STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Petition of Plainfield Renewable Energy LLC for a Declaratory Ruling that No Certificate of Environmental Compatibility and Public Need Is Required for the Construction, Maintenance, and Operation of a 37.5 MW Wood Biomass Staged Gasification Generating Project in Plainfield, Connecticut	)	Petition 784
	)	December 15, 2006

BRIEF OF PLAINFIELD RENEWABLE ENERGY, LLC

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TABLE OF CONTENTS

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Plainfield Renewable Energy, LLC ("Plainfield") submits this brief to the Connecticut Siting Council ("Council") in support of the Council's grant of a petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of a 37.5 MW wood biomass staged gasification generating project in Plainfield, Connecticut (the "Project") because the Project will not have an adverse environmental impact.

EXECUTIVE SUMMARY

I. OVERVIEW OF PROJECT

A. Brief Description of Project

Plainfield is a joint venture between NuPower LLC and Decker Energy International, Inc. Plainfield proposes to construct a 37.5 MW (net) Class I wood biomass fueled gasification power plant that will be located on an approximately 27-acre industrial zoned parcel of land. Plainfield Exhibit 1 at 1. This parcel (the "Site") is bounded by Mill Brook Road and State Route 12. Plainfield Exhibit 1 at 11. This Project will help to reduce the acute need for electricity generation which Connecticut currently faces. Further, the Project will be fueled by wood from Connecticut that

otherwise would have been wasted and landfilled at significant cost. 11/16/06 Tr. (afternoon) at 16; Plainfield Exhibit 11 at 4.

The Project is a Class I renewable resource, and can substantially contribute to meeting Connecticut's Class I Renewable Portfolio Standards ("RPS") for 2008 and beyond. Plainfield Exhibit 1 at 2; 11/16/06 Tr. (afternoon) at 17. The Project will participate in "Project 100," the program under which Connecticut electric distribution companies are required to purchase power from Class I renewable sources. Renewable energy generators such as the Project can receive funding from the Connecticut Clean Energy Fund. Plainfield Exhibit 1 at 62-63; 11/16/06 Tr. (afternoon) at 17, 19. The Project will diversify the fuel sources of Connecticut's electricity generation and offset the State's high reliance on gas-fired generators which may be constrained from receiving their gas supply during peak winter months. Plainfield Exhibit 1 at 2.

B. Fuel Supply

The Site falls within a region (Eastern Connecticut) that a study commissioned by the Connecticut Clean Energy Fund identified as one of two optimum locations within Connecticut for siting a biomass plant. Plainfield Exhibit 1 at 91, n.4.

1. Type of Fuel

The fuel supply for the Project will be a combination of diverse biomass sources such as: (1) forest thinnings, land clearing and other silvicultural activities; (2) source separated urban waste wood; (3) primary wood waste; (4) wood fuel from pallets; (5) separated construction and demolition wood waste; and (6) mill residues. Plainfield

Exhibit 1 at 3. These types of biomass materials are renewable resources. Plainfield Exhibit 1 at 11.

Plainfield will use B100, a 100% renewable biodiesel, for start-up fuel, so the Project will be fueled entirely by renewable sources. Plainfield Exhibit 4, Response to CSC-8; 11/16/06 Tr. (afternoon) at 103-104. This start-up fuel represents less than one-tenth of one percent (0.1%) of the Project's annual fuel input. 11/16/06 Tr. (afternoon) at 104.

2. Supply Sources

Fuel will be obtained from a wide range of sources, including (but not limited to): (1) municipalities (from public works operations and residents); (2) regional/state agencies and authorities; (3) tree trimming/utility services; (4) land clearing contractors; (5) waste collectors, transfer station operators, and the like; (6) demolition contractors; (7) forestry management professionals; and (8) construction and demolition ("C&D") contractors and waste processors. Plainfield Exhibit 1 at 13.

Plainfield will enter into contracts with suppliers, under which they must agree to prepare and pre-process the wood supply prior to delivery to meet the Project's strict quality and size requirements that are crucial to the Project's operation. Plainfield Exhibit 1 at 13. Plainfield will not process any fuel on the Site. 11/16/06 Tr. (afternoon) at 21. There is a significant cost advantage to processing the wood and selling it, as opposed to transporting and disposing it at out-of-state landfills at a cost. Wood handlers therefore have significant economic incentives to install modest equipment to pre-process wood for delivery to the Project. Plainfield Exhibit 1 at 73; 11/16/06 Tr. (afternoon) at 88-89. Plainfield will contract only with suppliers that have invested in this

equipment and have the capability to meet the Project's requirements. 11/16/06 Tr. (afternoon) at 58-59.

