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

August 14, 2006

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ACRONYMS

BACT	Best Available Control Technology
BMS	Burner Management System
CAA	Clean Air Act
CAAA	1990 Clean Air Act Amendments
CCEF	Connecticut Clean Energy Fund
CEM	Continuous Emissions Monitor
CL&P	Connecticut Light and Power Company
CO	Carbon Monoxide
CO2	Carbon Dioxide
Conn. Gen. Stat.	Connecticut General Statutes
DAS	Data Acquisition System
Decker	Decker Energy International, Inc.
CTDEP	Connecticut Department of Environmental Protection
DPUC	Connecticut Department of Public Utility Control
EPC	Engineering, Procurement & Construction
EPI	Energy Product of Idaho
ERC	Emission Reduction Credit
FAA	Federal Aviation Administration
FBC	Fluidized Bed Cell
FBG	Fluidized Bed Staged Gasification
FBSG	Fluidized Bed Staged Gasifier
GPD	Gallons Per Day
GSU	Generator Step-Up Transformer

HAP	Hazardous Air Pollutants
HCl	Hydrogen Chloride
HMI	Human Machine Interface
I/O	Input/Output
ISO-NE	Independent System Operator-New England
LAER	Lowest Achievable Emission Rate
LOI	Letter of Intent
MACT	Maximum Achievable Control Technology
MASCs	Maximum Allowable Stack Concentrations
MGD	Million Gallons Per Day
MMBtu/hour	British thermal units per hour
MOU	Memorandum of Understanding
MSW	Municipal Solid Waste
MW	Megawatts
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NNSR	Non-attainment New Source Review
NOx	Nitrogen Oxides
NSR	New Source Review
NuPower	NuPower LLC
OPM	Office of Policy and Management
PLC	Programmable Logic Controller
PLM	PLM Electric Power Engineering
PM	Particulate Matter

PPE	Personal Protective Equipment
PRE	Plainfield Renewable Energy LLC
RCSA	Regulations of Connecticut State Agencies
RMP	Risk Management Plan Rule
RPS	Renewable Portfolio Standard
SNCR	Selective Non-Catalytic Reduction
SO2	Sulfur Dioxide
VOC	Volatile Organic Compounds
VRF	Volume Reduction Facility

I. EXECUTIVE SUMMARY

Plainfield Renewable Energy LLC ("PRE") proposes to construct a 37.5 MW (net) Class I wood biomass fueled gasification power plant ("Project") that will be located in Plainfield, Connecticut on an approximately 27 acre industrial zoned parcel of land. NuPower LLC ("NuPower") and Decker Energy International, Inc. ("Decker") (collectively the "PRE") have formed PRE as a joint venture to pursue the Project's development, financing, construction and operation. Together, the PRE have significant experience in developing and operating wood biomass fired projects and specifically developing renewable energy projects in Connecticut. The Project is also being funded in part by the Connecticut Clean Energy Fund ("CCEF") as a selected participant in the CCEF Pre-Development Program.

The Project is in an advanced stage of development:

- PRE has a firm understanding of all permits required to successfully execute the Project, as evidenced by multiple meetings with the Connecticut Department of Environmental Protection ("CTDEP") and the filing or substantial completion of all permit applications;
- PRE has control of the Project site;
- PRE has confirmed the existence of sufficient biomass fuel supply which has been validated by executing letters of intent with suppliers;
- Proven and commercially-available gasification technology;
- PRE has filed an Interconnection Request for a Large Generating Project and executed an Interconnection Agreement with New England Independent System Operator ("ISO-NE"); and

- PRE has prepared a Financing Plan covering planned capital structure and identification of potential financial providers.

The Project will provide benefits to the State without having a substantial adverse environmental impact:

- The Project will be a Connecticut Class I renewable resource as defined by Conn. Gen. Stat. § 16-1(a)(26);
- As a sizable Class I Project, the Project provides a significant generating source available to electric suppliers for meeting Connecticut's Renewable Portfolio Standard goals. The 37.5 MW represents approximately 15% of the State's Class I 2008 Renewable Portfolio Standards ("RPS");
- The Project will provide financial benefits to the state, and the Plainfield region in particular, through the provision of jobs;
- Over 200 jobs will be created during the construction phase and 20-25 permanent jobs will be created during operations. Additionally, numerous jobs will be created in fuel processing, transportation maintenance support and supplies;
- The Project will contribute to the diversity of fuel sources for the State's electrical generation;
- Use of indigenous biomass supply will offset the State's high reliance on gas fired generators which may be constrained during peak winter months from receiving their gas supply;
- Beneficial use of the State's biomass that replaces its disposal in costly landfills throughout the Northeast;

- The combination of proven low emission technology and Connecticut's biomass resources will result in the Project being one of the least cost renewable options in contrast to fuel cell and solar alternatives;
- The Project will be more competitive relative to conventional technology in light of the continuing high cost of fossil fuels. Further, the Project may be less costly than comparable natural gas or oil fired facilities given the volatility of current prices;
- The Project will eliminate the purchase of an equivalent amount of oil from politically unstable or adverse overseas suppliers; and
- PRE estimates that the Project will eliminate Connecticut's need for 27.6 million gallons of imported oil or 4.1 million MCF of natural gas annually.

A. Key Project Elements

1. Fuel

The fuel supply for the Project will come from a biomass combination of diverse sources such as: (a) forest thinnings, land clearing and other silvicultural activities, (b) source separated urban waste wood, (c) primary wood waste, (d) wood fuel from pallets, (e) separated construction and demolition wood waste, and (f) mill residues.

2. Technology

The Project will employ advanced, state-of-the-art gasification technology and air pollution controls, making it the best-controlled and lowest-emitting biomass energy Project of its size in the United States. This technology was reviewed by CCEF as part of PRE's participation in the Pre-Development Program selection process.

3. Site

The property is a remediated portion of a Superfund site abutting the Providence & Worcester railroad and a Connecticut Light and Power Company ("CL&P") distribution line,

with the Fry Brook substation located within 1,500 feet. Interstate highway I-395 runs within one mile of the site and a newly enlarged highway (State Route 12) runs adjacent to the site. The road improvement was completed in 2004 to service the truck traffic associated with the construction of a major Lowes regional warehouse and transfer facility.

4. Water Supply

Cooling water will be obtained from the nearby Quinebaug River in Canterbury and pumped to the Project via a three mile pipeline and associated pumping equipment. PRE is completing an easement with a private property owner at the water intake site. The remaining path to the Project will require easements alongside public roads in the towns of Canterbury and Plainfield, which PRE has discussed with the officials of both towns. Approximately 20% of the intake water will be returned to the same point at the Quinebaug.

5. Electrical Interconnection

The PRE has filed an Interconnection Request for a Large Generating Project with ISO-NE. On May 31, 2006, ISO-NE deemed the interconnection application complete. PRE has also executed an Interconnection Study Agreement and made the first installment payment under the Agreement. All power generated by the Project will be electrically in Connecticut. The interconnection study and approval is expected to be completed in the first quarter of 2007.

6. Ash Handling

Ash from the Project will be landfilled. A letter of intent has been executed with Wheelabrator/Waste Management Inc. to provide for the long-term disposal of the Project's entire ash residue output (40-60,000 tons/year). Another small quantity (250-280

tons/year) stream of solids derived from clarification of the river cooling water will also be managed at one of many landfills in the New England region. *See* Attachment C.

7. Community Relations

PRE has developed an excellent relationship with the Plainfield community by pursuing a multi-faceted communications approach, including:

- Regular discussions with local officials (*See* Section XXVII for a summary of PRE's municipal consultation meetings);
- A public presentation at Town Hall on February 2, 2006, which was well received by the local community;
- Maintaining a website at www.prellc.net.

8. Development Strategy & Schedule

PRE has focused on establishing and solidifying the strength and viability of the Project. After establishing a partnership that combined the local knowledge and resources of NuPower with the financial commitment and biomass experience of Decker, PRE has (1) presented the Project in a public meeting to the Town of Plainfield, (2) completed preliminary facility design and site layout, (3) filed or substantially completed all required CTDEP permit applications, (4) filed an Interconnection application with ISO-NE and (5) executed Letters of Intent with fuel suppliers representing approximately 84% of the Project's requirements.

PRE has now begun the process of identifying and contacting appropriate Engineering, Procurement & Construction ("EPC") firms qualified and available to provide turnkey, guaranteed design and construction of the Project.

PRE anticipates receipt of permits and financial closing by the second quarter of 2007, with Commercial Operation anticipated in late 2008 or early 2009.

II. PURPOSE OF THE PETITION

PRE requests that the Connecticut Siting Council ("Council") render a declaratory ruling that a Certificate of Environmental Compatibility and Public Need is not needed for the construction, operation and maintenance of the Project because the Project will not have a substantial adverse environmental impact. The Council is authorized to site this Project by declaratory ruling pursuant to Connecticut General Statutes ("Conn. Gen. State." or "CGS") §16-50k.

III. STATUTORY AUTHORITY

PRE is filing this Petition pursuant to Conn. Gen. State. § 16-50k and § 16-50j-1 et seq. of the Regulations of Connecticut State Agencies ("RCSA"). Even though this is a petition, PRE has provided to the Council the information generally required by Conn. Gen. Stat. § 16-50*l* and the Council's Application Guide for Electric Generating Project dated January 19, 2000.

IV. LEGAL NAME AND ADDRESS OF PETITIONER

The legal name of the petitioner is Plainfield Renewable Energy LLC. PRE is a joint venture between NuPower and Decker Energy International, Inc. PRE is a Delaware limited liability company. PRE's principal place of business is in Norwalk Connecticut.

Mailing address: 20 Marshall Street, Suite 300
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V. PETITIONER'S CONTACTS

Correspondence and other communications concerning the Project are to be addressed to, and notice, orders and other papers may be served upon the following:

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VI. DESCRIPTION OF THE PROPOSED PROJECT

A. Project Site Description

The Project will be located on an approximately 27-acre site in Plainfield controlled by PRE through an assignment granted by NuPower. The site is bounded by Mill Brook Road and State Route 12. Mill Brook Road and State Route 12 were recently improved to accommodate heavy truck traffic to the new large Lowes regional distribution warehouse. The Providence & Worcester Railroad borders the site to the west. Interstate 395 is one-half mile from the Project site.

