PETITION NO. 784 – Plainfield Renewable Energy, LLC petition for a declaratory ruling no Certificate of Environmental Compatibility and Public Need is required for the proposed construction, maintenance, and operation of a 37.5 MW Wood Biomass Generating Project, Plainfield, Connecticut.	}	Connecticut Siting Council

May 1, 2007

DRAFT FINDINGS OF FACT

Introduction

1. On August 14, 2006, Plainfield Renewable Energy LLC (PRE), pursuant to Connecticut General Statute (CGS) §16-50k and as amended by Section 18 of Public Act 05-01, submitted a petition to the Connecticut Siting Council (Council) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the construction, maintenance, and operation of a 37.5 MW (net) wood biomass fueled electric generating facility in the Town of Plainfield, Connecticut. (PRE 1, pp. 1, 7; PRE 2)

2. PRE is a joint venture between Decker Energy International, Inc. and NuPower LLC. Decker Energy International, LLC was involved in the development of six biomass facilities, including an ownership interest in two operating biomass facilities, one in North Carolina and one in Michigan. NuPower LLC is an in-state renewable energy developer. (PRE 1, p. 9; PRE 6, p. 2; ~~Tr. 1, p. 33; Tr. 2, p. 4~~)

3. The proposed power plant would be a Class I renewable resource as defined by CGS §16-1(a)(26). The project would be partially funded by the Connecticut Clean Energy Fund, established to support the use of renewable energy consistent with Connecticut Public Act 03-135. (PRE 1, pp. 2, 64; PRE 6, Attachment D)

4. The party in this proceeding is the petitioner. The intervenor is The Connecticut Light and Power Company (CL&P). (~~Transcript 1, November 16, 2006 [Tr. 1]~~, p. 5)

5. Public notice of the petition was published in the Norwich Bulletin on November 8, and 13, 2006. (PRE 14)

6. Notice of the petition was provided to all abutting property owners by certified mail. (PRE 14)

7. Pursuant to Sections 16-50j-21 and 16-50j-40 of the Regulations of Connecticut State Agencies, the Council, after giving due notice thereof, held a public hearing on November 16, 2006, beginning at 2:30 and continuing at 7:15 p.m. at the Plainfield Town Hall, 8 Community Avenue, Plainfield, Connecticut. (Tr. 1, p. 3; Transcript 2, November 16, 2006 [Tr. 2], p. 3)

8. The Council and its staff inspected the proposed site on November 16, 2006. During the field review, the petitioner attempted to fly a balloon to simulate the height of the proposed exhaust stack but weather conditions prevented the balloon from reaching a height greater than 50 feet above ground level (agl). (Tr. 1, ~~p. 28~~; Council Hearing Notice of October 6, 2006)

Attachment

Transcript 2, November 16, 2006 [Tr. 2], pp. 6-7

Transcript 1, November 16, 2006 [Tr. 1], p 16;

Tr. 1,

pp. 27-28

State Agency Comment

9. Pursuant to CGS § 16-50j (h), on October 6, and November 17, 2006, the following state agencies were solicited by the Council to submit written comments regarding the proposed facility: Department of Environmental Protection (DEP), Department of Public Health (DPH), Council on Environmental Quality (CEQ), Department of Public Utility Control (DPUC), Office of Policy and Management (OPM), Department of Economic and Community Development (DECD), and the Department of Transportation (DOT). (Record)

10. State agency comments were received from the Department of Environmental Protection (DEP) on November 13, 2006. Comments are described in this document where applicable. (Record)

11. The following agencies did not respond with comment on the application: CEQ, DPUC, OPM, DPH, DOT, and the DECD. (Record)

Municipal Consultation

12. PRE first introduced the project to the then First Selectman of the Town of Plainfield, Donald Gladding, on October 13, 2004. Successive meetings were held with various town officials in 2004 and 2005. PRE met with the present First Selectman, Kevin Cunningham, on November 17, 2005. (PRE 1, p. 119)

13. PRE held a public information meeting at the town hall on February 6, 2006 that was attended by approximately 150 residents of Plainfield and neighboring towns. A second public informational hearing was held on October 16, 2006, when a more finalized plan was discussed. (PRE 6, p. 3; Tr. 1, p. 23)

(2) Attachment

14. First Selectman Cunningham made a limited appearance statement into the record at the November 16, 2006 hearing stating the town is confident that exhaust emissions would meet regulatory criteria and that daily truck traffic to support plant operations would have no negative impact on the neighboring area. The town requests mitigation of noise from the cooling fans to the greatest extent possible and would seek to perform independent testing of the environmental controls and have access to environmental control records. (Tr. 1, pp. 8-10)

this sentence is not supported by the transcript citation provided

15. The Town of Plainfield Director of Economic Development, Elizabeth Swenson, made a limited appearance statement into the record at the November 16, 2006 public comment session expressing support for the proposed project but with the following concerns: sound and light effects should be mitigated by using natural plantings, directional lighting, and sound walls as necessary; low wooden poles should be used to support the electrical connection from the proposed plant to a neighboring substation. (Tr. 2, 20-23)