The Project will utilize only the acceptable wood fraction of demolition debris. 11/16/06 Tr. (afternoon) at 45-46; *see also* 11/16/06 Tr. (afternoon) at 134 (volume reduction facilities ["VRFs'] will remove lead paint from housing demolition debris). In its solid waste permit application, Plainfield proposed a procedure that the Connecticut Department of Environmental Protection ("DEP") would use to regulate VRFs delivering wood to the Project, including a sampling regimen and laboratory testing. In this way, compliance will be achieved at the point of fuel production, and individual producers would be accountable under their individual DEP permits. 11/16/06 Tr. (afternoon) at 46-48. Plainfield will conduct periodic sampling to assure that the fuel that arrives at the Project meets the strict fuel specifications. 11/16/06 Tr. (afternoon) at 51-52, 56. This system creates "two layers of inspection" (the DEP permitting and the Project's periodic testing). 11/16/06 Tr. (afternoon) at 52.

3. Availability

Studies suggest that there are approximately 600,000 tons per year of clean wood indigenous to Connecticut which are available for fuel. This Connecticut supply is more than sufficient for the Project, which requires approximately 365,000 tons per year of wood fuel to produce approximately 37.5 MW net output. Plainfield Exhibit 1 at 46 (studies cited at Plainfield Exhibit 1, n.3); Plainfield Exhibit 10, Response to CSC-16; *see also* Plainfield Exhibit 10, Response to CSC-17 (distinguishing between Connecticut sources and those outside the state). In addition, urban and clean wood from several major metropolitan areas within a 60-75 mile radius of the Project is

available to the Project if necessary. Plainfield Exhibit 1 at 47; 11/16/06 Tr. (afternoon) at 91.

Plainfield expects to receive the vast amount of its wood supply from Connecticut. 11/16/06 Tr. (afternoon) at 89. The Site will include storage for forty-five days of fuel inventory, with sufficient buffer for the winter months when wood availability may temporarily decline. Plainfield Exhibit 1 at 47. Plainfield has executed Memoranda of Understanding ("MOUs") and Letters of Interest ("LOIs") with seven suppliers. Plainfield expects these preliminary agreements ultimately to become formal contracts for delivery. These MOUs and LOIs cover a total of 245,450 tons per year, representing between eighty-one and eighty-four percent (81-84%) of the Project's annual fuel supply requirements. Plainfield Exhibit 1 at 46, 72; 11/16/06 Tr. (afternoon) at 84-85, 135; 11/16/06 Tr. (evening) at 47 (clarifying 11/16/06 Tr. (afternoon) at 83-84); *see also* Plainfield Exhibit 4, Response to CSC-3. Plainfield expects to contract for the balance of the Project's requirements based on discussions with potential fuel suppliers. Plainfield Exhibit 1 at 46-7.

C. Industrial Area

The Site is located in an industrial-zoned area, with permitted uses that include the construction and operation of an electrical generation project, such as the Project. Plainfield Exhibit 1 at 92; 11/16/06 Tr. (afternoon) at 18, 33. The Town Plan of Conservation and Development identifies the area encompassing the Site as a commercial and industrial growth area. Plainfield Exhibit 1 at 95. The Site abuts the Providence & Worcester railroad to the west and a Connecticut Light and Power

Company ("CL&P") distribution line, and the Fry Brook substation is located within 1,500 feet of the Site. Plainfield Exhibit 1 at 3-4, 11.

D. Brownfield

The Site is on a remediated portion of a brownfield site. Plainfield Exhibit 1 at 3; 11/16/06 Tr. (afternoon) at 18. The U.S. Environmental Protection Agency and the Connecticut DEP classified the Site as a Superfund location thirty years ago, and active remediation is now complete, with only monitored natural attenuation continuing. The Project is an ideal use of property with this environmental background. Plainfield Exhibit 1 at 92; 11/16/06 Tr. (evening) at 43; *see also* Plainfield Exhibit 1 at 103-107; 11/16/06 Tr. (evening) at 42-44. The Project will not disturb the soil within the neighboring area governed by the environmental land use restriction and will have no environmental effect on the Superfund-regulated aspects of the Site. 11/16/06 Tr. (afternoon) at 73-75; 11/16/06 Tr. (evening) at 44; Plainfield Exhibit 1 at 106; Plainfield Exhibit 4, Response to CSC-12, . The Project likewise will not disturb the plume below the Site. 11/16/06 Tr. (evening) at 44.

E. Minimal Impacts to Environmental Resources and Wetlands

The Project's innovative design and state-of-the-art air pollution control technology minimize impacts to air quality. The Project will be the best controlled and lowest-emitting biomass energy Project of its size in the United States. Plainfield Exhibit 1 at 21. Likewise, Plainfield will carefully monitor water discharges to comply with all required environmental permits and will not create an adverse environmental impact on the Quinebaug River. Plainfield Exhibit 1 at 25, 92.