The site was a portion of a Superfund location that has been fully cleaned and remediated and monitoring is ongoing. The site is zoned for industrial use and Plainfield's zoning regulations allow power plants with a special use permit in this zone. The topography of the site provides significant screening to the east and north.

Access to the electrical grid is approximately 1,500 feet away from the site at the Plainfield substation.

B. Project Description

The Project is a 37.5 megawatt ("MW") electric generating facility fueled by biomass. The Project will use wood from various sources such as tree thinnings, pallets and recycled waste wood. Biomass is a renewable fuel indigenous to Connecticut. [The Connecticut Department of Public Utility Control ("DPUC") has determined that biomass materials are renewable resources. *See* Docket No. 05-03-12, Application for Advisory Ruling on Eligibility for Class I Renewable Status Pursuant to Connecticut's Renewable Portfolio Standards.

The Project will generate power at 13.8-kilovolt ("kV"). The power will be stepped up to 115-kV via a 13.8-115-kV generator step-up transformer.

Prepared fuel will be delivered to the site, which has the capability to store up to 45 days of fuel. The prepared fuel (4" minus wood chips) will be transported via conveyor from the fuel yard to the enclosed staged gasification system. The fuel will be gasified and used to generate steam using a water wall boiler system. The steam production will drive one steam turbine. The technology and associated components are described in detail later in this section. Computer renderings of the Project are shown on Attachment B.

C. Service Life and Capacity Factor

The Project is expected to have a service life in excess of 35 years. Based on operating experience at other Decker facilities with similar components, PRE anticipates an annual capacity factor in excess of 90%.

D. Fuel Type & Supply

Biomass wood is expected to be delivered to the Project primarily in tractor-trailer trucks. Trucks will enter the Project on the main access roadway on Mill Brook Road, and proceed to the receiving truck scale. At the Project, the delivery will be logged in according to contract party, weight and source of material in accordance with the relevant delivery contract and CTDEP's reporting requirements, and proceed to the truck tipper area.

Two truck tippers will be provided to allow for rapid processing of biomass wood deliveries. Each tipper will tip a tractor-trailer set-up without the driver needing to disconnect or otherwise position the load. Biomass wood will flow from the trucks onto a receiving conveyor, where it will be delivered to the storage area.

The types of biomass wood streams accepted for processing at the Project are listed below. Based upon seasonal, market conditions, and similar factors, PRE could receive and process up to 100% of any one individual category of biomass wood fuel from

time-to-time, although it is expected that a range of sources and types of biomass wood will be delivered and consumed on an on-going basis.

As illustrated below, PRE anticipates a range of suppliers, each associated with different types of biomass wood. The range of suppliers is expected to include, but not be limited to the following:

- Municipalities (from public works operations and residents);
- Regional/state agencies and authorities;
- Tree trimming/utility services;
- Land clearing contractors;
- Waste collectors, transfer station operators, and similar parties;
- Demolition contractors;
- Forestry management professionals; and
- Construction and demolition ("C&D") contractors and waste processors.

Parties delivering biomass wood will be required to enter into a contract arrangement with PRE, specifying the type of biomass wood, business terms, and making clear that all biomass wood will need to be prepared and pre-processed to meet PRE's quality and size requirements.

PRE has begun to communicate with certain of the C&D waste processors in the state, some of whom will need to invest in sorting and processing systems to produce acceptable biomass for the Project. At this time, existing volume reduction facilities in East Windsor, Milford and Willimantic have already installed sorting and processing systems for C&D wastes.

TABLE 1 - FUEL SUPPLY DESCRIPTION

Biomass Stream	Expected Sources	Regulatory Definition	Est. Annual Range from Percentage of Use		Discussion
			From	To	
Chipped Limbs, Brush & Whole Tree	Municipalities (From public works operations & residents) Regional/State agencies and authorities Tree trimming/utility services Land clearing contractors Forestry management professionals	RCSA §22a-208a-1: "Land Clearing Debris" means trees, stumps, branches, or other wood generated from clearing land for commercial or residential development, road construction, routine landscaping, agricultural land clearing, storms, or natural disasters.	10%	25%	This category of fuel streams is often referred to as "virgin wood" or "clean wood", although the regulatory definition of clean wood is very different (see below). Municipalities report a significant need for new disposal/recycling options for this fuel category.

TABLE 1 - FUEL SUPPLY DESCRIPTION

Biomass Stream	Expected Sources	Regulatory Definition	Est. Annual Range from Percentage of Use		Discussion
			From	To	
Pallets, Skids, Spools, Wood Crate / Packaging Materials, Or Scraps From Newly Built Wood Products	Municipalities (from drop-off transfer stations that hire chippers) Regional/State agencies and authorities Wood products industries Hauling and Waste processing companies Sawmills	"Recycled wood" means any wood or wood fuel which is derived from such products or processes as pallets, skids, spools, packaging materials, bulky wood waste or scraps from newly built wood products, provided such wood is not treated wood (CGS § 22a-209a); "Clean wood" means any wood which is derived from such products as pallets, skids, spools, packaging materials, bulky wood waste, or scraps from newly built wood products, provided such wood is not treated wood as defined in section 22a-209a of the General Statutes or demolition wood (RCSA § 22a-208a-1).	10%	20%	Expected to be a meaningful component of the Project's fuel stream, this category of wood fuel is managed by a large number of operators in the State at a range of permitted facilities (Volume Reduction Facility, single-item recycling facilities)

TABLE 1 - FUEL SUPPLY DESCRIPTION

Biomass Stream	Expected Sources	Regulatory Definition	Est. Annual Range from Percentage of Use		Discussion
			From	To	
Regulated Wood Fuel and Processed Construction & Demolition Wood	Private C&D waste processors. Connecticut permits C&D waste processors as volume reduction facilities. Demolition contractors may also become qualified by segregating and chipping acceptable wood at demolition sites.	"Regulated wood fuel" means processed wood from construction and demolition activities which has been sorted to remove plastics, plaster, gypsum wallboard, asbestos, asphalt shingles and wood which contains creosote or to which pesticides have been applied or which contains substances defined as hazardous under section 22a-115. (CGS § 22a-209a); "Processed Construction and Demolition Wood" means the wood portion of construction and demolition waste which has been sorted to remove plastics, plaster, gypsum wallboard, asbestos, asphalt shingles, regulated wood fuel as defined in section 22a-209a and wood which contains creosote or to which pesticides have been applied or which contains substances defined as hazardous waste under section 22a-115. (CGS § 22a-208x)	40%	80%	In addition to the direct contract obligations with PRE, PRE has proposed that CTDEP approve a standard protocol that all permitted VRF's will need to comply with, including specific obligations to separate unacceptable wood, train staff, sample and test wood fuel both in a qualifying phase prior to commence deliveries, and as part of on-going fuel monitoring. The results of all testing to be reported to CTDEP and PRE, with limits for parameters of concern.

TABLE 1 - FUEL SUPPLY DESCRIPTION

Biomass Stream	Expected Sources	Regulatory Definition	Est. Annual Range from Percentage of Use		Discussion
			From	To	
Other Clean Wood	Municipalities Regional/State agencies and authorities Private contractors Manufacturers	Other types of properly sized, clean, uncontaminated wood materials, such as sawdust, chips, bark, tree trimmings or other similar materials.	5%	10%	A range of waste generators and aggregators may elect to process acceptable biomass material into suitable fuel for the renewable energy system.

E. Combustion Technology

PRE's fluidized bed staged gasifier energy system includes equipment to accept, distribute and mix air, fuel and certain additives such as limestone in a high temperature thermal gasification and oxidation environment. Energy Products of Idaho ("EPI") is PRE's preferred vendor. The major components and subcomponents include:

1. Fluidized Bed Staged Gasifier Energy System

a) Fluidized Bed Cell

The fluidized bed cell ("FBC") is rectangular and includes a pressure-tight ¼-inch thick carbon steel shell. The unit is approximately 25 feet wide by 45 feet long and 75 feet in overall height.

b) Underbed Air Distribution System

Air, required for fluidization and thermal gasification, enters the fluidized bed vessel through the fluidizing air plenum. The air is distributed from the plenum through individual air manifolds that extend across the base width.

c) Overfire Air

Overfire air is delivered through multiple elevations of nozzles located in the walls of the FBC above the active bed.

d) Bed Material

The bed material is a fired refractory clay specifically sized for the application.

2. *Forced Draft and Preheat System*

The forced draft (FD)/preheat system includes the necessary equipment to preheat the fluidized bed staged gasifier energy system and supply the air required for normal operation.

a) FD Fan

Fluidizing and overfire air is supplied by the FD fan. The FD fan delivers pressure to force air through the fluidizing nozzles, bed material and overfire air nozzles.

b) Overbed Burner System

Two natural gas fired overbed burners rated at 50 MBtu/hr each are located in the upper vessel region of the fluidized bed staged gasifier ("FBSG"). During startup, the burners heat the bed and vapor regions for reduced emission startups. The system can also provide supplemental energy output during operation.

c) Air Preheater System

An air preheater is included to recover energy in the flue gas by transferring it to the fluidizing and overfire air. The unit is a tube and shell style with the flue gas flowing downward inside the tubes.

3. *Bed Recycle System*

The bed recycle system permits continuous operation of the fluidized bed process while removing inert material from the bed. This "on-line" cleaning capability reduces costs associated with downtime, labor and bed media usage. Tramp material is typically introduced with the fuel and consists of rocks, metal

and other inert material. In addition, fuel ash characteristics and upset operating conditions inevitably lead to occasional clinkering of a portion of the bed media. If tramp or clinkers were allowed to accumulate, this material would eventually destroy the fluidizing properties of the bed by increasing the average particle size of the bed material to a point where fluidization could no longer occur.

In the EPI system, bed material, along with the accumulated tramp and clinkers, flows downward between the fluidizing nozzles and air distribution manifolds and is thus removed from the active region of the bed. Cooling air from the FD fan is distributed through the manifolds to cool the bed material as it flows toward the discharge outlet, allowing the use of low temperature bed recycle equipment.

4. Bed Additive System

A bed additive system is provided to introduce limestone, lime, dolomite or other additives into the fluidized bed staged gasifier energy system. These calcium-based additives are generally used for two purposes. First, fuels containing high levels of alkaline elements typically contain ash with low softening temperatures. Additives help reduce the effects of ash softening by coating the ash particles with the additive. Second, sulfur and other acid gas constituents are abated by introducing additives into the fluidized bed.

