates that minority or low-income populations will not experience disproportionately high and adverse human health or environmental effects due to exposure to relevant criteria pollutants." In re Shell Gulf of Mexico, Inc. and Shell Offshore, Inc., OCS Appeal Nos. 10-01 through 10-04, slip. op. at 74 (December 30, 2010) (Order Denying Review in Part and Remanding Permits).³³

Here, the Petitioners have not offered any evidence demonstrating that the Primary NAAQS, including the recommended NAAQS, are somehow flawed as to the area and population affected by the plant. For example, the Petitioners have not presented any evidence

Knauf Fiber Glass GmbH, 9 E.A.D. 1, 15-17 (EAB 2000); In re Sutter Power Plant, 8 E.A.D. 680, 692 (EAB 1999) (NAAQS are the "bellwether of health protection").

³² PRE's expert, Valberg, provided persuasive evidence showing that ambient air conditions and health conditions in the affected areas are not as dire as portrayed by the Petitioners.

³³ See also "Select Steel decision" (health-based standards are "presumptively sufficient" to protect everyone's health within an adequate margin of safety but can be rebutted by a documented deficiency in the NAAQS); U.S. EPA, Office of Civil Rights, Summary of Decision on Title VI Complaint Regarding Michigan Department of Environmental Quality's Permit for the Proposed Select Steel Facility (summarizing EPA's decision in St. Francis Prayer Center v. Michigan Dept. of Environmental Quality, Title VI Administrative Complaint File No. 5R-98-R5 (1998)); Letter from Ann Goode, Director, EPA Office of Civil Rights, to Fr. Phil Schmitter, Co-Director, St. Francis Prayer Center; Sr. Joanne Chiaverini, Co-Director, St. Francis Prayer Center, and Russell Harding, Director, Michigan Department of Environmental Quality (Oct. 30, 1998) (explaining EPA's denial of Title VI complaint in EPA File No. 5R-98-R5); U.S. EPA, Office of Civil Rights, Investigative Report For Title VI Administrative Complaint File No. 5R-98-R5 (Select Steel Complaint). See [http:// www.epa.gov/civilrights/docs/ssdec_ir.pdf](http://www.epa.gov/civilrights/docs/ssdec_ir.pdf).

that the NAAQS are not derived from or based upon evidence that is sufficiently representative of the community's alleged health based susceptibilities. The presumption that the NAAQS are reasonably protective should therefore be upheld.³⁴

In addition to the Petitioners not showing that the NAAQS are not sufficiently representative, there is evidence that the Springfield area's health burden is quite similar in many respects to other urban areas in the Commonwealth. For example, various characteristics of the Springfield population, including cardiovascular hospitalization, cardiovascular mortality, and hospitalization for myocardial infarctions, have little difference from the statewide rates. Valberg PFT, p. 5. Springfield's current asthma prevalence is the same as the statewide average. Valberg PFT, pp. 5-6. Springfield is among other large urban areas (Boston, Worcester, Lawrence, Lowell, Fall River, and New Bedford) that have pediatric asthma prevalence rates that are statistically higher than the statewide average. Valberg PFT, p. 6. Valberg also demonstrated that PM2.5 levels in Springfield and Chicopee are considerably lower than several other U.S. cities and the rates in Springfield and Chicopee have been consistently trending downward since at least 1998. Valberg PFT, p. 8.

PRE's expert, Valberg, also testified that Springfield's "public health burdens are not likely related in any significant way to outdoor air quality at all, but rather to differences in health care delivery and, in the case of asthma, to indoor air quality (e.g. mold, moisture, cigarette smoking, cockroaches, deteriorating housing stock) and demographic factors (e.g.

³⁴ In the draft Title VI Guidance, the EPA's example of how the presumption could be overcome is similar to the approach taken in this case. By way of example, the EPA stated that although an area may be in attainment with the lead NAAQS, the presumption could possibly be overcome by demonstrating that abnormal lead exposure resulted from exposure to unusually high levels of lead from non-air sources, which can vary widely. Draft Title VI Guidance for EPA Assistance Recipients Administering Environmental Permitting Programs (Draft Recipient Guidance) and Draft Revised Guidance for Investigating Title VI Administrative Complaints Challenging Permits (Draft Revised Investigation Guidance) (Tuesday, June 27, 2000), 65 FR 39650, 39681.

stress, socioeconomic status, neighborhood violence, health care delivery).” Valberg PFT, p. 6. Indeed, there is sound scientific evidence demonstrating that indoor air exposure is more important in asthma exacerbation than outdoor exposures. Valberg PFT, p. 8. A recent study by the Massachusetts Department of Public Health concluded that the “prevalence of asthma was not associated with air pollution levels from stationary sources. In fact, the geographic areas which received the highest fraction of air pollutants from stationary sources had the lowest asthma prevalence.” Valberg PFT, p. 8 (citations and emphasis omitted). Levy responded that asthma prevalence is not necessarily caused by exposure to outdoor air pollution, but outdoor air pollution can exacerbate asthma.

None of this is to say that Springfield does not have a significant public health burden. Indeed, the baseline rates of many key diseases and the age-adjusted premature mortality rate are higher in Springfield and surrounding communities than in other communities around Massachusetts and the state average. Levy PFT, p. 6. Springfield also exhibits significantly greater deaths from heart disease than the Massachusetts average. Levy PFT, p. 7. Springfield also has a large number of low income residents and elevated rates of asthma, exceeding the state average for adults and children, which renders people more vulnerable to health effects of air pollution. Levy PFT, p. 7. But the primary NAAQS are specifically designed to protect these populations, and there has been no showing to the contrary.

In sum PRE’s PM2.5 emissions will comply with both the current NAAQS and the recommended NAAQS. The NAAQS are based upon a scientifically rigorous assessment of current research and they are specifically designed to protect the public health, including particularly susceptible subpopulations. Instead of isolating on one segment or body of research, they are derived from the body of research in its totality. They also importantly recognize the

inherent complexities in drawing generalizations from the entire body of scientific research but nevertheless represent a rational policy balance among competing studies with varying results. The Petitioners have not presented any evidence showing that the underlying scientific studies and the methodology employed to develop the NAAQS are not sufficiently inclusive of the characteristics that render the area residents particularly susceptible. Although the Petitioners point to some evidence of adverse health risks below the NAAQS recommended thresholds, those thresholds recognize that there is also conflicting evidence that undermines the confidence in such claims. Indeed, they recognize the scientific and policy based flaws in cherry-picking scientific studies that lead to a desired result, instead of reaching a result that is derived from and sufficiently representative of the entire body of scientific research.