Plainfield anticipates that two delineated wetlands will be impacted by Site development activities (2,200 square feet of the red maple forested wetland on the north side of the Site and approximately 260 square feet of a single disturbed isolated wetland). Plainfield Exhibit 4, Response to CSC-14; *see also* Plainfield Exhibit 1 at 102-103, 11/16/06 Tr. (afternoon) at 70-71 (explaining that interrogatory revises the Petition). However, Plainfield will mitigate this unavoidable impact by (1) excavating a 2,200 square foot area adjacent to the filled area of the red maple forested wetland and planting wetland species, and (2) restoring wetlands in the undisturbed section of the isolated wetland and constructing a detention basin. Plainfield also intends to construct buffer zones around other existing wetlands which are most susceptible to construction-related impacts and retaining walls at two wetlands and to use best management practices during construction to mitigate potential impacts. With the mitigation measures in place, there is no anticipated substantial environmental effect to the wetlands associated with the Site. Plainfield Exhibit 4, Response to CSC-14; 11/16/06 Tr. (afternoon) at 71-72; Plainfield Exhibit 1 at 102-103.

While Plainfield intends to place in the wetlands approximately three to six transmission poles in order to avoid disturbing the environmental land use restriction area, such placement is a standard procedure with very low impact. In addition, one segment of the transmission line from the Project to the substation will be overhead to minimize impact to the wetland. 11/16/06 Tr. (afternoon) at 75-76. Finally, while the installation of the pipes to the Quinebaug River is expected to disturb approximately 4,500 or fewer square feet of federal wetlands and approximately 8,000 square feet of

state wetlands, this impact is only temporary for the duration of the pipe construction. 11/16/06 Tr. (afternoon) at 92-93, 97.

F. Minimal Visual Impacts

The Project's minimal visual impacts are due primarily to a natural topographic depression at the Site which effectively screens the Project from public view. Plainfield Exhibit 1 at 92-93; 11/16/06 Tr. (afternoon) at 20-21. While upper sections of the stack will be visible from a majority of the surrounding area within a one mile radius, much of the land to the west and east of the Project is undeveloped. Plainfield Exhibit 10, Response to CSC-15. In addition, an analysis of the Project's potential for visible cooling tower plumes, fogging, and icing yielded no expected adverse off-site environmental effects. Plainfield Exhibit 1 at 99-101.

G. Proximity to Existing Infrastructure

The Site's location is highly advantageous due to its proximity to newly improved transportation networks and electric transmission infrastructure.

Interstate highway I-395 runs within one mile of the Site. I-395 connects to State Route 12 which, in turn, runs adjacent to the Site. In 2004, Mill Brook Road and State Route 12 were improved to accommodate heavy truck traffic to the new large Lowes regional distribution warehouse. Plainfield Exhibit 1 at 4, 11, 32-33; 11/16/06 Tr. (afternoon) at 19. These improved roads provide a safe and efficient road network to and from the Project, particularly for fuel delivery by truck. Plainfield Exhibit 1 at 33, 91.

The Site is located near the 115-kV CL&P Fry Brook Substation, with which the Project will electrically interconnect via a single-circuit overhead 115 kV transmission line that is approximately 1,500 feet long. The Project's 115-kV transmission line is

along the existing CL&P right-of-way ("ROW") adjacent to an existing 23-kV CL&P overhead double-circuit pole line that runs through the Site's northern corner to the Fry Brook Substation. Plainfield Exhibit 1 at 60. Two 115-kV transmission lines connect to the Fry Brook substation, allowing for a robust interconnection for the Project. Plainfield Exhibit 1 at 91-92; 11/16/06 Tr. (afternoon) at 19-20.

H. Water Supply Available

The Project will have sufficient available water for all uses. The Project will draw from a connection to the public water supply system for potable water, and draw from a water diversion of the Quinebaug River for the balance of the Project's water supply needs (e.g., non-contact cooling water, equipment service water, and spray dryer water). Plainfield Exhibit 1 at 24-25, 92. The Project will obtain cooling water from the nearby Quinebaug River in Canterbury and pump it to the Project via a three-mile pipeline and associated pumping equipment that Plainfield will construct. Plainfield Exhibit 1 at 4, 48-49, 92.

Plainfield has executed a purchase agreement for a 14-acre parcel along the Quinebaug River on Packer Road in Canterbury, and intake from and discharge to the River will occur on this property. The intake and discharge point is now 1,500 feet from the original location. Plainfield Exhibit 6 at 2, Plainfield Exhibit 4, Response to CSC-5 (updating Plainfield Exhibit 1 at 4, 49); 11/16/06 Tr. (afternoon) at 94-95. The remaining path to the Project will require easements alongside public roads in the Towns of Canterbury and Plainfield, which the Project has discussed with the officials of both towns. Plainfield Exhibit 1 at 4, 48-49. The Towns of Canterbury and Plainfield are "fully accepting" of the route, and Plainfield will enter into agreements with the two

towns which will confirm acceptance of proposed waterline routes. 11/16/06 Tr. (afternoon) at 96; 11/16/06 Tr. (evening) at 62. The Project will return approximately 20% of the intake water to the same point at the River. Plainfield Exhibit 1 at 4, 49.

II. THE PROJECT SATISFIES CRITERIA FOR ISSUING PETITION

The Project will have no adverse environmental impact, advances state policies concerning renewable energy, and is consistent with state policies concerning the natural environment, ecological balance, public health and safety, and scenic, historic, and recreational values.