5. Steam Generating System

The steam generating system uniquely combines heat transfer surfaces in the active fluidized bed region and the vapor-space area with evaporative surface areas in the waste-heat style boiler. A dual-stage superheater with a midstage

water spray attemporator raises and controls the steam to its final superheated temperature. A baretube economizer heats the feedwater to near steaming conditions before entering the steam drum.

6. Steam Turbine Generator

This staged gasification system generates steam to drive a conventional steam turbine generator. PRE will select a manufacturer and model concurrent with the selection of a construction contractor.

F. Control Systems, Including Pollution Control Technology

1. Pollution Control

The Project will employ advanced, state-of-the-art air pollution control technology making it the best controlled and lowest-emitting biomass energy Project of its size in the United States.

The staged gasification system is designed to operate at low temperature and low excess air in order to minimize formation of nitrogen oxides ("NOx") emissions. The fluidized bed design also ensures efficient mixing, gasification and ultimately combustion of fuel particles, resulting in minimized formation of carbon monoxide ("CO") and unburned hydrocarbons or volatile organic compounds ("VOC"). The addition of alkaline materials, such as limestone, lime or dolomite into the fluidized bed also provides control of sulfur and other acid gas constituents within the fluidized bed.

The air pollution controls consist of a combination of fuel characteristics/quality control, energy generation technology and flue gas controls. The Project will be fueled with 100% biomass/wood, including the

sorted, picked and cleaned wood component of construction and demolition debris obtained from CTDEP-regulated offsite fuel processing facilities adhering to strict specifications (size, quality, etc.). Use of biomass/wood fuel will result in significantly lower emission of certain criteria pollutants, such as nitrogen oxides (NOx), sulfur dioxide (SO_2) and carbon dioxide (CO_2) compared to conventional oil-fired steam-electric power plants.

In addition to strict fuel quality controls and advanced fluidized bed gasification technology, the Project will use state-of-the-art air pollution controls to further reduce emissions. For NOx control, selective non-catalytic reduction ("SNCR") will be used, resulting in a NOx emission rate below 0.075 lb/MMBtu. SNCR involves injection of urea into the combustion zone of the boiler to react with NOx to form nitrogen and water. The proposed controlled NOx emission limit below 0.075 lb/MMBtu meets the rate generally considered low emission, advanced combustion technology for biomass energy facilities qualifying as Connecticut Class I renewable energy sources. In addition to SNCR, the Project will employ a spray dryer absorber in the flue gas control system designed for high efficiency control of SO_2 and other acid gases, such as hydrogen chloride ("HCl"). The spray dryer consists of a quench/cooling tower for evaporative cooling of the gas stream and a dry venturi section where reagent is added to react with the SO_2 and HCl gases to form solid calcium sulfate and chloride salts that are subsequently removed in the baghouse. In addition, the evaporative cooling of the flue gas in the spray dryer will serve to condense volatile metals and other condensable particulate matter, which will contribute to the overall

control of trace metals and particulate emissions. The fabric filter (baghouse) system will be used as the final particulate and acid gas control system. The fabric filter provides the reaction surface to complete acid gas absorption and remove particulate from the gas stream prior to discharge.

2. Instrumentation & Control Systems

The instrumentation and control system includes the following components:

a) Local control panels

All field panels contain terminal blocks for field elements directly associated with the operation of specific systems. At a minimum, the following panels will be included:

- Bed Change out System Panel;
- Burner Management Panel;
- Fuel Metering Bin Panel;
- Ash Storage/Unloader Panel;
- Baghouse/ESP Control Panel;
- Central Programmable Logic Controller ("PLC") Panel.

b) Transmitters

Field mounted transmitters (HART Communications Foundation protocol) are provided for both temperature and pressure measurement. Type K thermocouples will be provided as needed.

c) Programmable Logic Controller (PLC)

A PLC is included for control of all non-burner management system functions as well as an independent PLC for the Burner Management System (BMS). Input/Ouput ("I/O") controls are provided for each system excluding

related MCC I/O that is by others. Remote I/O blocks are provided at appropriate field panel locations.

d) Human Machine Interface (HMI)

An HMI, consisting of a personal computer and monitor with a graphical interface software package, is included for operator control.

e) Continuous Emissions Monitor (CEM)

A continuous emissions monitor ("CEM") system is included to monitor the stack emissions and provide data reporting. The system features single-point extraction and includes monitors for CO, O2, NOX, SO_2, ammonia slip and opacity. A data acquisition system ("DAS") including an IBM-compatible computer and printer are provided. The NOX, and SO_2 analyzers also provide an isolated 4-20 mA signal for use within the plant control system. Up to 150-feet of heated umbilical sample tubing is included for installation by the customer between the stack sample port and CEMS.

G. Water and Effluent Discharge

The Project will fulfill its water supply needs through reliance upon two sources:

- Connection to the public water supply system for Project requirement that must be met with potable water; and
- Diversion of water from the Quinebaug River for the balance of its water supply needs.

The public water supply will be utilized for on-site employee sanitary uses and for boiler makeup water. Additionally, the public water supply system will be utilized

for fire suppression, if necessary. Approximately 23,100 gallons of public water will be needed each day.

Water diverted from the Quinebaug River in Canterbury will be pumped to the Project via new infrastructure to be installed by PRE. The diverted surface water will be clarified and utilized as non-contact cooling water, equipment service water, and spray dryer water for the scrubber component of the Project's air pollution control equipment. Based upon the preliminary design data, the quantity of river water needed for the Project will be limited based upon reusing as much water as possible, recirculating the non-contact cooling water through the system at least five times, and using boiler blowdown water to fulfill a portion of the water supply needs for spray dryer system. It has been estimated that between 656,000 and 994,000 gallons of water will be utilized each day, depending upon the exact equipment selected and the daily/seasonal weather conditions. This quantity of water represents between 1.0 and 1.5% of the 7-day, 10-year low flow of the Quinebaug River at the proposed diversion location. More detailed discussion of the effect of this flow on the Quinebaug River regional drainage basin is presented later in this Petition.

There will be three effluent discharge streams from this Project:

- Sanitary waste to the local wastewater treatment plant (approximately 875 gallons per day ("gpd");
- Equipment service water to the wastewater treatment plant (approximately 1,000 gpd); and
- Non-contact cooling water to the river (approximately 126,000 – 194,000).

The effluent backwash from the river water clarifier system will be recirculated and re-used in the cooling tower/spray dryer make-up system. Therefore, there will be no discharge from the clarifier to the river or the wastewater treatment system. The boiler blowdown water will be utilized in the spray dryer system.

All discharges, except the sanitary wastewater, will be subject to and will comply with CTDEP discharge permit regulations.

H. Air Emissions

The Project will use an advanced FBSG process to produce a gas stream derived from biomass; this will generate steam to drive a conventional steam turbine generator. Fluidized bed staged gasification of solid fuels will result in inherently lower air pollutant emissions than alternative grate or spreader-stoker type combustion systems. In addition, the Project will employ state-of-the-art air pollution control systems, including SNCR for control of NO_X; a spray dryer scrubber for control of SO_X acid gases and metals emissions; and a fabric filter (baghouse) for particulate matter ("PM") emissions control. A process flow diagram showing the conceptual arrangement of the fluidized bed gasifier, boiler, and flue gas controls is provided in Illustration 1.

Other ancillary emission sources at the Project will include a wet cooling tower and a stationary internal combustion engine used to power an emergency generator. The wet cooling tower is estimated to have the potential of emitting less than 15 TPY PM and PM_{10} and will, therefore, not trigger CTDEP permit requirements. As currently planned, the emergency generator will be powered by a diesel engine. The emergency engine will be operated in accordance with

CTDEP permit exemption criteria pursuant to RCSA § 22a-174-3b(e) and will, therefore, not require an individual air permit.

Process and emissions data used to estimate potential emissions from the Project were obtained from EPI, the preferred vendor of PRE. Emission calculations representing the range of expected operating conditions are provided in the Project's Air Permit Application submitted to the CTDEP along with the assumptions and bases of the calculations. The uncontrolled and proposed controlled potential emissions of regulated pollutants are summarized in Table 2 and Table 3, respectively.

Illustration 1 - EPI Fluidized Bed Staged Gasifier Process Flow and Conceptual Arrangement Diagram