For all the above reasons, I find that the Permit's compliance with the NAAQS and the recommended NAAQS for PM_{2.5} demonstrates that the Permit complies with the regulations and the state Clean Air Act and PRE will not cause or contribute to a condition of air pollution.

Health Risk Assessment. Despite the foregoing analysis, Levy contends that compliance with the NAAQS is not sufficient and that PRE should perform a health risk assessment that is specific to the community and the projected impacts. Levy Rebuttal PFT, p. 2; Levy PFT, p. 4. Levy's position misses the mark. PRE did perform a health risk assessment for many different components of PRE's modeled emissions, including the constituents of PM_{2.5}. Valberg PFT, pp. 1, 4-9; Valberg Rebuttal PFT, pp. 3-4; Motion to Dismiss, Exhibit F, Appendix D ("Health Risk Assessment (HRA) for the Palmer Renewable Energy (PRE) Non-Forest Green Wood Chips (GWC) Energy Recovery Project, Springfield, MA"). The assessment concluded that emissions from PRE "are not expected to have an adverse effect on public health in the Springfield area." Motion to Dismiss, Exhibit F, Appendix D, p. 61. "The assessment did not

find any chemical component of PRE air emissions that resulted in people being exposed to concentrations above the health-protective levels, which includes the chemicals of concern that would be part of emitted PM2.5.” Valberg PFT, p. 4. The study noted that “one year of exposure to worst case scenario PRE Project PM2.5 and NO2 concentrations is equivalent to exposures received from just a few minutes of everyday, common indoor and outdoor activities such as cooking, yard work, or driving a car.” *Id.* The assessment was performed to model the health effects of exposure to projected emissions, including PM2.5. Valberg PFT, p. 1. It was performed in accord with standard scientific protocol, in addition to draft procedures established by the Secretary of Energy and Environmental Affairs and MassDEP, in consultation with the Massachusetts Department of Public Health. Valberg PFT, pp. 1-2. It is also consistent with MassDEP and EPA guidance for assessing individual facilities of all kinds. Valberg Rebuttal PFT, pp. 5-6. The assessment demonstrated, among other things, that “ground level concentrations from [the plant’s] emissions were below levels of regulatory and health effect concern” Valberg PFT, p. 2. It “demonstrated that maximum predicted levels of specific substances associated with PRE Project air emissions would not be expected to contribute to adverse health effects among potentially affected populations.” Valberg PFT, p. 9. Consistent with the above analysis, it relied partially upon the NAAQS to determine appropriate exposure thresholds.

Levy did not perform his own risk assessment, and instead relies upon an externality model to approximate the impacts. Levy PFT, p. 8. He uses the term externality to refer to the monetized health burdens from the plant emissions, which are not reflected in the market prices for electricity. Levy PFT, p. 8. He relies upon a study he performed with respect to the Mount Tom power plant in Holyoke. He states only that the dispersion patterns would be expected to be

similar, but provides no information regarding how emissions and air dispersion patterns compare to PRE. He calculates that there will be \$2.7 million per year in health damages, the vast majority of which are attributable to PM2.5. Levy PFT, p. 8; Levy Rebuttal PFT, p. 5. He agrees there are “clear uncertainties, although many would indicate that we are possibly underestimating damages.” Levy PFT, p. 8. I attach no weight to Levy’s analysis based upon his externality model. Quite simply, there is no evidentiary foundation showing material similarities that would allow one to use that study to render opinions about the PRE plant and its emissions.

For all the above reasons, I find a preponderance of the evidence shows the Permit’s allowable PM2.5 emissions will not cause or contribute to a condition of air pollution.³⁵

III. The Permit Sufficiently Regulates the Emission of CO

The Petitioners claim that the Permit is flawed with respect to CO emissions; they argue it is based upon an inaccurate calculation of the potential for CO emissions. As presently calculated, the potential to emit and the Permit limitation for CO emissions are 81.4 tons per year (“tpy”). The Permit also contains short-term limits, providing average CO emissions be limited to 58 lb/hr for any one hour block and 35.6 lb/hr for any four hour block. MassDEP determined these limits, including the 81.4 tons per year, represent the BACT for the facility based upon review of a recently permitted facility. Raczynski PFT, p. 3.

³⁵ Although the Petitioners withdrew their claim that the Permit conditions related to PM2.5 violated Article 97 of the Massachusetts Constitution, they assert that the Air Pollution Control Regulations must be “interpreted and applied consistent with the ‘right to clean air under Article 97,’” which I have done. Article 97 provides: “The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and esthetic qualities of their environment” Mass. Const. Art. XCVII. The Petitioners do not elaborate on precisely how the regulatory interpretation should be influenced by Article 97. MassDEP and PRE both argued that there was no private right of action to pursue an Article 97 claim and such claim could not be litigated in this venue. It is not necessary to resolve these issues in light of the Petitioners’ withdrawal of the claim.

The Petitioners contend that the alleged underestimated potential to emit CO resulted in the plant being erroneously designated as a non-major source under MassDEP's plan approval regulations. They believe that a more accurate potential to emit will at least exceed 100 tpy, resulting in the need for a major source classification and review under MassDEP's comprehensive plan approval process. See 310 CMR 4.10(2)(b) and 4.10(2)(c); 310 CMR 7.00: Appendix C(1) and C(2). 40 CFR 52.21. Indeed, if the potential to emit exceeds 100 tpy, then PRE would be subject to the major source CPA process. Id. In addition, the Petitioners suggest that the potential to emit may exceed 250 tpy, thereby exceeding the 250 tpy threshold for the applicable NSR and PSD major source review.³⁶

After carefully reviewing the arguments and evidence, I find a preponderance of the evidence demonstrates that the potential to emit calculation of 81.4 tpy for CO is accurate, and thus significantly below the major source threshold of 100 tpy. The potential to emit calculation in the Permit was derived from approved methodologies and, importantly, resulted in a "federally enforceable" limitation of 81.4 tpy. Under 310 CMR 7.00, Federal Potential Emissions or Federal Potential to Emit means in pertinent part:

FEDERAL POTENTIAL TO EMIT or FEDERAL POTENTIAL EMISSIONS means the maximum capacity of a stationary source to emit a regulated pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a regulated pollutant, including air pollution control equipment and restriction on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable. To be federally enforceable, a limitation on any facility's capacity to emit a pollutant shall include testing, monitoring, and recordkeeping procedures sufficient to demonstrate compliance with the limitations.