Public Act 05-01 (June Special Session), *An Act Concerning Energy Independence* (the "Act"), amended Conn. Gen. Stat. § 16-50k to provide as follows:

> [T]he council shall, in the exercise of its jurisdiction over the siting of generating facilities, approve by declaratory ruling . . . (2) the construction or location of any fuel cell, unless the council finds a substantial adverse environmental effect, or of any customer-side distributed resources project or facility or grid-side distributed resources project or facility with a capacity of not more than sixty-five megawatts, so long as such project meets air quality standards of the Department of Environmental Protection.

Section 1 of the Act defines "grid-side distributed resources" as "the generation of electricity from a unit with a rating of not more than sixty-five megawatts that is connected to the transmission or distribution system, which units may include, but are not limited to, units used primarily to generate electricity to meet peak demand." Conn. Gen. Stat. § 16-1(a)(43).

The Project is a grid-side distributed resource, less than 65 MW, and connected to the transmission system, meeting the criteria set forth in Conn. Gen. Stat. § 16-50k. Further, as demonstrated below, the Project will not have an adverse environmental

effect and will meet the DEP's air quality standards. Accordingly, the Project meets the criteria for approval by petition for declaratory ruling.

A. Natural Environment and Ecological Balance

The Project has no environmental impact with respect to the natural environment and ecological balance, in particular due to the Site's historic heavy disturbance, the Project's compliance with noise regulations, and its lack of anticipated environmental effect to wetlands.

1. Site Is Heavily Disturbed

Since this Site is already heavily disturbed, the Project will present no adverse environmental impact to the natural environmental and ecological balance at the Site. The Site was previously used as a quarry and subsequently as a repository for hazardous waste which was remediated in part by soil removal. A terrestrial ecology study of the Site by Kleinschmidt USA of Essex, Connecticut ("Kleinschmidt Study"), reports that past operations and ongoing dirt bike and all terrain vehicle activity have disturbed the Site. Plainfield Exhibit 1 at 97. The Site's land cover had been significantly altered from its original condition. Plainfield Exhibit 1 at 93. Further, the Project will be constructed around, and will not disturb, a neighboring environmental land use restriction. Plainfield Exhibit 1 at 93, 106; 11/16/06 Tr. (afternoon) at 73-75; 11/16/06 Tr. (evening) at 44. Finally, the Kleinschmidt Study concludes that the Site's disturbed areas provide for limited wildlife habitat. Plainfield Exhibit 1 at 97.

2. Noise

The noise levels from the Project will comply with the Connecticut Noise Regulations and thus do not adversely affect the environment. Modeled noise levels

generated from the Project (36-50 dBA) should be less than the background noise levels at the identified receptors (50-55 dBA). Plainfield will consider additional noise control measures, if necessary, during the Project's final design to achieve compliance with the Connecticut Noise Regulations at the property lines. Plainfield Exhibit 1 at 31, 99; 11/16/06 Tr. (afternoon) at 34-35.

Plainfield intends to use a pre-engineered "Butler-type" building for the power generation facility. Plainfield expects this building to reduce the noise generated inside the building to a compliant level for the nearest receptors without any additional acoustical tiles or other noise mitigation. Plainfield may also implement acoustical treatment for the exterior fans to reduce their noise level by approximately 10 dBA. Plainfield Exhibit 4, Response to CSC-6.

3. Wetlands

The Project's impact on wetlands is expected to be minimal, particularly since the wetlands are low quality and man-made, and Plainfield is implementing a wide range of mitigation techniques and activities. *See* Section I.E.

B. Public Health and Safety

1. Air Quality

Air emissions from the Project will have no adverse environmental impact due to the Project's state-of-the-art emissions control technology, comprised of a fluidized bed gasification system and sophisticated pollution control devices. As its air permit application and air quality impact modeling demonstrate, the Project complies with regulatory and health-based air quality standards.

a. State-of-the-Art Emissions Control Technology

The Project's innovative design and state-of-the-art air pollution control technology minimize impacts to air quality. The Project's staged gasification system minimizes the formation of nitrogen oxides ("NO_x"), while the fluidized bed design minimizes the formation of carbon monoxide and unburned hydrocarbons or volatile organic compounds. Plainfield Exhibit 1 at 21, 26; *see also* 11/16/06 Tr. (afternoon) at 18, 39. The addition of alkaline materials into the fluidized bed also controls sulfur and other acid gas constituents. Plainfield Exhibit 1 at 21, 26. Regulatory agencies throughout the United States accept fluidized bed gasification as a "best available control technology" since this technology is inherently cleaner than traditional solid fuel technologies and is commercially proven. 11/16/06 Tr. (afternoon) at 22; *see also* 11/16/06 Tr. (evening) at 41.