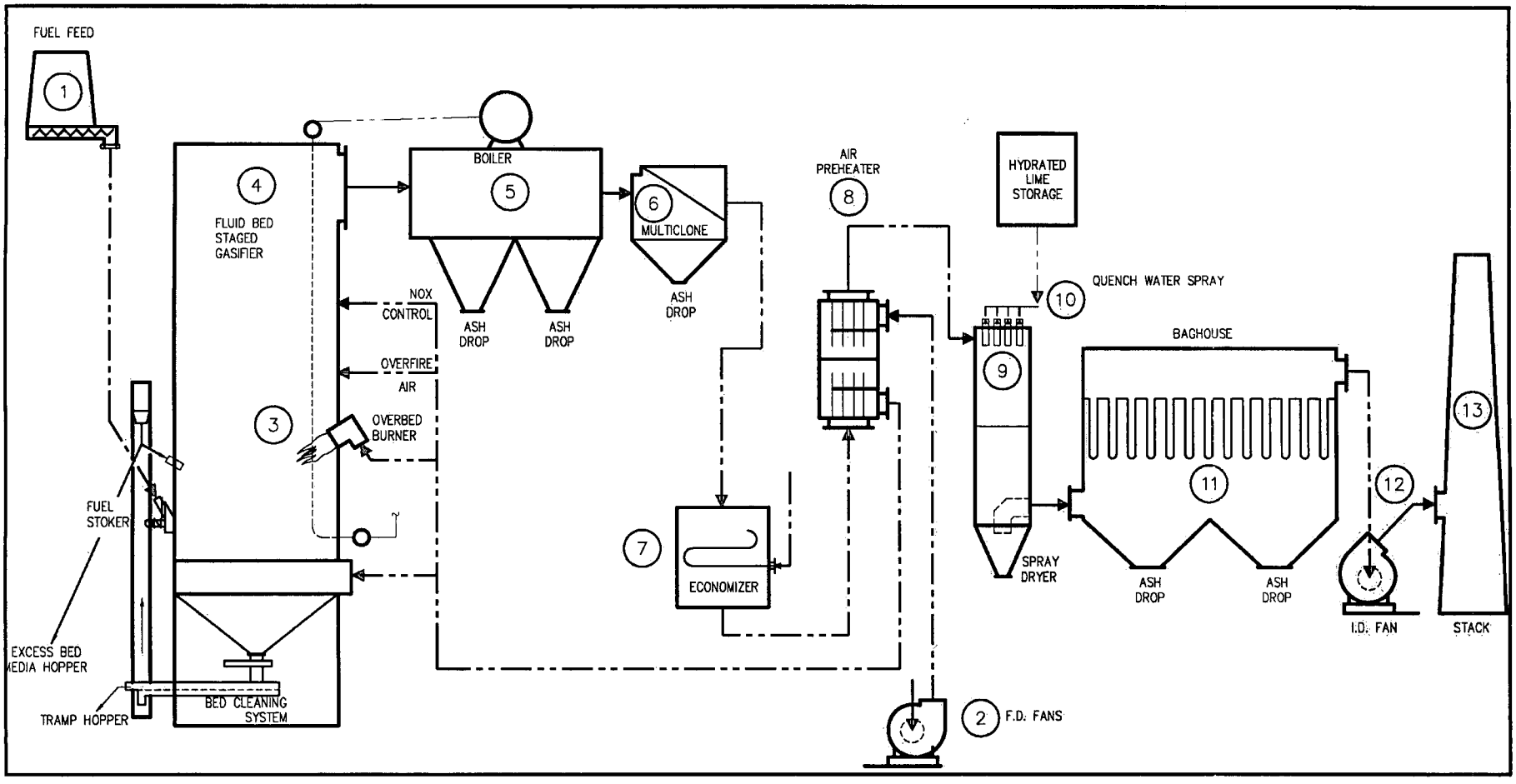

Table 2 – Estimated Uncontrolled Potential Emissions

Pollutant	Biomass FBG Uncontrolled Emission Factor (lb/MMBtu)	Biomass FBG Uncontrolled Potential Emissions (lb/hr)	Biomass FBG Uncontrolled Potential Emissions (TPY)	CTDEP Major Stationary Source Threshold (TPY)	PSD Significant Emission Rate (TPY)
PM/PM_{10}	21.04	11008.00	48215.0	100	25/15
NO_X	0.355	185.62	813.0	50	40
SO_X	0.505	264.31	1157.7	100	40
CO	0.105	54.67	239.5	100	100
VOC	0.012	6.07	26.6	50	25
Pb	3.16E-02	16.52	72.4	10	0.6
HCl	1.89E-01	99.12	434.1	10	
H_2SO_4	0.040	21.14	92.6	100	7
Hg	2.53E-05	0.01	0.1	100	0.1

Table 3 – Proposed Controlled Potential Emissions

Pollutant	Biomass FBG Controlled Emission Factor (lb/MMBtu)	Biomass FBG Controlled Potential Emissions (lb/hr)	Biomass FBG Controlled Potential Emissions (TPY)	Diesel Engine Emergency Generator (TPY)	Cooling Tower (TPY)	Total Premise Controlled Potential Emissions (TPY)	CTDEP Major Stationary Source Threshold (TPY)	PSD Significant Emission Rate (TPY)
PM/PM_{10}	0.02	10.46	45.82	0.07	0.65	46.55	100	25/15
NO_X	0.075	39.23	171.84	2.41		174.25	50	40
SO_X	0.035	18.56	81.29	0.0012		81.29	100	40
CO	0.105	54.67	239.47	0.55		240.02	100	100
VOC	0.012	6.07	26.59	0.07		26.66	50	25
Pb	1.4E-04	0.07	0.32	7.0E-06		0.32	10	0.6
HCl	1.3E-02	6.94	30.38			30.38		
H_2SO_4	2.8E-03	1.48	6.50			6.50	100	7
Hg	2.53E-06	0.0013	0.006			0.006	100	0.1

I. Waste Disposal

The Project will produce three solid waste streams, which will be separately managed and disposed:

- Traditional office / non-hazardous commercial and industrial wastes;
- A small quantity of solids filtered from the river cooling water; and
- Residues from the fluidized bed staged gasifier energy system.

Traditional office wastes will be collected by a conventional refuse contractor and handled as municipal solid waste ("MSW") as otherwise managed in the region. Such waste is likely to be disposed of at one of Connecticut's waste-to-energy plants, or at an out-of-state landfill.

The cooling water received from the Quinebaug River will be clarified before it is used in the cooling tower. Approximately 250-280 tons/year of solids will be derived from this process; it is expected to be non-hazardous material suitable for management at a range of facilities in the state and New England region.

The quantity of residue that will be produced by the fluidized bed staged gasifier energy system will be dependent upon the amount of non-combustible materials in the incoming biomass stream. PRE estimates annual production of 40,000-60,000 tons/year of residue, all of which will be landfilled. The residue stream includes:

- Non-combustibles contained within the biomass stream, including stones, dirt, metal fasteners, and ash from the gasification process;
- Residues generated by the air pollution control systems;
- Approximately 150-180 tons/years of non-hazardous solids.

See Attachment C for a letter from Wheelabrator/Waste Management, committing to accept such residues at its landfills in the Northeast and Mid-Atlantic regions.

J. Noise Abatement

The Project will be designed to meet the Noise Regulations of the State of Connecticut. A detailed noise study has been commissioned and a copy of that report is presented in Exhibit A. The site and the surrounding properties are all located in an area that is zoned for industrial use, however some of the adjacent property uses are residential. Background noise levels at four residential and one industrial receptor near the site were obtained on July 26, 2006. Existing background noise levels ranged between 50 and 55 dBA.

This background noise level data, the proposed site layout, the topographic map of the area, manufacturer's specific noise data and standard industry data and experience were utilized to model anticipated noise levels from the Project to these receptors. Anticipated noise levels from the proposed Project at these receptors (36 – 50 dBA) are anticipated to be below the existing background noise levels.

The Noise Study concludes that the noise modeling revealed that noise control measures may have to be considered in order to achieve compliance with the Connecticut Noise Regulations at the property line. The measures included an acoustically-treated turbine building and acoustical treatment for the fans.

K. Traffic Flow and Potential Evacuation Routes

The site is located off of I-395, exit 87. Figure 1 shows the site and its relationship to surrounding roads and highways. The site traffic is comprised of employee traffic, fuel and materials supply deliveries, and a small number of vendors and visitors. The majority of traffic accessing the site primarily are likely to utilize the following routes:

- I-395 to exit 87;
- west from exit on Lathrop Road (State Road 647) for approximately ¼ mile to Route 12;
- south on State Route 12 (a.k.a. Norwich Road) for approximately 1 mile to existing traffic signal at Mill Brook Road;
- west on Mill Brook Road less than ¼ mile to site drive, turn north into site drive.

A small number of trips (including local employees) and a limited number of fuel and supply deliveries may also utilize routes to access the site such as Route 12 from the north or south and Mill Brook Road from the west.

To evacuate the site, people can use either the main drive to Mill Brook Road, or the emergency access drive to Route 12.

L. Traffic Safety and Fuel Spill Risk

The Town of Plainfield implemented road improvements in recent years in order to accommodate traffic flow to the recently opened Lowe's distribution warehouse and to facilitate access to the industrial zoned property in the area. The Lowe's distribution warehouse is located approximately one mile west of the site on Mill Brook Road. As part of the road improvements, Route 12 was reconstructed and widened. Turn lanes and a signal were constructed at the

Route 12 and Mill Brook Road intersection, and Mill Brook road was realigned and reconstructed from Route 12 to Packer Road in Canterbury.

These road improvements have provided a safe and efficient road network to the Project. The accident experience in the area is low and no geometric or operational accident trends are evident. Intersection sight distances at the site drive are more than adequate for speeds 10 miles-per-hour over the posted speed limit.

The principal fuel delivered to the facility is wood biomass, which has little to no special risk during transport. A small amount of diesel fuel will be delivered to the site for emergency use as a fuel supply to the back-up generator.

M. Provisions for Leak Detection of Fuel and Chemicals from Storage Areas

The Project will not utilize underground or above ground storage tanks of liquid fuel like many power plants (other than a conventional tank for the diesel generator discussed below). As previously described, the fuel source for this Project will be solid woodchips. Therefore, leak detection will not be an issue at this site in comparison to the concerns that may exist for liquid fuel power plants.

A generator will be located on the site to supply emergency, backup power and chemicals will be utilized on the site for various purposes, including biocides/chlorine for algae control, corrosion inhibitor, and scale inhibitor for the non-contact cooling water system.

Tanks and other large containers utilized on the site will be designed to comply with Connecticut's Underground Storage Tank Regulations, National Fire

Prevention Association (NFPA) Regulations, the EPA's 40 CFR Part 112: Oil Pollution Prevention Regulations, Sate and local Fire Marshal / Zoning Regulations, and/or CTDEP stormwater management regulations / best management practices. Leak detection monitoring and inspections will be performed daily on these larger tanks/containers. These containers will typically be double-walled tanks with leak detection monitoring in the interstitial space between the interior and exterior tank walls, or protected single-walled tanks equipped with secondary containment as described below.

Chemicals, lubricating oils, fuels, etc. stored in 55-gallon drums (or smaller containers) will be stored in a manner consistent with 40 CFR Part 112 and CTDEP stormwater management regulations / best management practices. These containers will typically be of single-wall construction, but the storage areas will be equipped with secondary containment. These secondary containment areas will be designed to contain at least 10% of the total volume stored within or 100% of the largest container stored within, whichever is larger. The containment areas will be compatible with the chemicals stored within. Containers stored within the secondary containment system will be placed so that they are readily available for visible leak inspections. At a minimum, leak detection inspections in these storage areas will be performed every two weeks.

N. Hazardous Materials Management and Fuel Spill Prevention and Control.

Hazardous materials will be managed so as to be consistent with the secondary containment, leak detection, and inspection procedures previously

discussed. Incompatible materials will not be stored in the same storage areas. All hazardous material storage areas will be identified with signs.