³⁶ See 40 CFR 52.21(b)(1)(i) (defining "major stationary source" for purposes of the PSD program, under the New Source Review permitting program, with respect to pollutants, such as CO, which are in attainment). See Danneker PFT, p. 3.

310 CMR 7.00 (emphasis added); see also Weiller v. Chatham Forest Products, 392.F3d 532 (2nd Cir. 2004) (“proposed facility that is physically capable of emitting major levels of the relevant pollutants is to be considered a major emitting facility under the Act unless there are legally and practicably enforceable mechanisms in place to make certain that the emissions remain below the relevant levels”); Interim Policy on Federal Enforceability of Limitations on Potential to Emit (January 22, 1996) (<http://www.epa.gov/ttn/oarpg/t5/memoranda/pte122.pdf>).

Here, the potential to emit calculation resulted from a rigorous review process that complied with Federal Potential to Emit definition above. As in the typical case, the applicant first proposed emission rates based upon its BACT analysis performed under 310 CMR 7.02(8)(a)2. Danneker PFT, pp. 2-4. BACT generally requires that the emission rate limitation is representative of what the source and control device are capable of achieving to minimize emissions to the maximum degree possible. Danneker PFT, pp. 2-4. MassDEP reviews the proposal and, as was done in this case, may require more stringent BACT emission rates. Danneker PFT, p. 2. Here, MassDEP’s requirements resulted in significantly more stringent CO emission limits in the Permit, changing the facility designation from major to non-major. Danneker PFT, pp. 2, 4-5, 6; Danneker Rebuttal PFT, ¶¶ 4-5.

The PRE facility is a base load facility, meaning that it will generally run continuously, with minimum startups and shutdowns. Calculated potential emissions were therefore based upon maximum operational design for 24 hours a day, 365 days a year. Danneker PFT, p. 7. MassDEP appropriately considered the impact of air pollution control equipment and other physical or operational limitations because the 81.4 tpy limitation is “federally enforceable.” See supra. There is no dispute that the 81.4 tpy limitation is “federally enforceable” because it includes sufficient “testing, monitoring, and recordkeeping procedures sufficient to demonstrate

compliance with the limitations.”³⁷ 310 CMR 7.00 (definition of Federal Potential to Emit); Danneker PFT, pp. 7-8. Indeed, the Permit contains short term emission rate limits and an annual limit, requires continuous monitoring, and includes testing and recording keeping requirements, all of which enable accurate and timely compliance determinations. Danneker PFT, pp. 7-8. This “federally enforceable” designation renders it appropriate in considering potential emissions to consider “[a]ny physical or operational limitation on the capacity of the source to emit a regulated pollutant, including air pollution control equipment and restriction on hours of operation or on the type or amount of material combusted, stored, or processed” 310 CMR 7.00. In this case, such physical or operational limitations included the use of good combustion practices and use of an oxidation catalyst as a control device. Danneker PFT, p. 7. The oxidation catalyst is designed to create or facilitate a chemical reaction that will reduce the emissions of carbon monoxide. PRE will utilize combustion controls and catalysts to achieve the lower controlled emissions limit of .0365 lb/MMBtu., which is based upon Top Case BACT. Raczynski PFT, p. 4; see 310 CMR 7.02(8)(a)2 (describing Top Case BACT). The Permit limitations are based upon a projected removal efficiency of 85.4%, but the removal efficiency is not a permit condition. Raczynski PFT, pp. 3-4.

EPA has provided guidance on how to calculate potential to emit in the “NSR Manual, Appendix C.” It provides that emissions should be calculated for each emission unit using the most “representative data available.” Raczynski PFT, pp. 1-2. Elaborating upon “representative data,” it states that the types of information used to estimate potential to emit “may include: Federally enforceable operational limits, including the effect of pollution control equipment; performance test data for similar units; equipment vendor emissions data and guarantees; test

³⁷See also Guidance on Limiting Potential to Emit in New Source Permitting, dated June 13, 1989 (attached as Exhibit 2 to Danneker PFT).

data from EPA documents . . . ; AP-42 emission factors; emission factors from the technical literature; and state emission inventory questionnaires for comparable sources.” Raczynski PFT, p. 2.

Here, in addition to using a “federally enforceable operational limit” (the first item listed above in the NSR Manual, Appendix C) MassDEP and PRE relied upon “representative data” that is considered acceptable under the NSR Manual. PRE relied principally upon two forms of data considered representative under the NSR Manual: (1) boiler design data in the manufacturer’s vendor guarantee and (2) information for uncontrolled emission rates from a similar plant operated by Bridgewater Power Company in New Hampshire. Raczynski PFT, p. 2; Raczynski Rebuttal PFT, pp. 1-3; Danneker Rebuttal PFT, ¶¶ 4-5. The guarantee is sufficient and is in accord with standard practice. Raczynski Rebuttal PFT, pp. 1-3. Nevertheless, even if there were no guarantee, the data have been verified by a MA Registered Professional Engineer giving it appropriate and typical indicia of reliability. Danneker PFT, p. 5. From the Bridgewater facility, PRE provided continuously monitored operating data for uncontrolled CO emissions from the Bridgewater 15 MW biomass stoker boiler. Bridgewater was used to estimate the uncontrolled emissions because it does not use any oxidation catalysts and is similar in design and fuel source. Raczynski PFT, p. 2; Raczynski Rebuttal PFT, pp. 1-2.

The Petitioners have lodged three general attacks on the potential to emit calculation. First, they argue that uncontrolled emission estimates should have been derived from the EPA’s AP-42 emissions factors. As discussed above, the AP-42 is listed in the NSR Manual, Appendix C, as a possible source of representative data that may be used. Nevertheless, there are several reasons why the Petitioners’ argument is not persuasive.

In very general terms, AP-42 is a publication in which EPA provides information to estimate emissions of pollutants associated with a given activity. Danneker PFT, p. 3. EPA has stated, however, that it is preferable and more accurate to rely on related testing information or continuous emission monitors, as in this case. Raczynski PFT, p. 3. According to the EPA, the AP-42 should be used only as a last resort when more representative data is unavailable.