Complementing this low-emissions system design are sophisticated pollution control devices. 11/16/06 Tr. (evening) at 41; *see also* 11/16/06 Tr. (afternoon) at 54. The selective non-catalytic reduction system and a spray dryer absorber (scrubber) effectively control NO_x, sulfur dioxide, hydrogen chloride, and volatile metals and other condensable particulate matter. Plainfield Exhibit 1 at 22; 11/16/06 Tr. (afternoon) at 22. The fabric filter (baghouse) system functions as the final particulate and acid gas control system. Plainfield Exhibit 1 at 23; see 11/16/06 Tr. (evening) at 41. The scrubber and baghouse are also effective in removing lead. 11/16/06 Tr. (afternoon) at 134.

The final component of this low emissions design is the fuel input: the Project's use of wood fuel, processed by suppliers to strict size and quality specifications, results

in significantly lower emissions of NO_x and carbon dioxide compared to conventional coal or oil-fired steam electric power plants. Plainfield Exhibit 1 at 22. As discussed above, *see* Section I.B, the wood fuel has two layers of quality control: (1) suppliers will process and inspect wood fuel prior to delivery to the Project in compliance with their DEP permit requirements, and (2) Plainfield will check the fuel that arrives at the Project for adherence to the strict fuel specifications and conduct periodic statistical checking. 11/16/06 Tr. (afternoon) at 51-52, 56.

Due to this innovative system design, the Project will be the best controlled and lowest-emitting biomass energy Project of its size in the United States. Plainfield Exhibit 1 at 3, 21; 11/16/06 Tr. (afternoon) at 22.

b. Complies with Regulatory and Health-Based Standards

The Project complies with all DEP regulatory standards, and its emissions are significantly below health based standards. On August 8, 2006, Plainfield submitted to the DEP an air permit application, which demonstrated compliance with Best Available Control Technology ("BACT") and Lowest Achievable Emission Rates ("LAER") control technology requirements, as well as Maximum Allowable Stack Concentrations ("MASCs") for DEP-regulated hazardous air pollutants. Plainfield Exhibit 1 at 94; Plainfield Exhibit 6 at 4 (this application did not include the air quality impact analysis; *see* Section II.B.1.c below). Stack test and continuous emissions monitoring results and detailed results of hazardous air pollutant testing demonstrate compliance with BACT, LAER, and MASCs requirements. *See* Plainfield Exhibit 1, Attachment E & F; *see also* 11/16/06 Tr. (evening) at 38-39) (describing continuous emissions monitoring process and self-reporting under DEP air permit); *see* generally Plainfield Exhibit 1 at 35-43

(detailing applicable air quality regulations and standards). The Project will have extremely low particulate matter, NO_x, and sulfur dioxide emissions, and although the Project's carbon monoxide and organic emissions are higher than those from other technologies, these emissions are significantly below the DEP regulatory standards. 11/16/06 Tr. (afternoon) at 22-23; Plainfield Exhibit 11 at 13 (chart).

As mentioned above, see Section I.B.1, Plainfield will use biodiesel, which is renewable, for the Project's start-up fuel. Plainfield Exhibit 4, Response to CSC-8; Plainfield Exhibit 6 at 2; 11/16/06 Tr. (afternoon) at 103-104. This start-up fuel represents less than one-tenth of one percent (0.1%) of the Project's annual fuel input. 11/16/06 Tr. (afternoon) at 104. Conservatively estimated emissions from biofuels are less than those from normal operation on biomass fuel, and air quality modeling will nonetheless assume the exclusive use of biomass fuel, a "worst case" scenario. Plainfield Exhibit 6 at 4-5; 11/16/06 Tr. (afternoon) at 105. This start-up fuel change, therefore, complies with regulatory and health-based standards.

c. Air Quality Impact Modeling

Plainfield recently has completed the air quality impact analysis using analytic dispersion models which the DEP requires as part of the air permit application. The results of the impact analysis demonstrate compliance with all applicable National Ambient Air Quality Standards ("NAAQS") and Prevention of Significant Deterioration ("PSD") Increments, including the effects of nearby interacting sources. The modeling analysis also demonstrates that the 155-foot stack height meets all air quality impact criteria. This height is optimal in that it is low enough to minimize visible impacts and Federal Aviation Administration stack lighting requirements, yet high enough to comply

with all air quality standards. Plainfield Exhibit 6 at 4 (updating Plainfield Exhibit 1 at 94).

2. Water

The process of diverting and pumping water from the Quinebaug River (the "River") for utilization as non-contact cooling water, equipment service water, and spray dryer water and discharging water to the River will not create an adverse environmental impact. *See generally* Plainfield Exhibit 1 at 25.

a. Route of pipe

The Project will pump cooling water from the River in Canterbury through a three-mile pipeline west of the Site. Plainfield has executed a purchase agreement for a 14-acre parcel along the River on Packer Road in Canterbury; intake from and discharge to the River will occur on this property. Plainfield Exhibit 6 at 2 (updating Plainfield Exhibit 1 at 4, 49); Plainfield Exhibit 4, Response to CSC-5; 11/16/06 Tr. (afternoon) at 94-95. Although Plainfield has not yet designed the exact route from the road frontage to the River, 11/16/06 Tr. (afternoon) at 92, the pipe route will extend within the public ROWs associated with public roads in Canterbury and Plainfield; Plainfield has discussed the required easements with Canterbury and Plainfield officials. Plainfield Exhibit 1 at 4, 49. The Towns of Canterbury and Plainfield have been receptive to Plainfield's routing requirements, and Plainfield plans to enter into final agreements. 11/16/06 Tr. (afternoon) at 96; 11/16/06 Tr. (evening) at 62.