The only significant liquid fuel to be utilized at the Project is diesel fuel for the backup generator. As the exact equipment has not been procured, the fuel supply / storage system for this backup generator has not been designed. The diesel fuel will likely be stored in a double-walled tank supplied as part of the generator system or in a separate above or below ground tank. The diesel fuel storage tank will be designed to comply with the 40 CFR Part 112: Oil Pollution Prevention regulations. A Spill Prevention Control and Countermeasures (SPCC) Plan which meets the requirements of these regulations will be prepared and implemented or an underground storage tank will be designed, constructed, and operated to comply with the requirements of the CTDEP Underground Storage Tank Regulations.

The SPCC Plan will discuss potential oils and hazardous materials to be stored on site, storage locations, anticipated quantities, potential environmental receptors, leak detection, overflow prevention, repairs and maintenance, routine inspection procedures, spill response and control procedures, spill control equipment and storage locations, and spill reporting and documentation.

O. Compliance with Air Quality Regulations and Standards

Based on the estimated uncontrolled and proposed controlled potential emission rates summarized in Section VI.H, requirements under U.S. Environmental Protection Agency ("EPA") and CTDEP regulations for permitting and control of air pollutant emissions from stationary sources apply to the

Project. The Project will also include a wet mechanical draft cooling tower and a small diesel engine powered emergency generator, which are exempted from CTDEP permitting requirements based estimated potential emissions (cooling tower) and a permit exemption available for emergency engines in the RCSA § 22a-174-3b(e). The remainder of this section summarizes the air pollution control regulatory requirements applicable to the biomass fluidized bed staged gasification process and the respective compliance demonstrations.

1. New Source Review Requirements

The New Source Review ("NSR") provisions of the Clean Air Act ("CAA") apply to new Major Stationary Sources under two separate programs. For Major Stationary Sources located in areas designated as attainment with respect to a specific regulated criteria pollutant, the requirements of the PSD program apply. For Major Stationary Sources located in non-attainment areas, the requirements of the Non-attainment New Source Review ("NNSR") Program apply. Additionally, wood-fired boilers with greater than 100 million British thermal units per hour (MMBtu/hour) heat input must also meet Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. In addition, boilers and process heaters that are located at new or existing Major Stationary Sources of hazardous air pollutants ("HAP") must also meet National Emission Standards for Hazardous Air Pollutants ("NESHAP") for Source Categories, commonly referred to as Maximum Achievable Control Technology ("MACT") standards.[1]

[1] Biomass gasification or wood-fired power plants do not fall under any of the source categories regulated by the NESHAPs; therefore, the requirements are not applicable to the Project.

2. PSD Requirements

The PSD regulations are designed to ensure that the air quality, in current attainment areas, do not significantly deteriorate beyond baseline concentration levels. PSD regulations specifically apply to the construction of CTDEP-defined Major Stationary Sources in areas designated as attainment or unclassified attainment for at least one of the following criteria pollutants: SO_2, NO_2, PM-10, CO, O_3, and lead. For CTDEP PSD applicability purposes, a Major Stationary Source is defined as a source with the potential to emit 100 TPY or more of any criteria pollutant, with the exception of NO_X and VOC in a serious ozone nonattainment area such as Plainfield, for which the Major Stationary Source threshold is 50 TPY. Pollutants specifically subject to PSD review requirements at new Major Stationary Sources are those that have the potential to be emitted above Significant Emission Rate Thresholds.

Based on the attainment status of the Plainfield area (serious nonattainment for ozone, attainment or unclassified for all other criteria pollutants) and the estimated potential emission levels (*See* Section VI.H) the Project will be considered a Major Stationary Source with respect to the PSD regulations and will be subject to PSD review for all criteria pollutants with the exception of lead.

PSD review for Major Stationary Sources includes the following requirements: an assessment of the existing air quality; the use of analytic dispersion models to demonstrate compliance with the National Ambient Air Quality Standards ("NAAQS") and applicable PSD Increments; a demonstration

that Best Available Control Technology ("BACT") has been applied to the subject emission sources; and an assessment of the impact of new emissions on environmental resources such as soils and vegetation. If the source is located within 100 kilometers (62 miles) of a federal Class I area, the impacts must be evaluated at these areas based on the more stringent Class I PSD Increments.

The PSD permit will contain emission limits and other operating, monitoring, record keeping, and reporting requirements based on air quality modeling. The air quality modeling includes emissions from the proposed Major Stationary Source or Major Modification and other sources in the area to ensure protection of the NAAQS and to prevent emission increases beyond a specified amount, called a PSD Increment.

The air quality impact analysis, including Class I Area impact screening analysis will be submitted as a separate document to CTDEP.

3. Non-attainment New Source Review Requirements

The Clean Air Act Amendments of 1990 ("CAAA") established more stringent provisions for New Source Review of Major Stationary Sources proposed to be located in non-attainment areas. CTDEP regulations implementing those provisions are codified in RCSA § 22a-174-3a(l). Because the PRE project will be a Major Stationary Source of NO_X emissions (> 50 TPY) located in a serious ozone nonattainment area, the Project is subject to certain NNSR requirements.

Applicable NNSR requirements include: an emission limitation which specifies the lowest achievable emission rate ("LAER") for the source, obtaining

NO_X emission reductions (offsets) from existing sources in the area in the ratio of 1.2 to 1 for sources located in a serious nonattainment area, and an alternatives analysis to demonstrate that the benefits of the proposed source significantly outweigh the environmental and social impacts.

PRE will require approximately 210 tons of NO_X Emission Reduction Credits (ERCs) to offset the potential NO_X emissions from the project by a ratio of at least 1.2:1. PRE is currently in the process of securing options for these ERCs and will have them in place before CTDEP issuance of the Permit to Construct and Operate.

4. New Source Performance Standards Requirements

As a wood-fired boiler with a heat input greater than 100 MMBtu/hour, the proposed FBG with boiler is subject to Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. The standards applicable to a wood-fired boiler are summarized as follows:

Table 4 - Standards to Wood-Fired Boilers

Pollutant/Parameter	Regulatory Limit	Citation
SO_2	No applicable limit for Project that combusts only wood and/or natural gas or propane.	NSPS - 40 CFR 60, Subpart Db (§ 60.42b)
PM	0.1 lb/MMBtu for a Project that combusts wood or wood with other fuels and has an annual capacity factor greater than 30 percent for wood.	NSPS - 40 CFR 60, Subpart Db (§ 60.43b(c)(1))
NO_X	No applicable limit as long as the annual capacity factor for natural gas will be less than 10% and the Project will be subject to a federally enforceable limit. Propane or natural gas will only be used for FBG startup and will be limited to less than a 10% annual capacity factor.	NSPS – 40 CFR 60.44b(l)(1)

Based on the estimated emissions rates, the proposed FBG with boiler would easily meet the applicable emissions standards. PRE will monitor the

system emissions or parameters consistent with Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.

5. National Emissions Standards for Hazardous Air Pollutants for Source Categories Requirements

Boilers and process heaters that are located at new or existing Major Stationary Sources of HAPs must also meet National Emission Standards for Hazardous Air Pollutants for Source Categories, commonly referred to as MACT standards. Major Stationary Sources of HAPs are those that emit 10 TPY or more of a single HAP or 25 TPY or more of a combination of HAPs that are specifically listed in or pursuant to section 112(b) of the CAA. Based on estimated potential emissions of identified HAPs from the proposed sources, the Project will be a Major Stationary Source of HAPs and therefore, will be subject to Subpart DDDDD.

The applicable standards (Subpart DDDDD) are summarized as follows:

Table 5 - Standards for Major Stationary Source of HAPs

Pollutant/Parameter	Regulatory Limit	Citation
PM	0.025 lb/MMBtu	NESHAP - 40 CFR 63, Subpart DDDDD
CO	400 ppm by volume on a dry basis corrected to 7 percent oxygen (30-day rolling average) for units 100 MMBtu/hr or greater. (Equivalent to 0.4 lb/MMBtu based on a wood F-factor of 9,240 dscf/MMBtu.)	NESHAP - 40 CFR 63, Subpart DDDDD
HCl	0.02 lb/MMBtu	NESHAP - 40 CFR 63, Subpart DDDDD
Mercury	3.0E-06 lb/MMBtu	NESHAP - 40 CFR 63, Subpart DDDDD
Total Selected Metals (combination of arsenic, beryllium, cadmium, chromium, lead, manganese, nickel and selenium)	0.0003 lb/MMBtu	NESHAP - 40 CFR 63, Subpart DDDDD

Based on the estimated emissions rates, the proposed FBG with boiler would meet the applicable emissions standards. PRE will monitor the system emissions or parameters consistent with Subpart DDDDD.

6. Title V Operating Permit Requirements

Under CTDEP's Title V Operating Permit regulations (RCSA § 22a-174-33), a Title V permit is required for Major Stationary Sources.[2] The purpose of the Title V operating permit is to combine, into a single document, all the state and federal air quality requirements applicable to all sources located on the same premise. Title V does not impose new substantive requirements above and beyond the applicable state and federal requirements. The Title V Operating Permit application will be due within twelve months of commencing operation or within 90 days of receiving notice from the Commissioner that an application is required. Based on the estimated potential emissions from the Project as presented in Section VI.H, the Project will be a Major Stationary Source subject to Title V permitting.

7. Acid Rain Program Requirements

The Acid Rain Program is codified in 40 CFR Parts 72 through 78. This program aims to reduce acid rain by reducing the amounts of SO_2 and NO_X from utility units that have a nameplate electricity generation capacity greater than 25 MW. A "unit" is defined as a "fossil fuel-fired combustion device" and "fossil fuel-fired" is defined as "the combustion of fossil fuel, alone or in combination with any

[2] For Title V applicability purposes, a "Major Stationary Source" is defined differently than a "Major Stationary Source" under PSD review, with potential emissions thresholds established at 10 TPY for any individual HAP, 25 TPY for any combination of HAPs, 50 TPY for NO_X or VOC in a serious ozone nonattainment area and 100 TPY for any other regulated air pollutant.

other fuel, independent of the percentage of fossil fuel consumed in any calendar year". Although fossil fuel (propane or natural gas) will only be used for warm-up of the fluidized bed staged gasifier prior to wood gasification, the initial determination of EPA's Clean Air Markets Division is that the Acid Rain Program requirements would apply in this case if the nameplate capacity of the generator will be greater than 25 MW. Due to the fact that the proposed generating unit will be fueled exclusively with wood except during FBG warm-up, and electricity will not be generated during propane or natural gas operation during warm-up, EPA suggested that PRE could submit a request for formal applicability determination pursuant to 40 CFR 72.6(c), which includes a procedure for appeal. If the Acid Rain regulations are determined to be applicable, the Acid Rain permit application must be filed at least 24 months before the unit commences operation.