Danneker PFT, pp. 3, 5. The AP-42 introduction states that “[b]efore simply applying AP-42 emission factors to predict emissions from new or proposed sources, or to make other source specific emission estimates, the user should review the latest literature and technology”

Raczynski PFT, p. 3. That is what PRE did in this case, relying upon representative data derived from the actual design of the proposed boiler and a similar operating unit. That is the preferred methodology for calculating potential to emit. Indeed, AP-42 provides that if “representative source-specific data cannot be obtained, emissions information from equipment vendors, particularly emissions performance guarantees or actual test data from similar equipment, is a better source of information for permitting decisions than an AP-42 emission factor. When such information is not available, use of emission factors may be necessary as a last resort.”

Danneker PFT, Ex. 1, p. 3 (emphasis added).

Further, there is almost no evidentiary foundation establishing sufficient indicia of reliability for the AP-42 emission factor of .6 lb/MMBTU relied upon by Egan. I therefore attach little weight to it. In fact, PRE demonstrated that it is based upon relatively outdated information, reports from 1982 to 1998, and emission sources with significantly different designs, controls, and raw material input, all of which would be expected to skew the average. Raczynski PFT, p. 3.

The Petitioners' second argument is that the CO removal rate of 85.4% does not have a sufficient evidentiary basis and thus PRE has not demonstrated that it will achieve the controlled emission rates to determine its potential to emit. Petitioners' Closing Reply, p. 25. The Petitioners rely on information in the RACT/BACT/LAER Clearinghouse ("RBLC") as evidence that the 85.4% removal rate is unduly optimistic. This argument, however, suffers from the same general flaws as Petitioners' argument based on the AP-42 emission factors. The RBLC emission rates are not required for consideration when, as here, more representative data is available. Danneker PFT, p. 5. The RBLC information has a number of limitations for this project: it includes only projects that were subject to major new source review under the PSD program and the information it contains is not always current. Danneker PFT, p. 5. Further, as PRE points out, there are very few biomass boilers in the RBLC with oxidation catalysts. In contrast, and more importantly, PRE and MassDEP have relied upon more current and representative data from other combustion facilities that have utilized an oxidation catalyst for CO control and achieved removal efficiencies of 90% or more. Raczynski PFT, p. 6. PRE has also provided evidence from its expert and vendors of an oxidation catalyst showing the facility also has the ability to meet the 85.4% removal efficiency.³⁸ Raczynski PFT, pp. 2-3; Raczynski Rebuttal PFT, pp. 1-3. MassDEP has testified that the emission rate is technically feasible given that it will satisfy the requirements of BACT. Danneker PFT, p. 8. Although the Petitioners point generally to some facilities in other states as evidence that the CO emissions have been underestimated, there's no evidence demonstrating that those facilities are similar in all material

³⁸ Even though the Petitioners contend that some of the evidence in this proceeding was not submitted with the permit application, it may nevertheless be relied upon here because this is a de novo proceeding. Matter of Russell Biomass, LLC, Docket No. 2008-116, Recommended Final Decision Following Interlocutory Remand Decision, (July 1, 2010); Matter of Town of Hamilton, Topsfield, and Wenham, Docket Nos. 2003-065, 2003-079, and 2003-068, Recommended Final Decision, January 19, 2006, adopted by Final Decision (March 27, 2006).

respects. Indeed, they may have less strict emission limits, precluding the need for ways to limit emissions. I therefore attach very little weight to that evidence.

Lastly, the Petitioners contend that the potential to emit calculation is erroneous because it failed to include estimates of emissions during periods of the plant's startup, shutdown, and malfunction, which, they conclude, can be substantial. Petitioners' Closing Brief, p. 33. They claim, relying on Egan, that the emissions during start ups and shut downs "can be substantially higher than emissions during normal operations." Petitioners' Closing Reply, p. 25.

It is true that the potential to emit calculation does not include periods of startup, shutdown, and malfunction. Instead, the Permit sets forth a procedure for establishing short-term CO limits that will be applicable during startup and shutdown based upon tests performed within the first 180 days. Those limits will be included in the Final Approval and will be federally enforceable. Danneker PFT, pp. 8-9. The Petitioners contend that this runs afoul of MassDEP's definition of potential to emit, 310 CMR 7.00, and should be treated as part of the normal operation of a source. Petitioners' Closing Brief, p. 34. They conclude that if these potential emissions are included, the plant will be a major source because it will exceed 100 tpy.

I find that the Permit establishes a reasonable methodology to establish limits on start up and shut down and sufficiently includes the emissions in the potential to emit. Importantly, the federally enforceable limit of 81.4 tpy applies to and incorporates emissions from start up and shut downs. The continuous emissions monitor will continuously monitor emissions during all start ups and shut downs. Raczynski PFT, p. 6. Given this, waiting to establish CO short term emissions limits for startup and shutdown is consistent with permitting practices of similar facilities and will not lead to the facility exceeding a major source applicability threshold or subject the facility to NSR. Danneker PFT, p. 8. Based upon the continuous emissions

monitoring, the Permit requires that startup and shutdown limits be established in the Final Approval. Raczynski PFT, p. 9. Not including an estimate of emissions from startups and shutdowns for biomass plants is common in New England and is consistent with MassDEP practice. Raczynski PFT, p. 6; Danneker PFT, p. 9; see also Raczynski PFT, p. 8 (discussing plant identified by Egan that also did not include startup emissions). The use of actual emission data from startups and shutdowns enables MassDEP to establish meaningful short term emission limits. Danneker PFT, p. 9.

Further, PRE has provided persuasive evidence that the actual net emissions resulting from periods of startup, shutdown, and inoperation will be less than emissions during periods of operation. Thus, there is no prejudicial effect from the exclusion of these emissions at this stage. The Permit was based upon PRE's estimate that there would be 4 cold starts and 12 hot starts. Emissions can be greater during startup and shutdown because the plant is not operating at optimal efficiency. Raczynski PFT, p. 7; Danneker PFT, p. 8. A cold start occurs when the plant is first started, i.e. the stoker boiler is relatively cold from being out of service. A hot start occurs when the plant is only out of service briefly and the stoker boiler has retained heat. Cold starts are less efficient because it takes approximately 12 hours to reach full operating temperature, whereas it only takes 4 hours with a hot start. Raczynski PFT, p. 7. However, to mitigate inefficiencies during periods of startup the plant is designed with a natural gas startup burner that will facilitate significant reductions in CO emissions by employing a process that will more efficiently elevate the temperature of the stoker boiler before introducing wood as a fuel source. Raczynski PFT, p. 7. As a consequence of the technology and processes employed during startups, the "net result is that the actual amount of CO emitted per hour during start-up periods will likely be lower than the amount of CO emitted per hour during normal full

operations. Consequently, for every startup, the total amount of CO emitted per year will likely be reduced, not increased.” In addition, there will obviously be no emissions during periods when the plant is not operating. Raczynski PFT, pp. 8-9.