b. Supply

The 7-day, 10-year low flow rate of the River is calculated at 65.4 million gallons per day ("MGD"). The annual mean daily flow of the River is more than ten times

higher, 667.5 MGD. The quantity of water that the Project is expected to divert from the River (between 656,000 and 994,000 gallons per day ("GPD") depending on final equipment specifications and weather conditions), represents a little less than approximately one and a half percent (1.5%) of the 7-day, 10-year low flow of the River at the proposed diversion location. Plainfield Exhibit 1 at 25, 53-54, 56, 57, as revised by 11/16/06 Tr. (afternoon) at 108 (accounting for new River intake point). Since the cooling water tower system will return to the River approximately twenty percent (20%) of the intake water (between 126,000 and 194,000 GPD), the net withdrawal of water from the River is 530,000 to 800,000 GPD. Plainfield Exhibit 1 at 4, 57. The diversion of this small amount of water conforms with DEP requirements and standards, Plainfield Exhibit 1 at 92, and presents no adverse environmental impact to the River.

This limited use of River water is the result of the Project's reusing and re-circulating as much water as possible. The non-contact cooling water system currently is designed to re-circulate the water five times and to use boiler blowdown in part in the spray dryer system (for approximately 35% of the system's needs). Plainfield Exhibit 1 at 53. The Project therefore requires less water from the River, although the discharge concentrations of dissolved minerals taken in with the river water are slightly higher when returned with the smaller volume.

c. Wet Cooling

The Project will use a wet cooling technique. Upon consideration of both wet and dry cooling, Plainfield concluded that wet cooling is more efficient, economical, and quieter and that it has fewer environmental impacts than dry cooling. While wet cooling will result in the use of greater water as compared to dry cooling, this water withdrawal

for the wet cooling system will not have a significant impact on the River's ecosystems. Plainfield Exhibit 1 at 53; *see also* 11/16/06 Tr. (afternoon) at 127.

d. Discharge

The Project will discharge (1) effluent sanitary waste to the local wastewater treatment plant (approximately 875 GPD), (2) equipment service water to the wastewater treatment plant (approximately 1,000 GPD), and (3) non-contact cooling water to the River (approximately 126,000-194,000 GPD). Plainfield Exhibit 1 at 25. The Project will return approximately twenty percent (20%) of the intake water to the intake point on the River. Plainfield Exhibit 1 at 4, 56. All discharges, except the sanitary wastewater, will be subject to and will comply with DEP discharge permit regulations. Plainfield Exhibit 1 at 26; *see e.g.*, 11/16/06 Tr. (afternoon) at 91-92.

The Project will re-circulate the effluent backwash from the River water clarifier system and reuse it in the cooling tower/spray dryer make-up system, resulting in no discharge from the clarifier to the River or the wastewater treatment system. Similarly, the Project will not discharge boiler blowdown water due to its reuse in the spray dryer system. Plainfield Exhibit 1 at 26, 54, 56-57.

3. Odor

The Project's operation will not generate any noticeable odors. There may be a "woodsy, piney smell" in the wood storage yard from the green, forest wood portion of the fuel, but this odor is pleasant. 11/16/06 Tr. (afternoon) at 36-37. There are no odor issues at Decker's other wood burning facilities; nonetheless, the Project's safeguards against an unlikely odor problem include "first in, first out" inventory control and an

average thirty-day inventory lifespan. 11/16/06 Tr. (afternoon) at 43-44. Odors, therefore, do not pose an adverse environmental impact.

4. Electric and Magnetic Fields ("EMFs")

EMFs resulting from the Project likewise do not present an adverse environmental impact. Projected EMF levels attributable to the Project are well within the acceptable range for these types of facilities. Plainfield Exhibit 1 at 111. The Project will result in relatively minimal EMF impacts along the Site boundaries and the boundaries of the ROW. Plainfield Exhibit 1 at 107. Further, the Project's design and utility interconnection is consistent with the Council's Best Management Practices for EMFs. Plainfield Exhibit 1 at 107. Plainfield therefore does not propose exposure limits for EMFs or specific design considerations to reduce EMF levels. Plainfield Exhibit 1 at 111.

5. Fire

The Project does not pose a fire threat to the community or an adverse environmental impact due to the myriad of design features and safety precautions that the Project incorporates.