Site Description

16. The proposed site is on a 27-acre parcel north of Mill Brook Road and west of Route 12 (Map 10, Block 30, Lot 32) in the Town of Plainfield, Connecticut. The Providence and Worcester Railroad abuts the site to the west. The site was previously used for gravel extraction. (PRE 1, pp. 1, 103, Figure 1; PRE 4 Figure 14-1)

17. The site parcel is zoned industrial. The Town of Plainfield zoning regulations allow power plants with a special use permit within an industrial zone. (PRE 1, p. 11)

18. The site parcel is a brownfield and was listed on the Environmental Protection Agency Priority List as a Superfund site in 1989. Industrial chemicals were illegally dumped on the parcel in 1977 in three different locations. DEP-supervised remediation of the site began in 1978 with the removal of drums, free liquids, and contaminated soil. Contaminated soils and groundwater remain in the northern portion of the parcel. This contaminated area, approximately 1.8-acres, is designated as an Environmental Land Use Restriction area where no soil disturbing activities are permitted. (PRE 1, pp. ~~104~~ 103-105; Tr. 2, p. ~~42~~ 42)

19. Site construction activities would not disturb the Environmental Land Use Restriction area. (PRE 4, Q. 13; Tr. 2, p 44)

20. The parcel is undeveloped and is mostly wooded, with six wetland areas and a sand barren. The parcel is mostly level except for a sharply rising knoll in the east central portion of the property. (PRE 4, Figure 14-1)

21. Development of the site would require the acquisition of an approximate 1.3-acre rear portion of the Garriepy property, a residential parcel abutting the site to the east. PRE has an option to purchase this portion of the parcel. (PRE 4, Figure 14-1; Tr. 1, p. 64)

22. Five residential parcels abut the site to the east. The nearest residence is approximately 55 feet east of the property boundary, at 855 Norwich Road, Plainfield. This residence is approximately 180 feet from the proposed main plant facilities. (PRE 1, p. 93, Figure 3.1; PRE 4, Figure 11-1; PRE 9; Tr. 1, p. 64)

23. Undeveloped land owned by the Town of Plainfield abuts the site to the north. (PRE 1, Figure 3.1; PRE 4, Figure 11-1; PRE 9)

24. The Providence and Worcester Railroad right-of-way abuts the site to the west. Beyond the railroad right-of-way, farther west, lies undeveloped land owned by Tilcon Minerals Inc. and the Town of Plainfield. is located west of the Providence and Worcester Railroad right-of-way. (PRE 1, Figure 3.1; PRE 4, Figure 11-1; PRE 9)

25. Mill Brook Road abuts the site to the south. One residential parcel is located in this area. (PRE 1, Figure 3.1; PRE 4, Figure 11-1; PRE 9)

26. Approximately 69 residential structures are within 1,000 feet of the site. (PRE 4, Q. 1)

27. The site is approximately 1,500 feet from the Frye Brook Substation in Plainfield, the proposed power plant electrical interconnection point. (PRE 1, p. 91)

28. Interstate 395 is approximately a half-mile to the east. Route 12 and Mill Brook Road are adjacent to the site and were recently widened to accommodate truck traffic for a Lowe's regional warehouse and transfer facility approximately a half-mile west of the site. (PRE 1, p. 11, Figure 2, Figure 17)

Power Plant Description

29. The power plant would contain a 37.5-megawatt (net) generator fueled by wood biomass. (PRE 1, p. 11)

30. The facility would be constructed in a linear arrangement in a north-south direction on the parcel. The primary access to the facility would be from Mill Brook Road. Major facility components would include the truck weighing and unloading areas, wood storage yard, powerhouse, step-up transformer, cooling tower, ash silo, exhaust stack, and water handling facilities. (PRE 4, Figure 14-1)

31. Approximate dimensions of the larger facility components would be as follows: 300
    a) Powerhouse: 200 feet long, 175 feet wide, and 103 feet tall;
    b) Covered wood storage area: ~~30~~ feet long, 200 feet wide, 45 feet tall at roof peak;
    c) Cooling tower: 100 feet long, 45 feet wide, 45 feet tall; and
    d) Exhaust stack: 155 feet tall, 9 feet in diameter at top.
    (PRE 10, Q. 18)

32. A 16-foot wide emergency access road would be constructed to the rear portion of the facility from Route 12. PRE would need an encroachment permit from the Connecticut Department of Transportation for this road. The road is an internal PRE design feature and is not a requirement of the town or any other regulatory entity. (PRE 4, Figure 14-1; PRE late file 3, Q. 22; Tr. 1, p. 70)

33. Wood fuel deliveries would be by truck. Once a truck entered the site, it would be weighed at the truck receiving scale before proceeding to one of two truck tippers for unloading. There would be sufficient space in the unloading area to accommodate five or six trucks. The unloading process would take a few minutes. Once unloaded, the wood fuel would be transported to the wood storage yard by conveyor. (PRE 1, p. 12; Tr. 1, pp. 61-62)

34. Approximately 64 trucks would deliver wood fuel per day. (Tr. 1, p. 60)

35. The wood storage yard would consist of a paved area 300 feet by 600 feet. A 200-foot by 300-foot portion of the yard would be covered by a roofed structure. The yard could accommodate a 45-day supply of wood fuel. PRE would manage the wood fuel by continually mixing the incoming fuel with bulldozers and burning the oldest mixed fuel in the yard ahead of newer fuel. (PRE 1, p. 73; PRE 4, Figure 14-1; Tr. 1, p. 118)