8. Accidental Release Consequence Analysis

EPA's Risk Management Plan Rule (RMP), codified in 40 CFR Part 68, requires that facilities with large quantities of highly hazardous chemicals prepare and implement a program to prevent the accidental release of those chemicals. PRE is proposing to use a urea solution for the SNCR NO_X control system in lieu of anhydrous or aqueous ammonia, which is regulated under RMP if it is used or stored in amounts greater than 10,000 pounds (anhydrous ammonia) or 20,000 pounds (aqueous ammonia in concentrations of 20 percent or greater). Therefore, the RMP regulations will not be applicable to the PRE Project.

9. CTDEP Emission Standards and Regulatory Requirements

In addition to CTDEP permit to construct and operate requirements and applicable EPA standards and regulations, State emission standards and other requirements were evaluated for applicability to the proposed PRE emission sources. Applicable CTDEP emission standards and other requirements are summarized in Table 6 along with the compliance demonstrations.

Table 6 – Applicable CTDEP Emission Standards and Other Requirements

Pollutant/Parameter or Requirement	Regulatory Limit / Compliance Demonstration	Citation
BACT for Ammonia and Hydrogen Chloride	In addition to criteria pollutants emitted at greater than Significant Emission Rates at a Major Stationary Source, CTDEP BACT requirements apply to noncriteria pollutants with potential emissions greater than 15 TPY. BACT analyses were performed for NH_3 and HCl emissions.	RCSA § 22a-174-3a(j)
Air pollution emergency episode procedures	An emissions source with potential uncontrolled emissions greater than 100 TPY must prepare a standby plan for reducing air pollutant emissions during each of the three stages of an industrial air pollution episode. PRE prepared an emergency episode standby plan.	RCSA § 22a-174-6
Particulate emissions control	PM emissions from the FBG (0.02 lb/MMBtu) will be in compliance with the applicable regulatory limit (0.1 lb/MMBtu) based on the proposed PM/PM_{10} controls (multiclone, spray dryer and baghouse).	RCSA § 22a-174-18(e)(1)
Control of Sulfur Compound Emissions	The maximum fuel sulfur content will be in compliance with the applicable regulatory limit (1% wt.).	RCSA § 22a-174-19(a)(2)(i)
Control of Nitrogen Oxides Emissions	The proposed emission rate from the biomass FBG with SNCR (0.075 lb/MMBtu) will comply with the applicable limit (0.3 lb/MMBtu for other than fossil fuel).	RCSA § 22a-174-22(e)(2)(A)
Post-2002 NO_X Budget Program	Not applicable. Project is not a "new electricity generating unit" as defined in the regulation, because it will not combust more than 50% fossil fuel on an annual basis.	RCSA § 22a-174-22b
Hazardous air pollutants	Estimated worst case stack concentrations of HAPs are demonstrated to comply with applicable Maximum Allowable Stack Concentrations (MASC).	RCSA § 22a-174-29

VII. A FEDERAL AVIATION ADMINISTRATION DETERMINATION FOR OBSTRUCTION OR HAZARD TO AIR NAVIGATION

At least thirty days prior to filing for a construction permit, notice that an object that may affect navigable airspace must be submitted to the FAA if the object is to be higher than 200 feet, on or near an airport, seaplane base, heliport, or military base, in a traverse way (road, highway, railroad, navigable waterway), or if requested by the FAA. Detailed modeling for the Project's air emissions, which will determine the final stack height, is customarily performed in concert with the CTDEP, following the submission of the air permit application package to the CTDEP. As a result, air modeling has not been completed and the exact height of the stack is not currently known. It may be less than 200 feet high.

If necessary, notice will be sent to the regional FAA Air Traffic Division Manager on FAA Form 7460-1. Additionally, the stack will need to be designed in accordance with applicable FAA Advisory Circulars to obtain this approval. The FAA will be notified of actual construction, FAA Form 7460-2 Notice Of Actual Construction or Alteration will be submitted to the to the regional Air Traffic Division Manager.

VIII. ESTIMATED COSTS

A. Plant and Fuel Costs

Because of upward pressure on capital cost items such as steel, general high demand for contractors and variation in the financial markets, PRE estimates an all-in capital cost for the Project of $110 to $130 million.

Fuel costs will vary depending on a variety of factors including processing requirements and distance. PRE projects a fuel cost ranging from $5 to $25 per ton.

B. Life-cycle Costs

PRE's cost projections include major maintenance. It is important to note that PRE will be a wholesale supplier and not a rate-based Project. As such, the Connecticut ratepayers are not subject to the risk of long-term maintenance or operating costs for the Project. Additionally, the wholesale agreement will be subject to Connecticut Department of Public Utility Control ("DPUC") review as part of the CCEF's Project 100 contract process.

IX. FORECAST OF AVAILABLE FUEL AND BACKUP SUPPLY

The Project will require approximately 1,000 tons per day of wood fuel to produce approximately 37.5 MW net output. With traditional green wood and urban wood waste available as fuel sources, the PRE intends to acquire significant portions of the Project's fuel requirement from clean urban wood waste. The Project will obtain this fuel from various sources, with a primary focus on processing facilities and municipalities in the Connecticut area.

Several independent studies of available green biomass have been made in the past four years.[3] These studies suggest they have identified a majority of potential sources of clean wood fuel in Connecticut. Based on sources and data identified in the reports, there are approximately 600,000 tons per year of clean wood available for fuel indigenous to Connecticut.

Based on one of the studies (Antares) and EPA Report 530-R-98-010/2004, there are between 500,000 -700,000 tons of recoverable C&D or waste wood fuel available in state.

Fuel acquisition activities are underway and have already yielded several Memoranda of Understanding ("MOU") and Letters of Interest ("LOI") equal to 84% of the Project's annual requirements. PRE fully expects to obtain the

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[3] Strauss, Richard, 2002, submitted to Connecticut Renewable Energy, LLC Electric Power Project.

Donovan, C. T., 1990, Opportunities and Constraints Associated with Using wood Waste for Fuel in Connecticut.

Beck, R. W., 2002, Biomass Syngas Project Woody Waste Study for Connecticut Renewable Energy, LLC.

Antares Group Inc., 2004 Fuel Supply Assessment for Waterbury and Plainfield Areas.

remainder of the Project's required fuel based on their discussions with potential fuel suppliers.

The location of the Project, which is within a 75 mile radius of several major metropolitan areas suggests urban and clean wood from these markets are also available to the Project if required. In addition to identified supply beyond the Project's requirements, the site will contain covered and uncovered storage capacity equivalent to 45 days of fuel inventory. Because of some seasonal variation in supply, the inventory is usually managed to peak in late November, providing sufficient buffer for the lower-availability winter months.

X. LOCATION OF EXISTING AND PROPOSED INFRASTRUCTURE

The public water supply will be utilized for on-site employee drinking water, sanitary uses, equipment service water, and for boiler makeup water. In addition, the site will be connected to the public water supply system for on-site hydrants and fire suppression. The Connecticut Water Company has existing water distribution lines along both Route 12 and Mill Brook Road. These existing water supply lines should be adequate for the Project's needs and it is expected that there will not be a need to upgrade the system. New water lines and hydrants will be installed on the site to provide the necessary water for the anticipated uses.

The boiler make-up water will go through a de-mineralizing water process to remove any impurities in the supplied water prior to use in the boiler. At this time, the Project anticipates the use of a leased trailer-mounted water filtration system to prepare the boiler make-up water. A demineralized water storage tank, capable of storing at least one day of supply, will be constructed on the site. The location of the water filtration system and the demineralized water storage tank are presented on the site plan, *See* Attachment D.

Existing water supply lines are located along Route 12 and along Mill Brook Road to service; both are readily accessible to the site. The on-site water lines to be constructed are anticipated to generally follow the proposed access road. The river water supply lines will follow the public-right-of-ways for existing Town roads from the private property intake location to the site. The approximate location of the river water supply lines are presented on Figure 18.

Based upon the current Project design, it is estimated that between 656,000 and 994,000 gallons of water from the river will be needed each day for non-contact cooling water and spray dryer water for the scrubber associated with the air pollution control system. Approximately 20% of the intake water will be returned to the same point at the Quinebaug. This water will be diverted from the Quinebaug River approximately 3 miles west of the site and pumped to the site. An intake structure in the river, new pumping stations, and piping from the river to the site will be constructed to facilitate this water supply. The river water supply lines will be installed within the public right-of-ways associated with the Town roads in Canterbury and Plainfield. The river water supply lines will also cross private property off of Packer Road in Canterbury to access the intake point on the river. Easement agreements with the property owners have been developed and are being reviewed.

The river water supply will go through a clarifier system so that it can be used as non-contact cooling water and spray dryer water. This system will be located at the proposed Project. A clarified water storage tank, capable of storing approximately one day of supply, and a filter press will be constructed on the site. The location of these site improvements are presented on the site plan. *See* Attachment D.

XI. SOURCE OF FUEL, WATER, AND INTERCONNECTIONS NECESSARY FOR THE PROJECT

As noted earlier, the Project will rely upon a wide range of biomass wood suppliers. As a renewable fuel, wood is not subject to the same curtailment risks of fossil fuels. The impact of any potential fuel interruptions is offset by the 45 days of inventory on site.

Quinebaug River conditions indicate minimal risk of water supply interruptions due to drought. An on site water storage tank is sufficient to supply the Project during required repairs to the water transmission line.

A. Water – Source, Infrastructure, Service Area, Competing Uses, Curtailment Circumstances

Source - Water will be required from two sources: the public water supply system and from the Quinebaug River.

Infrastructure - The location of existing and proposed infrastructure is also discussed in the previous section and is presented on the site plan. *See* Attachment D.

Service Area - The Connecticut Water Company provides water to the general area of the Project. Water supply lines exist in the both Route 12 and Mill Brook Road bordering the Project.