For the sake of argument, PRE’s expert calculated the worst case scenario for emissions resulting from startup. He calculated that in the worst case scenario startups would result in a net increase of 1.3 tpy, leaving total calculated emissions well below the major source threshold of 100 tpy. Raczynski PFT, pp. 8-9; Raczynski Rebuttal PFT, p. 4. The Petitioners arguments to the contrary are based upon significantly dissimilar CO sources, and thus are not persuasive. Raczynski Rebuttal PFT, p. 4; Danneker PFT, ¶ 6.

For all the above reasons, I find a preponderance of the evidence demonstrates that the Permit sufficiently regulates CO emissions.

IV. The Permit Appropriately Addresses Greenhouse Gas Emissions

A. MassDEP Properly Exercised its Discretion When it Did Not Require a BACT Analysis for GHG Emissions

The Petitioners assert that MassDEP was required to undertake a BACT analysis for GHG emissions as air contaminants and pollutants, pursuant to 310 CMR 7.02(8) and the federal Clean Air Act. In response, MassDEP and PRE argue that the claim has no merit because EPA has deferred implementation of the CO₂ BACT requirement for three years for biomass or biogenic projects such as PRE and MassDEP regulations and statutes do not presently require a GHG BACT analysis. There are a number of factors that lead me to agree with MassDEP and PRE.

BACT is defined as:

[A]n emission limitation based on the maximum degree of reduction of any regulated air contaminant emitted from or which results from any regulated facility which the Department, on a

case-by-case basis taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems and techniques for control of each such contaminant. The best available control technology determination shall not allow emissions in excess of any emission standard established under the New Source Performance Standards, National Emission Standards for Hazardous Air Pollutants or under any other applicable section of 310 CMR 7.00, and may include a design feature, equipment specification, work practice; operating standard, or combination thereof.

310 CMR 7.00 (definition of Best Available Control Technology).

The issue whether MassDEP was required to undertake a CO₂ or GHG BACT analysis was raised at least as early as the public comment period, and in response MassDEP stated:

The Clean Air Act Tailoring Rule would require a new facility such as PRE to conduct a BACT analysis of its GHG emissions if it began construction after July 1, 2011. However, EPA has proposed to defer the application of the Prevention of Significant Deterioration (PSD) and Title V permitting requirements to biogenic carbon dioxide (CO₂) emissions from bioenergy and other biogenic stationary sources for a period of three (3) years. If PRE begins construction before the proposed deferral becomes final, the facility would be subject to the GHG BACT review requirement.

MassDEP Motion to Dismiss, Ex. N, p. 39. MassDEP also added that there are no “specific greenhouse gas emissions standards or reduction targets applicable to biomass projects at this time.” MassDEP Motion to Dismiss, Ex. N, p. 37-39.

The Tailoring Rule discussed above went into effect on January 2, 2011. Under the Tailoring Rule, new and modified facilities with annual greenhouse gas emissions exceeding 75,000 metric tons are required to comply with EPA’s Prevention of Significant Deterioration (PSD) and Title V permitting standards, including the use of BACT. Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule; Final Rule, 75 Fed. Reg. 31514 (June 3, 2010).

The proposed Tailoring Rule deferral actually materialized on July 1, 2011 when EPA issued the final rule deferring biogenic forms of CO₂ from consideration under the Prevention of Significant Deterioration (PSD) and Title V Programs in 40 CFR 52 and 70, respectively.³⁹ See *Deferral for CO₂ Emissions from Bioenergy and Other Biogenic Sources Under the Prevention of Significant Deterioration and Title V Programs*, 76 Fed. Reg. 43490 (July 20, 2011). The rule specifically provides for a three year deferral, stating: “[s]tationary sources that combust biomass (or otherwise emit biogenic CO₂ emissions) and construct or modify during the deferral period will avoid the application of PSD to biogenic CO₂ emissions resulting from those actions.” 76 Fed. Reg. at 43493.

Biogenic CO₂ emissions are defined as “emissions of CO₂ from a stationary source directly resulting from the combustion or decomposition of biologically-based materials other than fossil fuels and mineral sources of carbon.” 76 Fed. Reg. at 43493. Examples of “biogenic CO₂ emissions” sources include a wide range of activities, such as CO₂ generated from the biological decomposition of waste in landfills, wastewater treatment or manure management processes, fermentation during ethanol production or other industrial fermentation processes, and combustion of biological material, including all types of wood and wood waste, forest residue, and agricultural material. *Id.*

The deferral was issued to allow time for EPA to study the inherent complexities of applying BACT to CO₂ emissions from stationary biogenic sources. EPA will consider, among other things, whether a permanent exemption is permissible for at least some (and perhaps all) types of biogenic feedstocks, including an evaluation of the controversial issue of whether biogenic CO₂ emissions result in a net increase in atmospheric CO₂ concentrations. 76 Fed.

³⁹ Before the deferral became final, MassDEP expressed its disagreement with the proposed deferral in a May 5, 2011 letter to Administrator Lisa P. Jackson.

Reg. 43490. Among the issues to be considered are how to properly and accurately account for biogenic CO₂ emissions in ways that are scientifically sound and also manageable in practice.⁴⁰ This is complex because CO₂ from such sources will generally be emitted through natural decomposition processes, in contrast to other sources of CO₂ that would not occur naturally. EPA has generally found that CO₂ emissions from bioenergy merit special consideration in the BACT analysis because land-based biomass carbon stocks can be replenished more quickly than fossil fuel carbon stocks, and thus these biogenic carbon stocks can act as a sink on a shorter time scale than fossil carbon. Biogenic combustion advocates assert that the biogenic plant's CO₂ emissions are roughly equivalent to what would be emitted through natural decomposition, but over a different time period which varies considerably depending upon the biogenic material and other variables. 76 Fed. Reg. at 43493-43494.