36. The wood fuel would consist primarily of wood chips up to four inches in length. (PRE 1, p. 12)

37. Wood fuel is transported to the combustion unit, an enclosed fluidized bed staged gasification system. The fuel enters the gasifier to be combusted and begins to break down and emit a gas before complete combustion. The energy from the gasification is used to produce steam through a water wall boiler system. The steam production would drive one steam turbine to generate electricity. (PRE 1, pp. 12, 26, 28; Tr. 1, p. 39)

38. The staged combustion system is designed to operate at low temperatures and low excess air to minimize the formation of nitrogen oxides (NOx). The design of the system also ensures efficient mixing, gasification, and combustion of the wood fuel to reduce the formation of carbon monoxide and volatile organic compounds. (PRE 1, p. 21; Tr. 1, p. 39)

39. The power plant would operate as a base load unit connected to the CL&P's ~~Eye~~ Brook Substation. (PRE 1, p. 70)

Fry

40. The plant would be connected to the substation via a single-circuit 115-kV line. PRE initially proposed to route the transmission line through a wetland north of the site. This proposal would of required the installation of six transmission poles and the construction of temporary access roads. To avoid wetland impacts, PRE now proposes to use an existing railroad right-of-way for connection to the substation. The railroad is adjacent to both the site parcel and ~~Frye~~ Fry Brook substation. (PRE 1, Figure 17; PRE 4, Q. 11, Figure 11-1; PRE late file 4, Q. 24) └ p. 70,

41. The interconnection scenarios currently under study include a 115-kV radial tap interconnection or a 115-kV ring bus interconnection. The interconnection is under review by ISO New England. (PRE 1, p. 108; Tr. 1, p. 75)

42. The existing CL&P right-of-way contains a 23-kV double circuit overhead line. The landowners in the portion of the right-of-way to be used by PRE are the Town of Plainfield and Connecticut Yankee Community Avenue Associates. (PRE 1, p. 108)

43. The gasifier start-up fuel would be bio-fuel, with no fossil fuel additives. A 10,000-gallon storage tank for this fuel would be located on site. (PRE 4, Q. 8; Tr. 1, p 103-105)

44. A 500 kW emergency diesel generator would be located at the site to provide backup lighting and other electrical power needs in the event of a power failure. (PRE late file 3, Q. 20)

45. The power plant has a service life of 35 years at an annual capacity factor of 90%. (PRE 1, p. 12; Tr. 2, p. 55)

46. Two plant maintenance events are performed each year: one in the spring (seven days), and one in the fall (four days). (Tr. 2, p. 54)

47. Construction is anticipated to begin in 2007, with commercial operations anticipated by early 2009. PRE 1, p. 112)

48. PRE estimates a capital cost of $110-$130 million. (PRE 1, p. 45)

Wood Fuel Supply

49. The power plant would require approximately 365,000 tons per year of wood fuel. (PRE 1, p. 46)

50. PRE estimates approximately 600,000 tons per year of ~~recoverable~~ clean wood fuel in the state. (PRE 1, p. 46)

51. The wood fuel would be comprised of a variety of wood waste, including forest thinnings and land clearing waste, separated urban waste wood, primary wood waste, pallet waste, mill residues, and separated construction and demolition wood waste. (PRE 1, p. 3)

52. PRE would obtain the wood fuel from a variety of sources, including municipalities, regional and state agencies/authorities, tree trimming services, land clearing contractors, waste collectors, transfer station operators, demolition contractors, forestry management entities, and construction and demolition (C&D) contractors and waste processors. (PRE 1, p. 13)

unclear from where this number comes

Application says 84%. see page 46

53. PRE currently has four executed Memoranda of Understanding and two executed Letters of Intent with various wood fuel providers representing 263,850 tons per year of fuel, or 72% of the project's needs. The providers consist of a landfill/transfer station and five C&D contractors. (PRE 4, Q. 3)

54. PRE would obtain fuel from within a 60-mile radius of the site. Distances greater than 60 miles become uneconomical. (Tr. 1, pp. 89-91)

55. Due to the 60-mile distance constraint, PRE anticipates 80% of the wood fuel would be obtained from in-state sources. PRE is currently negotiating with two firms in Massachusetts. (Tr. 1, p. 84)

56. PRE projects a fuel cost ranging from $5 to $25 per ton. (PRE 1, p. 45)

57. Wood fuel deliveries would occur during normal business hours, 7:00 a.m. to 4:00 p.m., during weekdays and a half-day on Saturday. No deliveries would occur on Sunday. (Tr. 1, pp. 60, 63)

58. PRE intends to use a combination of short-term and long-term contracts to create wood supply flexibility. The contracts would require the providers to supply specific quantities of wood fuel. PRE would also use spot purchases with pre-approved suppliers to take advantage of seasonal wood supplies. (Tr. 1, pp. 86, 90)

59. The supply contracts would specify the quality and size requirements. All wood fuel would be separated from undesirable material, processed, and reduced in size before being transported to the site. The wood fuel suppliers would transport the fuel to the plant. (PRE 1, p. 13; Tr. 1, pp. 56, 59)