The Project utilizes both automatic and manual fire protection systems, with targeted systems and emergency procedures for the power block (containing the fluidized bed staged gasifier system) and the biomass storage and handling systems. Plainfield will design the power block, related electrical systems, the staged gasifier system, and the on-site water supply system in accordance with applicable National Fire Protection Association standards. The power block and lube oil systems will incorporate fire protection and suppression mechanisms. The cable trays, transformer

system, control room, cooling tower, and other Project components will be designed to minimize fire hazards and emergencies. The Project will incorporate fire safeguards including fire alarm and underground hydrant systems, a sprinkler system for interior spaces, a water storage tank, and an emergency plan. Finally, the Fire Marshal will review the Project design. Plainfield Exhibit 1 at 78-81; 11/16/06 Tr. (afternoon) at 81.

The Project will also use precautions specific to the biomass deliveries and storage, including periodic screening and visual inspection for evidence of fire or smoldering, deluge-type nozzles and fire detectors in the storage area, delivery recordkeeping, and personnel training. Plainfield Exhibit 1 at 78-81, 82. The deluge-type nozzles would saturate the entire wood storage area, including the interior and exterior components, in the event of a fire in this area. Further, there are fire extinguishers and water deluge guns in the event of a fire on the conveyor. 11/16/06 Tr. (afternoon) at 80. The "first in, first out" inventory control and mixing the fuel pile provide additional safeguards. 11/16/06 Tr. (afternoon) at 118.

6. Scenic, Historic, and Recreational Values

The Project will result in no adverse environmental impacts relating to scenic, historic, and recreational values. In particular, the Project poses no adverse impact to views and visibility, historic and archaeological benefits, fish and wildlife, and forests, parks, and watercourses.

a. Visual Impacts

The Site's beneficial topography significantly reduces the Project's visual impact. An elevated portion of the property will run along the Project's length, placing the Project in a natural depression and effectively screening much of the Project from the

public's view. Plainfield Exhibit 1 at 92; 11/16/06 Tr. (afternoon) at 20-21. Plainfield will maintain existing tree lines to the extent possible to enhance this effect; the trees along Route 12 are fifty to sixty feet tall. Plainfield Exhibit 1 at 93; 11/16/06 Tr. (afternoon) at 100. While upper sections of the stack will be visible from a majority of the surrounding area within a one-mile radius, much of the land to the west and east of the Project is undeveloped. Plainfield Exhibit 10, Response to CSC-15; *see also* 11/16/06 Tr. (afternoon) at 97-101 (describing balloon visibility analysis); Plainfield Exhibit 13 (photographs and map). In addition, using the Seasonal/Annual Cooling Tower Impact model, Plainfield evaluated the Project's cooling tower for visible plumes, fogging, icing, and other potential effects; no adverse off-site environmental effects are expected. Plainfield Exhibit 1 at 99-101.

b. Archeological Assessment

In its letter dated November 2, 2006, the Connecticut State Historic Preservation Office recommended that Plainfield retain a professional archeologist to undertake a survey of the Site and requested the opportunity to review the survey prior to the commencement of Site construction. Plainfield will comply with this recommendation and complete an archeological survey of the Site. Plainfield Exhibit 5 at CSC-10 and Attachment; 11/16/06 Tr. (evening) at 47, 61-62.

c. Fish and Wildlife

The Project will not have an adverse impact on fish and wildlife. Plainfield Exhibit 1 at 97, 98. The Kleinschmidt Study, *see* Section II.A.1, identifies seven plant communities on the Site (red maple forested wetland, sand barren, early successional hardwood stand, pitch pine stand, forested stand, early successional shrubland, and

isolated wetlands) and the associated wildlife species of each habitat. As mentioned above, *see* Section II.A.1, much of the Site has been disturbed due to past operations and ongoing dirt bike and all terrain vehicle activity, and these disturbed areas provide limited wildlife habitat. Nonetheless, Plainfield will implement mitigation measures such as soil stabilization and planting plans, construction best management practices, and erosion and sedimentation controls. Plainfield Exhibit 1 at 97-98.

While a 1993 U.S. Fish and Wildlife Service survey of Site did not identify any federally or state listed rare, threatened, or endangered species, the DEP's Natural Diversity Database maps identified one endangered species (the eastern spadefoot toad), one threatened species (the blue-spotted salamander), and one species of special concern (savannah sparrow) in the general vicinity of the Site. In surveying the Site, however, the Kleinschmidt Study found no evidence that these species are breeding and/or otherwise present at the Site. Plainfield Exhibit 1 at 97-98.

A supplemental Kleinschmidt survey of the new intake site at the Quinebaug River, *see* Section II.B.2.a, identified one endangered species (the eastern spadefoot toad) and one species of special concern (savannah sparrow) in this area. However, this area does not provide suitable habitat for either of these species. 11/16/06 Tr. (evening) at 60-61.

The intake structures at the Quinebaug River are not anticipated to be a safety hazard for land-based wildlife and are specifically designed to protect fish. The intake structure will have a cylindrical wedge-wire screen with a slot opening of 0.125-inch to prevent fish entrainment and a maximum inlet velocity of less than 0.4-feet per second to prevent fish impingement. At inlet velocities of 0.5-feet per second or less, juvenile

fish can swim up to the intake screen and safely swim away without getting stuck to the screen openings. Plainfield Exhibit 4, Response to CSC-5; *see also* Plainfield Exhibit 4, Response to CSC-7.