The Petitioners argue that notwithstanding this deferral, the states have the authority to impose more stringent requirements upon emission sources. See 42 U.S.C. 7416; see also Arizona Public Service Co. v. EPA, 562 F.3d 1116, 1126 (10th Cir. 2009). MassDEP and PRE respond that there is no legal mandate under Massachusetts law to require a GHG BACT analysis. The Petitioners disagree, relying upon 310 CMR 7.02(8) to argue that CO₂ BACT was required in this case. That provision provides:

2. Best Available Control Technology (BACT). BACT is required of all LPAs and CPAs. In no case will BACT be less stringent than any applicable emission limitation contained in a Department regulation (*e.g.*, 310 CMR 7.05, 7.18, 7.19, and 7.24) or federal regulation (*e.g.* 40 CFR 60). BACT may include a design feature, equipment specification, work practice, operating standard or combination thereof. (*See* Definition of BACT in 310 CMR 7.00.)

⁴⁰ Fact Sheet Final Rule - Deferral for CO₂ emissions from Bioenergy and Other Biogenic Sources under the Prevention of Significant Deterioration (PSD) and Title V Programs. http://www.epa.gov/nsr/documents/Biogenic_Fact_Sheet_June_2011.pdf.

The Petitioners' reliance on this provision does not resolve the issue; while it is true that BACT analysis is required of all CPAs, the question remains for what particular emissions must the BACT analysis be conducted? For that answer, I turn to the definition of BACT discussed above, which provides in pertinent part that BACT is an "emission limitation based on the maximum degree of reduction of any regulated air contaminant emitted" 310 CMR 7.00. The regulations do not define "regulated contaminant," but they do define "regulated pollutant" as: "any air contaminant regulated under the Federal Clean Air Act, 42 U.S.C. sections 7401 et seq., excluding pollutants regulated under 42 U.S.C. 7401, § 112." 310 CMR 7.00.

MassDEP and PRE point to the biogenic deferral, arguing EPA has explicitly deferred regulation in this context for biogenic GHG emissions under the Federal Clean Air Act. Given it is not presently regulated in this context, they claim no BACT analysis is required under 310 CMR 7.00 and 7.02. I agree with MassDEP and PRE. Indeed, MassDEP could specifically require BACT analysis for GHG from biogenic emissions but it has not done so. In fact, in the past, on April 18, 2007, MassDEP published BACT Guidance for Biomass Fired Electric Generating Units, including guidance for conducting BACT with respect to wood burning electrical generators.⁴¹ The guidance expired by its own terms on December 31, 2009, and thus does not apply here. It is noteworthy that although the guidance discusses BACT with respect to a number of pollutants, nowhere does it mention performing BACT analysis for GHG.

In contrast to not specifically requiring a BACT analysis for GHG emissions from biogenic sources, MassDEP has chosen specifically to regulate GHG in other ways not presently at issue here. See 310 CMR 7.70 and 7.71. CO₂ is regulated under 310 CMR 7.70, the "Massachusetts CO₂ Budget Trading Program," and 310 CMR 7.71, which regulates the "Reporting of Greenhouse Gas Emissions." Although PRE is not subject to the Massachusetts

⁴¹ <http://www.mass.gov/dep/air/laws/policies.htm#bact>

CO2 Budget Trading Program in 310 CMR 7.70, it will be subject to the GHG reporting requirements in 310 CMR 7.71(3)(a)2 because it will emit more than 5,000 short tons of GHG in CO2 equivalents during a calendar year. Thus, constant monitoring will be required pursuant to 310 CMR 7.71(5)-(7), and (9). As discussed below, the Global Warming Solutions Act and MEPA Greenhouse Gas Emissions Policy also regulate GHG in certain contexts, but neither requires a BACT analysis for GHG.

In contrast to the regulatory uncertainty for GHG emissions from biogenic sources, the Massachusetts Air Regulations contain specific Carbon Dioxide Emission Standards at 310 CMR 7.29(5)(a)5 and limitations for certain “fossil fuel fired boiler[s].” Such specific regulations for biogenic sources are not present in the regulations.

Lastly, PRE performed a GHG analysis when it submitted its Notice of Project Change during the MEPA process that ultimately led to a number of provisions being incorporated into the Permit to increase efficiency and reduce GHG emissions. When MassDEP commented on the Notice of Project Change, it provided relatively detailed commentary, incorporating comments from the Massachusetts Department of Energy Resources, on the GHG aspects of the plant. MassDEP Closing Brief, Ex. 1, pp. 5-9. The comments included five single-spaced pages of relatively broad ranging issues related to how to account for and reduce GHG emissions. MassDEP Closing Brief, Ex. 1. MassDEP discussed how it would analyze BACT specifically for other pollutants when considering the Permit application. It added that in “discussing the application of the Greenhouse Gas Policy and Protocol to this project, MassDEP will also review opportunities to increase the efficiency of the combustion process and reduce CO2 emissions in the course of reviewing the revised permit application.” MassDEP Closing Brief, Ex. 1, p. 2.

While MassDEP and DOER rejected PRE's claim that stack emissions should not be counted at all in evaluating GHG because the GHG is derived from biogenic materials that would decompose over time and emit GHG, it did state that the "proposal to use waste wood that normally decays relatively quickly is relevant in considering its net carbon footprint." MassDEP Closing Brief, Ex. 1, at p. 6. Despite this, MassDEP also noted that burning of the proposed fuel would result in CO₂ emissions that are generally three times the emissions that are normally produced in New England to generate the same amount of electricity. MassDEP Closing Brief, Ex. 1, p. 6. The agencies noted that this must be balanced with the fact that gases from the natural decomposition of green wood chips are essentially comparable to the CO₂ emissions from burning it and the proposed fuel would decompose relatively quickly on its own. However, it was noted that surrounding uncertainties make it difficult presently to determine the impact of the subject CO₂ emissions. Nevertheless, the agencies elaborated upon a number of mitigation measures that had the potential to limit impacts even further, including efficiency design measures. MassDEP Closing Brief, Ex. 1, pp. 6-9. MassDEP incorporated the GHG mitigation measures, including some recommended by the Secretary of EOEEA, into the Permit. Among other provisions, PRE is required to submit annually an engineering report that updates MassDEP on the efficiency improvements and GHG mitigation measures in the Permit and any other mitigation measures, with a goal of achieving 33% efficiency within 5 years of commencing operation.