60. Wood fuel from C&D and other sources such as manufacturing waste would only be used if it met the DEP's definition of "recycled wood", "clean wood", "regulated wood fuel", or "processed construction and demolition wood." These definitions exclude contaminants such as creosote, asbestos, pesticides, and plastics or any substances defined as hazardous waste. Only wood that meets regulatory criteria would be accepted at the facility. (PRE 1, pp. 16-17; Tr. 1, pp.44-46)

61. The quality of the wood fuel would be the responsibility of the supplier. The DEP regulates volume reduction facilities - facilities that process C&D material - by issuing five-year renewable permits. PRE has submitted a proposed inspection protocol to the DEP to ensure the wood fuel meets regulatory standards. Initial inspections of wood fuel would be conducted by the DEP at the reduction facilities. (Tr. 1, pp. 46-49, 57)

62. PRE would conduct its own statistical sampling of the processed wood fuel arriving at the facility to ensure quality and quantity standards are met. (Tr. 1, pp. 56-57)

Water Requirements

63. Municipal water would be used for on-site sanitary purposes, boiler makeup water, and fire suppression, if necessary. Approximately 23,100 gallons of municipal water would be used each day. Municipal water, provided by the Connecticut Water Company, is available from distribution lines on Mill Brook Road and Route 12. (PRE 1, pp. ~~25~~ 24-25, 48)

64. The boiler makeup water would go through a de-mineralizing process to remove impurities prior to use in the boiler. PRE would use a leased trailer-mounted water filtration system for this process. A demineralized water storage tank, sufficient for a one-day supply, would be constructed on site. (PRE 1, p. 48)

65. The plant would employ wet cooling technology. (PRE 1, p. 53)

66. Approximately 656,000 to 994,000 gallons of water would be utilized each day as non-contact cooling water, equipment service water, and spray dryer water for the air pollution control scrubber. (PRE 1, ~~p. 25~~ pp. 25, 49)

67. PRE proposes to obtain water for these purposes from the Quinebaug River in Canterbury, approximately three miles west of the site. (PRE 1, pp. 25, 49)

68. PRE could not use the existing municipal water supply for cooling since the Connecticut Water Company permits only allow for the pumping of 600,000 gallons per day from the wells servicing the Plainfield area. (PRE 1, p. 50)

69. PRE would not be able to use on-site wells to obtain cooling water due to the presence of contaminated groundwater northwest of the designated Environmental Land Use Restriction area. (Tr. 2, pp. 43-44)

70. The river water would be clarified before use in the cooling tower. This process would yield approximately 250-280 tons per year of non-hazardous solids, which would be landfilled at an appropriate waste disposal facility. (PRE 1, p. 30)

71. Approximately 126,000 to 194,000 gallons of non-contact cooling water would be returned to the river each day. (PRE 1, p. 25)

72. Infrastructure associated with the river water supply would include a river intake structure, pumping stations, and piping from the river to the power plant. (PRE 1, p. 49)

73. The water intake structure, a cylinder 13 inches in diameter and 40 inches long, would be placed in the river at a depth of 8 feet. Concrete bollards would be installed upstream of the structure to provide protection from debris. Permanent navigational markers would identify the location to safeguard boaters and swimmers. (PRE 4, Q. 5)

74. A pump house, approximately 650 square feet in size, would be constructed near the water intake point. The pump house would contain three 75- horsepower pumps, an air compressor, spare parts, and a diesel generator. Evidence was absent regarding fuel storage and spill containment methods. (PRE 4, Q. 5)

75. The river water supply lines would be routed underground across private property bordering the river, then to Packer Road. The lines would be installed in a three to five-foot wide trench along Packer Road in Canterbury and along Mill Brook Road in Plainfield to the site. (PRE 1, p. 49; PRE 4, Figure 18, PRE late file 3, Q. 30)

76. PRE has an option to purchase the riverfront parcel. (Tr. 1, p. 95)

77. PRE has informed the Towns of Canterbury and Plainfield of the proposed route. No final agreement with either town has been formalized, although both towns are receptive to the proposed route. (Tr. 1, p. 96; Tr. 2, p. 62)

78. The DEP has not received an application for a water diversion permit and cannot offer definitive comments on this portion of the proposed project. (DEP comments of November 13, 2006)

Residue Disposal

79. Residues produced by the plant operations include non-combustibles contained within the biomass fuel stream, and ash from plant combustion, air pollution control residues, and non-hazardous solids. (PRE 1, p. 30)

80. Residues would be disposed of at a landfills operated by Wheelabrator Millbury Inc. throughout New England, including one in Lisbon. (PRE 1, p. 31; Tr. 1, p. 42)

81. Approximately 40,000 -60,000 tons per year of residue/ash would be produced. (PRE 1, p. 30)

82. Approximately six truckloads of residue/ ash per day would be removed from the site. (Tr. 1, p .62)

Environmental Considerations

Wetland Impacts

83. The site contains six different wetland areas, most of which were formed by past excavation activities. Five of the wetland areas total 0.7 acres in size. The sixth wetland area is a red maple forested wetland that occupies 2 acres of the site parcel and is part of a larger wetland area that extends to the north. (PRE 1, ~~Attachment~~ Exhibit C, pp. 12, 19; PRE 4, Figure 14-1)

84. Wetland 1 is located in the southwestern corner of the parcel abutting the railroad bed. The limit of construction would be approximately 65 feet from the wetland. (PRE 4, Q. 14)

85. Wetland 2 is located immediately east and north of Wetland 1 and also abuts the railroad bed. The wetland is classified as highly productive. Construction activities would occur up to the edge of the wetland. (PRE 1, Attachment C, p. 20; PRE 4, Q. 14)

Deleted: .