The Project therefore will have no adverse environmental effect on fish and wildlife.

d. Forests and Parks

The Site encompasses forested red maple wetlands and forested stand. *See* Sections II.A.3 & II.B.6.c. Plainfield has proposed mitigating the unavoidable impact to the forested wetlands by excavating a 2,200 square foot area adjacent to the filled area and planting with wetland tree, shrub, and herb species. Plainfield plans to implement a wide range of additional mitigation measures for wetland impacts, more generally. *See* Section I.E above. There are no parks located on the Site. The Project thus will not present an adverse environmental impact to forests or parks at the Site.

III. ONGOING SITING COUNCIL JURISDICTION OVER THE PROJECT

The Siting Council, established pursuant to the Public Utility Environmental Standards Act ("PUESA"), Conn. Gen. Stat. §§ 16-50g et seq., is charged with the responsibility of balancing the need for utility services with the environmental consequences associated with the location, construction and operation of facilities which produce and supply said services. Conn. Gen. Stat. § 16-50g. In order to perform its statutory functions, the Siting Council has exclusive jurisdiction over the location and type of certain utility facilities, including generating facilities. Conn. Gen. Stat. § 16-50x(a). Among other things, PUESA requires companies to obtain a

Certificate of Environmental Compatibility and Public Need ("Certificate") from the Siting Council prior to commencing site preparation for, or commencing the construction or supplying of a facility that may have a substantial adverse environmental effect. Conn. Gen. Stat. § 16-50k.

Public Act 05-01 (June Special Session), *An Act Concerning Energy Independence* (the "Energy Independence Act"), amended Conn. Gen. Stat. §16-50k to provide explicitly for the siting consideration of small generators such as Plainfield through a petition process rather than a certificate proceeding. Conn. Gen. Stat. §16-50k now provides:

> [T]he council shall, in the exercise of its jurisdiction over the siting of generating facilities, approve by declaratory ruling... (2) the construction or location of any fuel cell, unless the council finds a substantial adverse environmental effect, or of any customer-side distributed resources project or facility *or grid-side distributed resources project or facility with a capacity of not more than sixty-five megawatts, so long as such project meets air quality standards of the Department of Environmental Protection.* (emphasis added)

Accordingly, Plainfield filed a petition with the Council pursuant to R.C.S.A. §16-50j-39 in which it asked the Council render a declaratory ruling that a Certificate is not needed for the construction, operation and maintenance of the Project because the Project will not have a substantial adverse environmental impact.

Conn. Gen. Stat. §16-50k provides that a facility for which a Certificate has been issued must be built, maintained, and operated in conformity with the Certificate and the conditions contained therein. In other words, the Council maintains jurisdiction over a certificated facility in order to insure compliance with the Council's decision. Similarly, while a matter of custom and practice rather than a statutory provision, the Council must maintain on-going jurisdiction over projects approved by declaratory ruling in order to

guarantee that the facility as described in the petition is the facility actually built. For similar reasons, the Council may impose such conditions as the Council thinks necessary, including the filing of development and management plans, in order to ensure that the project is built, operated and maintained consistent with the Council's approval by declaratory ruling.

IV. CONCLUSION

The Plainfield Renewable Energy Project to construct, maintain, and operate a 37.5 MW wood biomass staged gasification generating project in Plainfield, Connecticut, satisfies the statutory criteria of Conn. Gen. Stat. § 16-50k, as amended by Public Act 05-01 (June Special Session), *An Act Concerning Energy Independence*. In particular, the Project will not have an adverse environmental effect and will meet the DEP's air quality standards. Accordingly, the Project meets the criteria for approval by petition for declaratory ruling.

Respectfully submitted,

PLAINFIELD RENEWABLE ENERGY, LLC

By: _____

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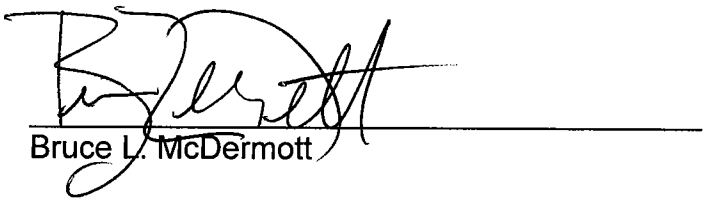
CERTIFICATION

This is to certify that on this 15th day of December, 2006, an original and twenty (20) copies of the foregoing were delivered by hand to The Connecticut Siting Council, 10 Franklin Square, New Britain, Connecticut 06051, one copy was served on all other known parties and intervenors by depositing the same in the United States mail, first class postage prepaid on this 15th day of December, 2006, and an electronic copy was provided to the Connecticut Siting Council and all other known parties and intervenors.



Bruce L. McDermott