Therefore, although MassDEP did not perform a BACT analysis per se, it did analyze and incorporate measures to reduce GHG emissions. The Petitioners, in contrast, have not submitted

any evidence showing that what the Permit requires does not constitute BACT, even assuming BACT was required.⁴²

Under these circumstances, I find that MassDEP properly exercised its discretion and sufficiently considered GHG emissions and incorporated appropriate provisions in the Permit. In sum, the regulatory arena is prudently processing how best to balance the draw of harnessing power from biogenic sources that would otherwise emit GHG with, in this case, the accelerated generation of GHG at levels that exceed GHG emissions from other sources of power, such as fossil fuels. There are no Massachusetts laws requiring a BACT analysis for GHG. The most specific BACT related law refers specifically to the regulatory context under the Federal Clean Air Act, where regulation of GHG emissions from biogenic sources is presently deferred for BACT analysis. Given this context, particularly the present regulatory and scientific uncertainties and the EPA deferral, it would have been premature for MassDEP to conduct a full CO₂ BACT analysis at the time it issued the Permit. I therefore find that MassDEP did not err in presently foregoing a full CO₂ BACT analysis, and instead providing detailed commentary and incorporation of provisions related to GHG into the Permit. See Matter of Town of Hamilton, Docket Nos. 2003-065 and 2003-068, Recommended Final Decision (January 19, 2006), adopted by Final Decision (March 27, 2006) (“So long as the conditions DEP imposed in the permit are within its authority and are reasonable in light of the record, I may sustain them.”).

⁴² EPA has published interim guidance that may be used for a biogenic facility that is not subject to the deferral. In that guidance EPA stated that it “believes the analysis described below will be sufficient in most cases to support the conclusion that utilization of biomass fuel alone is BACT for a bioenergy facility.” [Interim] Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production (March 2011). <http://www.epa.gov/nst/ghgdocs/bioenergyguidance.pdf>

B. The Global Warming Solutions Act Does Not Apply to the Permit

In addition to arguing that a CO2 BACT analysis was required, the Petitioners also argue that MassDEP failed to consider sufficiently the impacts of GHG emissions under the Global Warming Solutions Act, St. 2008, c. 298 (“GWSA”). They rely upon section 7 of the GWSA. It added a new provision to section 61 of Chapter 30 of the Massachusetts General Laws (“Section 61”), which is part of the Massachusetts Environmental Policy Act (“MEPA”). The language added to MEPA by Section 7 of the GWSA obligates all state agencies to consider “reasonably foreseeable climate change impacts, including additional greenhouse gas emissions, and effects, such as predicted sea level rise” when “considering and issuing” permits. The provision also provides: “Any determination made by an agency of the commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been taken to avoid or minimize said impact.” G.L. c. 30 § 61.

MassDEP and PRE argue that this provision is not applicable because they assert it only applies in cases where an EIR is required. Following prior precedent and the applicable regulations, I agree with MassDEP and PRE. General Laws c. 30 § 61 is part of MEPA, G.L. c. 30 §§ 61-62H. The MEPA regulations expressly provide that G.L. c. 30 § 61 findings shall be made when an EIR is required.⁴³ See 301 CMR 11.02 (definition of “Section 61 Findings”); 301 CMR 11.12(5); 301 CMR 11.01(4)(c); Matter of Northland Residential Corporation, Docket No. 2003-138, 2003-146, Motion Rulings (April 26, 2004), adopted by Final Decision (June 28, 2004) (§61 findings issued when EIR is required); compare DPU 10-170, Joint Petition for Approval of Merger Between NSTAR and Northeast Utilities, Interlocutory Order on Standard

⁴³ It is noteworthy that the Revised MEPA Greenhouse Gas Emissions Policy and Protocol (May 5, 2010) only applies when an EIR is required. See <http://www.env.state.ma.us/mepa/downloads/GHG%20Policy%20FINAL.pdf>.

of Review (March 10, 2011), at pp. 25-26 (incorporating requirement into standard of review for mergers and acquisitions in the electric industry).

Even though G.L. c. 30 §61 does not apply here, MassDEP conducted roughly the same GHG review that was conducted under G.L. c. 30 § 61 and approved in Matter of Pioneer Valley Energy Center, Inc., LLC, Docket No. 2011-010, Final Decision (November 9, 2011). In its Notice of Project Change PRE provided a relatively detailed (15 pages) GHG analysis performed on its behalf by Epsilon Associates, Inc., an environmental engineering and consulting firm.⁴⁴ MassDEP Motion to Dismiss, Ex. F, App. D. The report includes analyses of plant operations and GHG mitigation measures, including the position that green wood chips from waste biomass (non-harvested) is carbon neutral, the position that GHG from PRE waste biomass will lead to avoidance of GHG from fossil fuels, measures to increase efficiency and reduce plant electrical usage and maximize output to the grid, measures to increase efficiency and reduce consumption of energy for cooling and heating, installation of a photovoltaic array to generate electricity, measures to decrease emissions from mobile sources (such as decreasing long range transport of fuel), and using biodiesel for plant vehicles and equipment.

The Secretary of EOEEA reviewed the GHG analysis and MassDEP filed comments on it, which included numerous measures from DOER to improve efficiency and thus reduce GHG emissions. It also included an extensive discussion of research related to present ambiguities for GHG accounting from biogenic sources, such as the proposed plant. Closing Brief, Exhibit 1. The secretary also expressed his disagreement with PRE's assertion that the plant was carbon neutral, noting, among other things, uncertainties related to accounting for GHG emissions from burning waste now versus allowing it to decompose over time. Other noted variables include

⁴⁴ The Secretary found that although the GHG analysis was not required, it met the requirements of MEPA. Motion to Dismiss, Ex. G, p. 3.

combustion technology, fuel sources, decomposition rates, and sequestration rates. MassDEP Motion to Dismiss, Ex. G, pp. 13-15. The Secretary requested MassDEP to continue to review whether there are feasible modifications that could be made to improve plant efficiency and further reduce GHG emissions. MassDEP Motion to Dismiss, Ex. G, pp. 3, 9. The Secretary issued the NPC Certificate with several GHG mitigation measures. MassDEP Motion to Dismiss, Ex. G, p. 16. It is estimated that the plant will emit 434,737 tpy of CO₂, which is above the estimates during the MEPA process, 393,476 tpy. Permit, p. 20. MassDEP subsequently incorporated all of these mitigations measures and others as conditions in the Permit, which include and are not limited to using a maximum efficiency, state of the art, steam turbine, modifying the steam cycle design with a reheat type cycle to improve efficiency, using equipment optimization, designing steam lines to minimize pressure drops, using high efficiency cooling and heating, utilizing a high efficiency shell and heating system, using biodiesel for plant based equipment, installing at least a 135 KW photovoltaic array for electricity generation, and continuing evaluation and reporting on other possible measures identified by MassDEP. Permit, pp. 37-38. PRE is required to submit annually an engineering report that updates MassDEP on the efficiency improvements and GHG mitigation measures in the Permit and any other mitigation measures, with a goal of achieving 33% efficiency (up from 23%) within 5 years of commencing operation. The report must also include an update on whether the plant's energy output can be utilized for cogeneration and/or district energy.