Deleted: a degraded white cedar swamp.

86. Wetland 3, classified as an extremely degraded wetland with little wildlife value, is located in the southern portion of the parcel adjacent to Mill Brook Road. Approximately 260 square feet of this wetland would be filled to accommodate the site access road. PRE intends to construct a stormwater detention basin adjacent to, and integrated with, the wetland to enhance wetland quality. The bottom and sides of the detention basin would be planted with herbaceous wetlands species and scattered berry-bearing shrubs. (PRE 1, ~~Attachment~~ Exhibit C, pp. 37-38, 43-44; PRE late file 5)

87. Wetland 4 is located on the western property boundary, adjacent to the railroad bed. A retaining wall associated with the wood storage yard would be constructed near the wetlands edge. (PRE 4, Q. 14)

88. Wetland 5 is located in the south central portion of the parcel between the proposed scale access drive and wood storage yard. A detention basin will be constructed adjacent to Wetland 5 that incorporates the area of the wetland. The bottom and sides of the detention basin will be planted with herbaceous wetlands species and scattered berry-bearing shrubs. A retaining wall would be constructed approximately eight feet from the wetland edge. (PRE 4, Q. 14, Figure 14-1; Tr. 1, p. 79; PRE late file 5)

89. Wetland 6, the red maple swamp, is located on the northern edge of the property. Approximately 2,200 square feet of this wetland would be filled along the southern edge to accommodate the proposed emergency access drive. PRE proposes to replace the amount of filled wetland by excavating an area on the northwest and southeast sides of the wetland. (PRE 4, Figure 14-1; Tr. 1, pp. 70-73)

90. Impacts to Wetland 6 could be reduced if retaining walls were installed or if the width of the access road were reduced from 16 feet to 14 feet. Both techniques could reduce the wetland impact by 150 to 200 square feet. (PRE late file 3, Q. 23)

91. To avoid impacts to Wetland 6, PRE examined the feasibility of constructing the emergency access road through the upland portion of the parcel that abuts Route 12, but determined the slopes in this area were too severe. Significant amounts of blasting and earthwork would be required to lower the slope. Additionally, lowering the slope would allow for a direct view into the plant yard from Route 12. Presently, this view is blocked by a wooded knoll. (Tr. 1, pp. 76-77)

92. PRE could eliminate the emergency access drive from the final plant design to avoid impacts to Wetland 6. (PRE late file 3, Q. 23)

93. The river intake piping would require a 20-foot-wide corridor and trenching through upland and wetland areas of the river front parcel to Packer Road in Canterbury. Per the proposed route, this corridor would impact approximately 8,000 square feet of Connecticut regulated wetlands and 4,500 square feet of federally regulated wetlands. (Tr. 1, pp. 92-97)

94. Wetland impacts would require a DEP and U.S. Army Corps of Engineers wetland permit. Issuance of a permit may require modifications to the plant site layout and associated impacts to on-site wetlands. (PRE late file 3, Q 28)

Wildlife Impacts

95. A 1993 wildlife study of the site parcel by the U.S. Fish and Wildlife Service did not identify any federally or state listed rare, threatened, or endangered species. (PRE 1, p. 98)

96. Three species listed on the DEP's Natural Diversity Database occur near the site parcel: the eastern spadefoot toad (endangered), the blue-spotted salamander (threatened), and the savannah sparrow (special concern). (PRE 1, p. 98, ~~Attachment~~ C) Exhibit

97. Suitable habitat for the savannah sparrow does not occur at the site parcel and no individuals of this species were identified. (PRE 1, p. 98, ~~Attachment~~ C, pp. 32-33) Exhibit A

98. The eastern spadefoot toad and blue spotted salamander do not occur at the site parcel, although suitable habitat is present. The DEP recommends that all ground disturbing construction work in the sand barren area, Wetland 2 and Wetland 6 occur between November 1 through April 1 to avoid potential impacts to these species. (PRE late file 3, Q. 21)

99. Two species listed on the DEP's Natural Diversity Database occur near the river intake parcel: the eastern spadefoot toad (endangered) and the savannah sparrow (special concern). Suitable habitat for each species does not exist at the river intake parcel. (Tr. 2, p. 60-61)

100. The DEP is conducting a eastern spadefoot toad study in the vicinity of Packer Road and Lillibridge Road and blue spotted salamanders have been documented on Packer Road. The DEP recommends the installation of the river water supply lines in these areas from November 1 through April 1 to avoid potential impacts to these species. (PRE late file 3, Q. 21)

101. Suitable habitat for the whip-poor-will, a state species of special concern, occurs at the site parcel. The DEP has not issued final comment regarding this species. (PRE late file 3, Q. 21)

102. The river intake structure would use a cylindrical wedge wire screen design to protect local fish populations from entrainment and impingement. (PRE 4, Q. 7)