Competing Uses – Public Water Supply: The Connecticut Water Company has permits to pump 0.6 million gallons per day ("MGD") from their two "Gallup Wells". These wells are located north of the Project and shown on the attached figures. The proposed PRE Project will require approximately 23,100

gpd from the public water supply for drinking water, sanitary uses, boiler blowdown water, and equipment service water. No other major users of the public water supply system have been identified. There should be no issues with competing uses relative to providing this quantity of water to the Project, given the capacity of the system.

Competing Uses – River Water Supply: The river water supply will be diverted from the Quinebaug River and pumped to the site via new infrastructure to be installed. A detailed review of permitted and registered diversions and discharges within the Quinebaug River basin has been performed and is discussed in greater detail in this Petition. Based upon this analysis, no competing uses from this source are anticipated.

Water Supply Curtailment - Water supply could be curtailed to the Project for routine maintenance of the intake and outlet structures in the river, routine maintenance on the lines and pump stations, and in the event of a major regional power outage. In the event that insufficient water was available to operate the Project, it would be shut down until water supply could be restored. Water supply tanks capable of holding approximately one-day of demineralized boiler make-up water and clarified non-contact cooling water will be constructed on the site to limit the potential impact of water supply interruptions due to maintenance or repair periods.

XII. ALTERNATIVE FUEL SUPPLY

Because of the Project's Class I designation and the resulting limitations, PRE will limit the fuel to qualifying biomass and not accept alternatives.

XIII. COOLING TECHNOLOGIES

The Project's objective in selecting a cooling system was to select an efficient technology that would minimize the amount of water used, minimize the amount of wastewater produced, and maximize fuel efficiency and power generation while meeting any constraints created by the location of the Project. The Project considered the use of dry cooling and wet cooling. The following table provides a comparison of the two cooing technologies:

Table 7 - Comparison of Cooling Technologies

	Wet Cooling	Air Cooling
Number of modules	two, 28 foot diameter	five, 34 foot diameter
Size	43'W x 97'L x 43' H	43'W x 230'L x 77' H
ST Backpressure at ISO condition/1% condition, in HG	2.5/2.5	2.5/5
Fan power (kW)	149	745
SPL at 400' , dBA		57
Material erected price	$2,000,000	$8,300,000
Average Impact		2 to 3% (less energy efficient plant or less output)
Air emissions		Increased
Water consumption		Reduced by 90%
Visual Impact		2x higher structure
Noise		Greater noise
Summer		3 to 4% (less energy efficient plant or less output)

After considering the two cooling techniques, the Project proposes to use wet cooling because of it is more efficient and economical, quieter and has fewer environmental impacts when compared to dry cooling. While wet cooling will result in the use of greater water as compared to dry cooling, the water withdrawal for the wet cooling system will not have a significant impact on the ecosystems of the water source. The 7-day, 10-year low flow rate of the

Quinebaug River is calculated at 65.4 MGD. The annual mean daily flow of the Quinebaug River is more than ten times higher, 667.5 MGD. The proposed diversion is between 1.0% and 1.52% of the 7-day, 10-year low flow rate. To limit the quantity of water that needs to be diverted from the Quinebaug River, facility water will be re-used and re-circulated as much as possible. Currently, the non-contact cooling water system is designed to re-circulate the water five times. This leads to less water being required from the river and slightly higher discharge concentrations. In addition, boiler blowdown water will be used to fulfill a portion (approximately 35%) of the water supply needs of the spray dryer system. This reduces the amount of water needed from the river and eliminates the discharge of the boiler blowdown water.

Dry cooling technologies employ air rather than water as a heat transfer medium which results in a 90% reduction in the consumption of water. However, dry cooling has several elements that make it disadvantageous for use on the Project:

- The air cooled condenser is almost 2.5 times longer (97 feet vs. 230 feet) and almost twice as high (43 feet vs. 77 feet). The width is the same at 43 feet. The much larger size would require significant changes to the current site layout that would result in substantial reduction in the size of the wood storage area or some combination of changes. These changes will adversely affect the Project's performance or operational capability. The added height would increase the Project's visual impact;

- The air cooled condenser has five, 34 foot diameter modules vs. two, 28 foot diameter modules for the wet cooling tower. This increases the auxiliary power required for the fans by a factor of 5 (149 kW vs. 745 kW). This difference is offset somewhat by the lack of circulating water pumps with the air cooled condenser;
- Noise is a much greater problem with the air cooled condenser, because of the larger number of modules, much greater air flow rates and the higher location of the fans;
- The installed cost for the air cooled condenser is 4 times the cost of the wet cooling option that includes the wet cooling tower, condenser, pumps, and piping;
- The higher average annual back pressure associated with the air cooled condenser will result in a 1.5 percent increase in the average net plant heat rate; and when auxiliary power is included, the difference is 2 to 3 percent. During the summer months this difference increases to 3 to 4 percent. This results in more fuel being burned for a unit of electrical output; and therefore, greater air emissions.

XIV. WATER SUPPLY

The diversion of an estimated 656,000 to 994,000 gpd of water from the Quinebaug River for the Project's cooling water and spray dryer system is required. The water will be pumped from the Quinebaug River drainage basin to the site, which is located within the Mill Brook drainage basin. Approximately 20% of the intake water will be returned to the same point at the Quinebaug.

The basins are important with respect to the ability of the CTDEP to issue a permit for the proposed diversion. The CTDEP will evaluate the ability of each basin to support the diversion. An application for a water diversion permit from the CTDEP's Inland Water Resources Division will be required for the withdrawal of the cooling water, and spray dryer water from the Quinebaug River. Pre-application meetings have been held with CTDEP Water Resources and Fisheries staff to address their specific technical concerns. The permit application package contains a detailed analysis of the impacts of the diversion and its impacts upon the flow and ecological characteristics of the river. This application is currently being prepared and should be submitted within the next few weeks.

To limit the quantity of water that needs to be diverted from the Quinebaug River, Project water will be re-used and re-circulated as much as possible. Currently, the non-contact cooling water system is designed to re-circulate the water five times. This leads to less water being required from the river and slightly higher discharge concentrations. In addition, boiler blowdown water will be used to fulfill a portion (approximately 35%) of the water supply needs of the

spray dryer system. This reduces the amount of water needed from the river and eliminates the discharge of the boiler blowdown water.

The 7-day, 10-year low flow rate of the Quinebaug River is calculated at 65.4 MGD. The annual mean daily flow of the river is more than ten times higher, 667.5 MGD. The proposed diversion is between 1.0% and 1.5% of the 7-day, 10-year low flow rate. In general, the CTDEP will not issue a water diversion permit for more than ten percent (10%) of 7-day, 10-year low flow rate.

The cooling water tower system will return between 126,000 and 194,000 gpd of flow to the Quinebaug River. Therefore, the net withdrawal from the River is 530,000 to 800,000 gpd.

As part of the CTDEP permit process, a review of the cumulative effects of existing and proposed diversions and discharges within the drainage basins is required. Permitted and registered diversions in the Quinebaug River watershed upstream of the proposed diversion total 16.9 MGD. Permitted and proposed discharges return approximately 15.1 MGD of flow to the watershed. Therefore, the net effect on the entire Quinebaug River watershed, including the proposed diversion and discharge from the Project, is approximately 1.8 MGD.

Public water supply will only be used for employee drinking water, employee sanitary uses, boiler makeup water, and service water.

The site is not located within an aquifer protection area.

XV. STORM WATER MANAGEMENT

Stormwater controls will be implemented during the construction and operations phase of the Project. As the site exists, stormwater runoff flows to on-site wetlands prior to infiltrating the ground or flowing to Mill Brook. The stormwater management plan for the Project does not change these overall flow patterns in that all the stormwater runoff will flow to on-site wetlands prior to infiltrating the ground or flowing to Mill Brook.

During the period of construction activities, a CTDEP General Permit for *Stormwater and Dewatering Wastewaters from Construction Activities* will be in effect. As part of this General Permit, a detailed soil erosion and sedimentation control plan will be in effect, and periodic monitoring after rain events will be undertaken. The state's guidelines for soil erosion and sediment control, and the construction sequence implemented by the selected contractor, will together be used as a basis for selection of the appropriate controls.

During the operations phase of the project, a CTDEP General Permit for *Stormwater Discharge Associated with Industrial Activities* is required. This general permit will be prepared and filed a minimum of 30 days prior to the operation of the Project, as is required by current CTDEP criteria. A Stormwater Pollution Prevention Plan (SWPPP) is required as part of the general permit registration. The requirements of the stormwater general permit will be incorporated into the Project final construction drawings.

The site layout, shown on the Site Plan, includes stormwater control basins. The basins will contain one inch of rainfall, and will treat the anticipated stormwater runoff from a 24 hour - 25 year storm (a 24 hour, i.e. day-long storm event of a magnitude such that there is only a four percent chance of it being exceeded in any given year). The removal of suspended solids and floatable material will be accomplished through installation of stormwater treatment chambers, baffled devices, and stormwater detention areas. All of the discharge points are to on-site inland-wetland areas. The net effect of the stormwater management systems is such that neither the quantity nor quality of the stormwater runoff will be detrimentally affected by the Project.

XVI. TRANSMISSION INTERCONNECTION

The Project will electrically interconnect to the nearby 115-kV CL&P Fry Brook Substation via a single-circuit overhead 115 kV transmission line approximately 1,500 feet in length. The Project 115-kV transmission line routing is along the existing CL&P right-of-way adjacent to an existing 23 kV CL&P overhead double-circuit pole line that runs through the Project Site's northern corner to the Fry Brook Substation. PRE has also executed an Interconnection Study Agreement with ISO NE and paid the first installment of $50,000, as required in the agreement.