For all the above reasons, I find that MassDEP was not required to perform a GHG analysis. Nevertheless, one was performed, leading to additional input from the Secretary and MassDEP, and resulting in conditions and other provisions in the Permit to reduce GHG emissions and increase plant efficiency. The process was handled in much the same way as

GHG emissions were handled and approved in Matter of Pioneer Valley Energy Center, Inc., LLC, Docket No. 2011-010, Recommended Final Decision (September 23, 2011), adopted in part by Final Decision (November 9, 2011), under the MEPA Greenhouse Gas Emissions Policy and G.L. c. 30 sec. 61 (as amended by Section 7 of GWSA).

CONCLUSION

For all the above reasons, I recommend that MassDEP's Commissioner issue a Final Decision dismissing the appeal based upon standing and upholding the Permit based upon a preponderance of the evidence showing the Permit complies with all applicable laws, as discussed above.⁴⁵

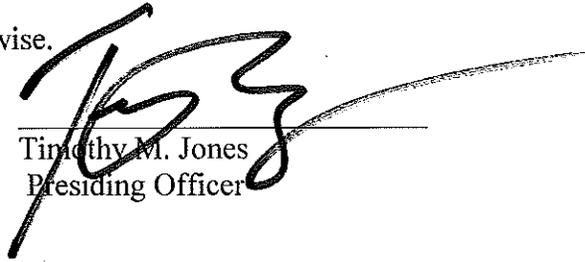
NOTICE- RECOMMENDED FINAL DECISION

This decision is a Recommended Final Decision of the Presiding Officer. It has been transmitted to the Commissioner for his Final Decision in this matter. This decision is therefore not a Final Decision subject to reconsideration under 310 CMR 1.01(14)(d), and may not be appealed to Superior Court pursuant to M.G.L. c. 30A. The Commissioner's Final Decision is subject to rights of reconsideration and court appeal and will contain a notice to that effect.

Because this matter has now been transmitted to the Commissioner, no party shall file a motion to renew or reargue this Recommended Final Decision or any part of it, and no party shall communicate with the Commissioner's office regarding this decision unless the Commissioner, in his sole discretion, directs otherwise.

Date:

7/9/12



Timothy M. Jones
Presiding Officer

⁴⁵ This decision is limited to those claims pressed by the Petitioners in their Closing Brief and Closing Reply Brief. As the Petitioners state in their Closing Reply Brief, their Notice of Claim raised a number of other issues and claims that the Petitioners no longer wish to pursue in this venue and have been withdrawn. See Petitioners' Closing Reply Brief, pp. 31-33.

SERVICE LIST

In The Matter Of:

Palmer Renewable Energy, LLC

Docket No. WET-2011-021
WET-2011-022

File No. 1-P-08-036
Springfield

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EXHIBIT

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Table 1: Summary of Ambient Background and Project Concentrations ($\mu\text{g}/\text{m}^3$) compared to NAAQS.

Pollutant	Avg Time	Monitor Location	2010	2011	2012	2013	2014	Current Average Background Value	Predicted Concentration from Stationary Sources at Plant	Max Total Impact	NAAQS	% of NAAQS Based on Current Background Values	previous % of NAAQS n 2009	
PM10	Annual	1860 Main Street, Springfield, MA	14.7	14.4	13.7	13.6	12.9	13.7	0.65	14.35	50	28.7%	38	
	24hr	Anderson Rd AFB - 1, Chicopee, MA	24.5	21.2	17.1	17	16.5	16.9	0.51	17.38	35	49.6%	85.4	
PM2.5	Annual	Anderson Rd AFB - 1, Chicopee, MA	7.72	7.84	7.61	6.8	5.46	6.6	0.12	6.74	12	56.2%	70.7	
	24hr	Anderson Rd AFB - 2, Chicopee, MA	23.2	21.5	17.2	16	16.2	16.5	0.51	16.98	35	48.5%	85.4	
SO2	Annual	Anderson Rd AFB - 2, Chicopee, MA	8.02	8	7.88	6.8	5.32	6.7	0.12	6.79	12	56.6%	70.7	
	1-hr	Liberty P-Lot, Springfield, MA	34.1	57.6	36.4	28.8	17.6	27.6	5.89	33.49	195	17.2%	81.7	
	3-hr		33.0	60.3	46.4	25.4	16.5	46.4	3.59	49.97	1300	3.8%	7.1	
	24-hr		19.4	20.7	14.9	16.2	11.5	16.2	16.2	0.63	16.88	365	4.6%	11.6
	Annual		5.4	7.1	4.3	5.2	3.6	5.2	5.2	0.04	5.28	80	6.6%	10.5
1-hr	65.9		92.2	67.7	71.5	77.1	77.1	72.1	9.36	81.49	188	43.3%	83	
NO2	Annual	Anderson Rd AFB, Chicopee, MA	11.6	15.7	12.6	12.9	13.4	13.0	0.04	13.00	100	13.0%	32	

Table 2: Summary of Selected Ambient Background Concentrations Historical Trends

Pollutant	Avg Time	Form	Monitor Location	Units	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
SO ₂	1-hr	99th Percentile	Liberty P-Lot, Springfield, MA	µg/m ³	118	139	83.8	83.8	68.1	78.6	34.1	57.6	36.4	28.8	17.6
					NO ₂	1-hr	98th Percentile	Anderson Rd AFB, Chicopee, MA	µg/m ³	75.3 *	80.9	82.8	80.9	79	77.1
Ozone	8-hr	4th Highest (2005)	Anderson Rd AFB, Chicopee, MA	PPB	78	90	90	98	78	76	74	74	72	71	65
					Days > Standard	4**	15**	11**	19**	6**	4**	2	2	1	0

* Data flagged as incomplete

** Exceedance of 2005 Ozone 8-hour Standard

SO₂ reported in PPB. Converted using 1 PPM = 2620 µg/m³

NO₂ reported in PPB. Converted using 1 PPM = 1882 µg/m³