Cultural Resources

103. Development of the Mill Brook Road parcel for the main plant would have no effect on archaeological resources. (PRE late file 3, Q. 25)

104. PRE will submit an archaeological survey for the river intake parcel to the State Historic Preservation Officer upon completion. (PRE late file 3, Q. 25)

Odors

105. The only odor that may be distinguishable is a wood scent originating from the wood storage yard. This is usually from green wood or wood that is wet. PRE would burn the oldest wood supply first to ensure no wood that is continually wet remains in the storage yard, thus reducing the time for odors to develop. (Tr. 1, pp. 36, 43-44)

106. No burning odor would emanate from the exhaust stack due to the complete combustion of the fuel. (Tr. 1, p. 37)

Noise

107. The project would be designed to meet State of Connecticut Noise regulations. The Town of Plainfield noise ordinance refers to the state criteria. (PRE 1, p. 31, Attachment A, p. 1)

Exhibit

108. The site parcel and adjacent parcels are zoned industrial; however, some of the adjacent lots are currently developed as residential properties. Noise levels at the residential property line cannot exceed 61 dBA during the daytime or 51 dBA during the nighttime. (PRE 1, p. 31, Attachment A, p. 2)

109. Existing background noise levels around the site parcel range from 50-55 dBA. (PRE 1, Attachment A, p. 6)

110. The noise levels from plant operations at the nearest residential building are expected to range from ~~36~~ 37 to 50 dBA but may exceed 51 dBA at the property line. (Tr. 1, p. 35)

111. Noise mitigation for the exterior fans may be necessary to keep the noise level below 51 dBA at the property line. (Tr. 1, p. 35)

112. PRE would most likely install sound walls as a noise mitigation technique although other methods may be used depending on the final design of the site. The expected reduction in noise is approximately 10 dBA. (PRE 4, Q. 6; Tr. 1, p. 35)

113. PRE would most likely specify the use of a pre-engineered Butler-type building to house the power generation facility. Based on the manufacturer's specifications, it is anticipated noise from this portion of the plant would comply with applicable noise regulations without the need for any noise mitigation techniques. (PRE 4, Q. 6)

Air Emissions

114. The project would require a DEP Title V Operating Permit. The permit combines all applicable state and federal air quality requirements into a single document. (PRE 1, p. 41)

115. The project would be subject to and would meet the applicable emission standards of the National Emission Standards for Hazardous Air Pollutants. (PRE 1, p. 40)

116. The project would be subject to and would meet the applicable emission standards of the Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. (PRE 1, p. 39)

117. The project is considered a Major Stationary Source of air pollutants under the Clean Air Act. (PRE 1, p. 37)

118. The project would be regulated under the New Source Review (NSR) provision of the Clean Air Act. Major New Source Review has two permitting programs: the Prevention of Significant Deterioration (PSD) program and the Non-attainment NSR programs (NNSR). (PRE 1, pp. 35-36)

119. The PSD regulations are designed to ensure that air quality in current attainment areas does not deteriorate beyond baseline concentrations. Under DEP PSD guidelines, a major Stationary Source is defined as having the potential to emit 100 tons per year or more of any criteria pollutant with the exception of NO_x and VOC in a serious non-attainment area such as Plainfield, for which the threshold is 50 tons per year. (PRE 1, p. 37)

120. The project is in a serious non-attainment area for ozone. Ozone is a pollutant photo-chemically produced in the atmosphere from Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NO_x). (PRE 1, pp.36-37)

121. Potential annual air emissions and applicable regulatory criteria are provided in the table below:

Pollutant	PM/PM_{10}	NO_X	SO_X	CO	VOC	LEAD	HCL	MERCURY
Emissions from Project (tpy)	46.5	174.2	81.3	240.0	26.6	0.3	30.4	0.006
~~NNSR~~ thresholds (tpy)	100	50	100	100	50	10	-	100
PSD Significant Emission Rate thresholds (tpy)	25/15	40	40	100	25	0.6	15	0.1

(PRE 1, pp. 29, 36, 43)

Major source

122. The project would exceed the DEP ~~NNSR~~ thresholds for NO_x and CO emissions. (PRE 1, pp. 29, 43)

123. The project would exceed the PSD thresholds for PM/PM_{10}, SO_x, ~~VOC, and HCL~~. (PRE 1, pp. 29, 43)

significant emissions rate

NO_x and CO

and would be subject to PSD review

124. The project would also be subject to Non-attainment NSR requirements, including an emission cap on NO_x. Per NNSR, NO_x emission reduction credits must be obtained from existing sources in the ratio of 1.2 to 1. PRE would need to obtain 210 tons of NO_x Emission Reduction Credits to offset the potential NO_x emissions from this project. (PRE 1, p. 39)

125. The project would emit approximately 1.05 pounds of NO_x per megawatt-hour. (DEP Comments of January 13, 2006)

126. The fluidized bed gasification process is considered the best available control technology for the control of certain pollutants such as carbon monoxide and VOCs, due to the efficiency of the combustion. (PRE 1, p. 26; Tr. 2, p. 41)

127. NO_x emissions would be controlled by a selective non-catalytic reduction system that injects urea into the exhaust stream to break down the NO_x into nitrogen and water. (PRE 1, p. 26; Tr. 2, p. 41)

128. A spray dryer scrubber would control sulfur oxide gases, metal emissions, hydrogen chlorides, and other soluble pollutants. (PRE 1, p. 26)

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129. Particulate matter (PM) would be controlled by a baghouse, consisting of modules with filter bags. Each filter bag has an estimated lifespan of five years. Scheduled bag replacements typically occur during annual boiler outages. (PRE 1, ~~p. 26~~; PRE 4, Q. 4)

pp. 26, 28

130. The plant would emit 2,900 pounds of carbon dioxide (CO_2) per megawatt hour, which is greater than any other Connecticut baseload or peaking power facility. Although not currently regulated, CO_2 will be incorporated into the Connecticut air permit process under the Regional Greenhouse Gas Initiative (RGGI). However, the PRE facility would be exempt from the RGGI requirements as long as it does not combust more than 5% of fossil fuel in a given year. (DEP Comments of November 13, 2006)

; PRE 1, p. 69

131. The plant would be equipped with a continuous monitoring system that would monitor emissions of certain pollutants and other conditions that are indicative of the plant performance. If air permit conditions are exceeded, an internal alarm system would be activated and the violation would be reported to the DEP. Additionally, the DEP reviews the data from the system on a quarterly basis to check for unreported violations. (PRE 1, p. 24; Tr. 2, p.38-39)

132. The wet cooling tower would emit less than 15 tons per year of PM and PM_{10} and would not require a DEP permit. (PRE 1, p. 26)

Plume Visibility and Fogging

133. The plant would use a mechanical draft evaporative cooling tower to remove waste heat from plant operations. A liquid water plume is emitted during the process, as well as occasional fogging from condensation. (PRE 1, ~~p. 100~~)

pp. 99-100

134. Adverse effects include localized shading, ground level fog and icing, and salt deposition. (PRE 1, p. 100)

135. Plume fogging would occur approximately 2.8 hours per year, predominately within 400 to 600 meters south of the cooling tower. (PRE 1, p. 100)

However, biomass absorbs carbon dioxide during growth and emits it during gasification and oxidation. Therefore, it effectively recycles atmospheric carbon and does not add significantly to the greenhouse effect.

136. Icing would occur approximately 0.16 hours per year northeast of the cooling tower. (PRE 1, p. 101)

137. Plume shadowing would occur approximately 40 hours per year within 200 meters of the site. (PRE 1, p. 101)

138. The plume would be less than 100 meters in length, 20-30 meters in height, and 15 meters in radius. The plume would be visible offsite approximately 3% of the time, excluding nighttime, periods of low visibility, and precipitation events. (PRE 1, p. 101)

139. Approximately 0.0014 pounds per year of salt would be deposited within the plume area. (Tr. 1, pp. 26-27)

Magnetic Fields

140. The proposed on-site electrical equipment and transmission line would produce magnetic fields. The on-site highest magnetic fields are expected at the north property boundary where the 115 kV transmission line crosses the property line onto undeveloped Town of Plainfield property. Magnetic fields are expected to be 20 mG in this location. (PRE 1, p. 109; PRE 4, Q. 11)

141. The proposed interconnection transmission line would use a portion of an existing CL&P right-of-way containing a 23-kV double circuit pole line. Existing magnetic fields within the right-of-way were measured at 15 mG. Magnetic fields at the edge of the right-of-way were measured at 4-10 mG. (PRE 1, ~~p. 110~~ pp. 109-110)

142. Following installation of the proposed 115-kV line, magnetic fields within the right-of-way are expected to be 40-50 mG. Magnetic fields at the edge of the right-of-way are expected to range from 4-15 mG depending on the phase orientation of 115-kV line. (PRE 1, p. 110)

Visibility

143. Areas to the east and south of the site are topographically higher than the site. The 155-foot exhaust stack would be visible from a majority of the area, both above the treeline and through trees during winter months. (PRE 10, Q. 15)

144. A majority of the land within a mile of the site to the east, west, and south is lightly developed. Development in these areas is concentrated along major roads. (PRE 10, Q .15)

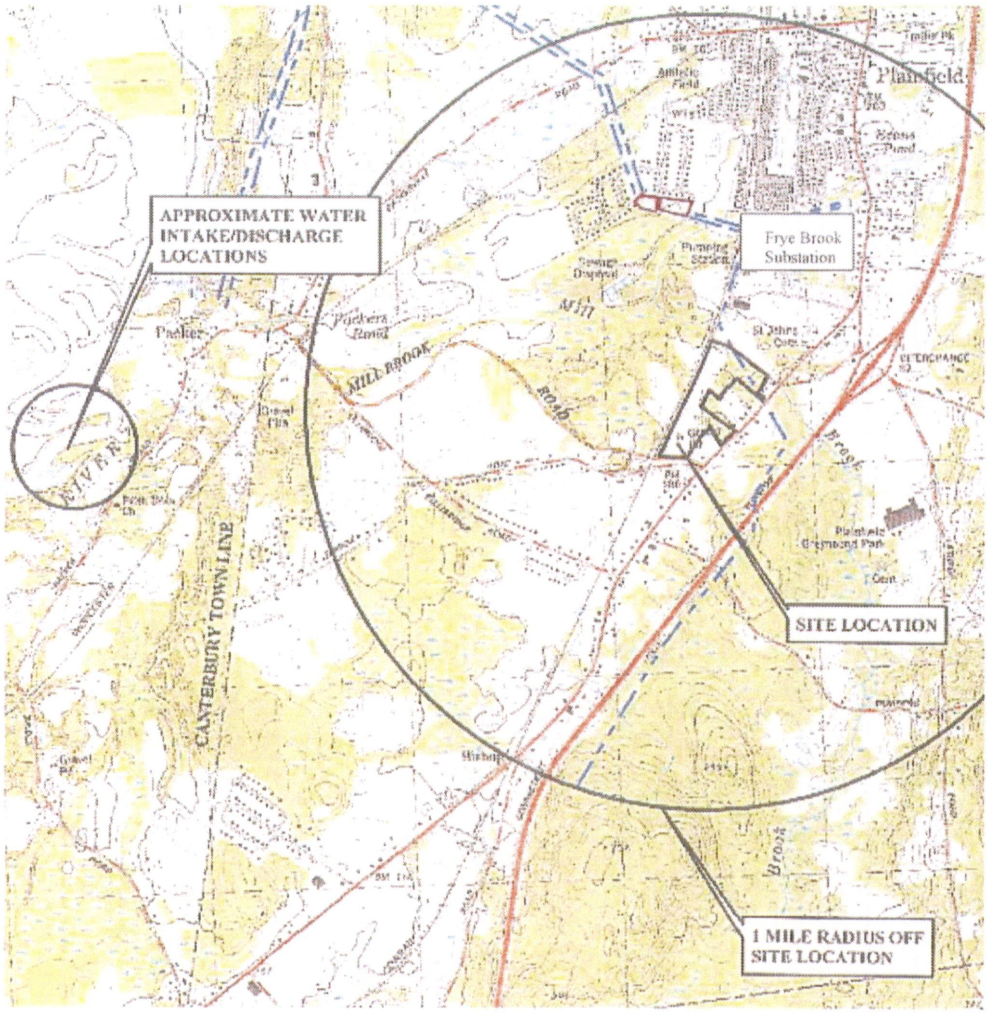
145. The area to the north within a mile of the site is densely developed. (PRE 10, Q. 15)

146. Certain specific areas where the exhaust stack would be visible are as follows;
    a. Property entrance at Mill Brook Road, 0.3 miles south; above treeline;
    b. St. John's Cemetery, 0.2 miles northeast, above treeline
    c. McDonald's on Route 12; 0.4 miles northeast, above treeline;
    d. Intersection of Route 12 and Downing Road, 0.5 miles south, through treeline;
    e. Former Plainfield Greyhound Dog Track, 0.7 miles east, above treeline; and
    f. Town Hall property, 0.9 miles north, above trees.

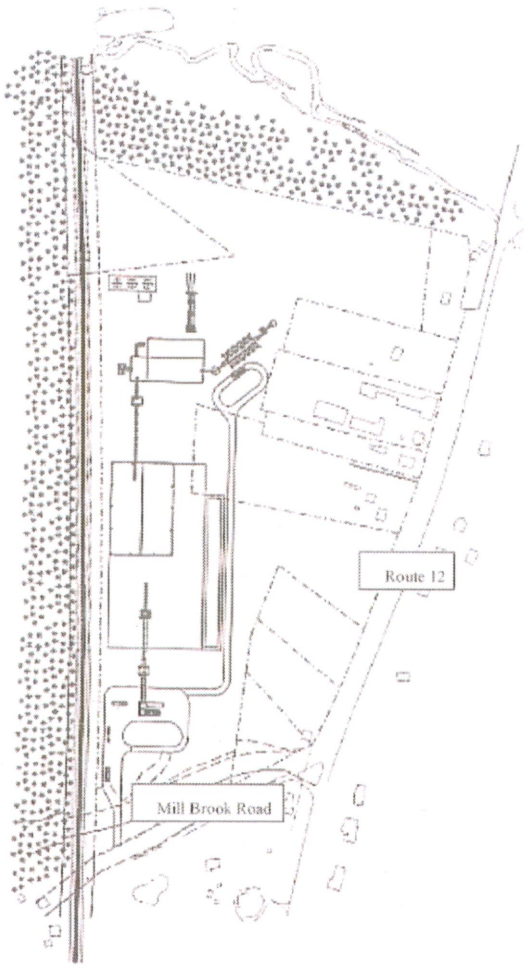
Permits and Approvals

147. The project would require the following permits and approvals:
   a. DEP Title V Operating Permit (air permit);
   b. DEP Water Diversion Permit;
   c. Wastewater Permit;
   d. Solid Waste Permit;
   e. Volume Reduction Facility Permit;
   f. Stormwater Discharge Permit;
   g. FAA letter of Air Hazard Determination;
   h. State Traffic Commission Permit;
   i. DEP and U.S. Army Corps of Engineers wetland permits, and
   j. DOT Road Encroachment Permit.
   (PRE 1, p. 113; PRE late file 3, Q. 28)

APPENDIX A – SITE LOCATION



APPENDIX B – PROPOSED SITE LAYOUT



APPENDIX C – CONCEPTUAL CONFIGURATION