XVII. BENEFITS OF THE PROJECT

The Project will provide the Connecticut Consumer with substantial benefits, which include:

- Sizable Class I renewable project that will contribute to Connecticut's Renewable Portfolio Standard (RPS) goals. The 37.5 MW represents approximately 15% of the State's Class I 2008 RPS;
- Economic renewable electrical power source. The combination of proven low emission technology and Connecticut's biomass resources will result in one of the least cost renewable options when compared to fuel cell and solar alternatives. In addition, the continuing high cost of fossil fuels will result in the Project becoming more competitive relative to conventional technology. Given the volatility of current prices, the Project can be less costly than a comparable natural gas or oil fired facilities;
- Financial benefit to the State and in particular the Plainfield region through the provision of over 200 jobs during the construction phase and 20-25 permanent jobs during operations;
- Diversity of fuel sources for the State's electrical power generation. Indigenous biomass supply will offset the State's high reliance on gas fired generators which may be constrained during peak winter months from receiving sufficient gas supply;
- Elimination of the purchase of an equivalent amount of oil from politically unstable or adverse overseas suppliers. The Project will eliminate 27.6 million gallons of imported oil or 4.1 million MCF of natural gas annually;

- Beneficial use of the State's biomass that reduces its disposal in costly landfills throughout the Northeast;
- Substantially lower levels of sulfur oxide emissions relative to oil and coal fossil fuel power plants, reducing production of acid rain impacts;
- The Project provides a substantial list of benefits that should also be considered in light of the strong experience and financial resources of Decker and NuPower. Decker is a leader in the domestic biomass power market, while NuPower has an intimate familiarity with the Connecticut market. Their combination will provide a high degree of comfort to the Connecticut ratepayer not normally associated with the developing renewable power market.

Connecticut faces a supply-demand deficit of in-state generation estimated by the Council to be in excess of 1,000 MW. Additionally, the current portfolio of generation is lacking in renewable sources. Although current measures require retail providers to own or purchase from increasing renewable sources, to date there has been no meaningful development of renewable in-state generation to meet these requirements.

For this reason, the CCEF was created pursuant to Conn. Gen. Stat. §16-245n to "promote investment in and growth of renewable energy sources," including biomass.

Connecticut's electric restructuring legislation and revisions not only encouraged the deployment and usage of clean energy, they mandated it among the electric distribution companies. Among other provisions, the electric

distribution companies in Connecticut are required to file with the DPUC minimum of 100 MW of long-term power purchase contracts with Class I renewable energy sources that have received funding from the CCEF. CCEF has established Project 100 as the program by which developers and investors can participate in this unique opportunity, and PRE will file its Project 100 proposal with CCEF prior to the proposal submittal deadline.

XVIII. ALTERNATIVES ANALYSIS

PRE evaluated several alternatives to the Project. The analysis shows that the Project is superior to any of the alternatives. This section summarizes the results of the alternatives analysis performed during the development of the Project. The alternatives analysis considered different options for generating power (i.e., fossil fuel fired generators, alternative biomass power generation technologies), alternative sizes, alternative sites, and proposed methods of environmental control. The results of these analyses demonstrate that the benefits of the Project significantly outweigh any of the environmental and social impacts associated with the construction and operation of the Project.

A. Fossil Fuel Fired Generation Alternative

In 2003, the Connecticut Legislature recognized the need for the State to reduce its dependence on imported fossil fuel power plants, and passed a landmark renewable energy bill. This bill (Public Act No. 03-135) promotes the development of clean, renewable power generation, and requires that a minimum of 100 megawatts (MW) of renewable power from Connecticut projects be purchased by the two Connecticut utilities.

The Project will provide Connecticut with renewable electrical power to meet the objectives of the Public Act 03-135. It will use wood from a variety of sources such as tree thinnings, pallets and recycled waste wood. This wood is known as biomass, a word that describes materials such as plant matter or wood. The energy created is renewable because it is replenished quickly, compared to the millions of years required to create fossil fuels.

The Project is being developed as a renewable biomass energy project specifically in response to Public Act 03-135. Therefore, alternative fossil fuel generation was not considered during project development.

B. Alternative Biomass Power Generation Technologies

Potential biomass power generation technologies identified during Project development include mass burn or spreader-stoker combustion, fluidized bed combustion and fluidized bed staged gasification. However, none of these technologies are better than the fluidized bed staged gasification technology proposed by PRE.

PRE eliminated mass burn or spreader-stoker combustion early in the technology evaluation process as the technology is not considered state-of-the-art or capable of meeting the criteria for low emission advanced renewable energy conversion technologies for a Class I renewable energy source under Connecticut statutes. Emissions of combustion air pollutants, such as NO_X, CO and VOCs are inherently lower with more advanced fluidized bed gasification and combustion technologies than spreader stokers or mass burn combustors. Emissions of sulfur oxides (SO_X) and other acid gases from biomass combustion are also more effectively controlled with fluidized bed combustors and gasifiers than spreader stokers or other mass burn combustors.

Fluidized bed combustion and fluidized bed staged gasification were determined to be equivalent in terms of emissions and other environmental impacts. However, the advantages of fluidized bed staged gasification over fluidized bed combustion include better control over combustion temperature and

initial (pre-control) NO_X emissions. Accordingly, PRE is proposing the fluidized bed staged gasification technology for the Project.

C. Alternative Project Sizes

The Project's 37.5 MW capacity is the correct size for producing the necessary economic efficiencies. The project's optimum size is a function of the economics of scale and the amount of available biomass fuel. Economic efficiencies occur above approximately 25 MW of electrical generation because of the corresponding unit's capital and operating cost. Units below this threshold tend to have a higher capital cost relative to net electrical generation and no savings in operating cost (other than fuel expense) when compared to the larger size units. Economics dictate the construction of larger units, which generate greater electrical production with relatively smaller capital cost to electrical generation ratios and comparable operational cost (excluding fuel cost) when compared to smaller biomass units.

The other major determinant in size selection for biomass fueled units is the availability of wood fuel on reasonable economic terms. The PRE reviewed the available fuel supply and corresponding pricing based on extensive discussions with potential fuel suppliers and study of available fuel resources. Based on this analysis, the developers decided on a capacity of 37.5 MW (net). This capacity provides a number of benefits. The Project's capacity reduces the overall cost of electrical production, provides the Project with sufficient financial viability to support the most current (and expensive) pollution control technology, and increase the Project's use of C&D wood fraction that would otherwise be

sent to out-of-state landfills. Accordingly, economic efficiencies and availability of wood make the Project's capacity appropriate.

D. Alternative Environmental Controls

Alternative air pollution controls were thoroughly evaluated in BACT and LAER analyses included in the CTDEP air permit application submitted on August 8, 2006. The BACT analysis methodology results in the selection of the most stringent control technology in consideration of the technical feasibility and the energy, environmental and economic impacts. LAER, which is applicable to NO_X emissions from the Project, is the most stringent emissions limitation contained in the implementation plan of any State for such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or the most stringent emissions limitation which is achieved in practice by such class or category of stationary sources.

Based on the results of the BACT and LAER analyses, the Project will employ advanced, state-of-the-art air pollution control technology to be among the best controlled and lowest-emitting biomass energy facilities of its size to be constructed and operated in the United States. The proposed air pollution controls consist of a combination of fuel characteristics/quality control, energy generation technology and flue gas controls. The Project will be fueled with 100% biomass, including a wood component of C&D debris obtained from CTDEP-regulated offsite fuel processing facilities that have followed sorting requirements to remove non-wood materials and treated wood, adhering to strict

specifications (size, quality, etc.). Use of biomass fuel will result in significantly lower emission of certain criteria pollutants, such as NO_X, SO_2 and CO_2 compared to conventional oil-fired steam-electric power plants.

The proposed power generation technology is an advanced, fluidized bed, staged gasification system that is close-coupled with a boiler that generates steam to drive a conventional steam turbine generator. The staged gasification system is designed to operate at low temperature and low excess air in order to minimize formation of NO_X emissions. The fluidized bed design also ensures efficient mixing, gasification and ultimately combustion of fuel particles, resulting in minimized formation of CO and unburned hydrocarbons or VOC. The addition of alkaline materials, such as limestone, lime or dolomite, into the fluidized bed also provides initial control of sulfur and other acid gas constituents within the fluidized bed.

In addition to strict fuel quality controls and advanced fluidized bed staged gasification technology, the Project will use state-of-the-art air pollution controls to further reduce emissions. For NO_X control, selective non-catalytic reduction (SNCR) will be used, resulting in a NO_X emission rate of 0.075 lb/MMBtu. SNCR involves injection of urea into the combustion zone of the boiler to react with NO_X to form nitrogen and water. Following the boiler in the flue gas control system will be a multiclone to provide for initial particulate matter (PM) control. After an economizer and air preheater, the flue gas will enter a spray dryer absorber designed for high efficiency control of SO_2 and other acid gases (e.g., hydrogen chloride). The spray dryer consists of a quench/cooling tower for evaporative

cooling of the gas stream and a dry venturi section where reagent is added to react with the SO_2 and HCl gases to form solid calcium sulfate and chloride salts that are subsequently removed in the baghouse. In addition, the evaporative cooling of the flue gas in the spray dryer will serve to condense volatile metals and other condensable particulate matter, which will contribute to the overall control of trace metals and particulate emissions. The fabric filter (baghouse) system will be used as the final particulate and acid gas control system. The fabric filter provides the reaction surface to complete acid gas absorption and remove particulate from the gas stream prior to discharge.

Carbon dioxide, a pollutant that has been identified as a greenhouse gas that contributes to global warming, is also produced by a biomass energy plant at a significantly lower level relative to coal, oil and natural gas power generation. 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.

XIX. LOADS AND RESOURCES

The Project is a 41MW gross 37.5 MW net electric generator. PRE intends to sell either up to 37.5 MW to CL&P and The United Illuminating Company under a long-term power purchase agreement. The Project will operate as a base load unit electrically connected at 115kV to the Connecticut grid at the CL&P Fly Brook substation.

XX. RELIABILITY AND SAFETY INFORMATION

A. Overall Reliability

1. Historic and Expected Availability of all Project Components

PRE anticipates an annual capacity factor above 90%, which exceeds the capacity factor of typical utilities. This is based on operating experience at other Decker facilities with similar components to the Project. The preferred gasification vendor, EPI, offers bubbling bed technology for applications involving gasification of wood fuels. This technology provides tremendous advantages over others in the form of lower air emissions, higher reliability and lower operations and maintenance costs. EPI has installed this technology at over 75 facilities and at a replica of the Project at Weyerhaeuser's plant in Kenora, Ontario Canada. This technology was reviewed by CCEF as part of PRE's participation in CCEF's Pre-Development Program Selection process. Steam turbine generators are standard, highly reliable components of the power industry.

2. Availability of Off-Site Resources

Water and wood biomass required for operation of the Project will be readily available. Water for non-contact cooling will be obtained from the nearby Quinebaug River in Canterbury and pumped to the Project via a three mile pipeline and required pumping equipment. Low flow conditions (7Q10) over a ten year period indicate that the Project requirements will be less than 2% of the lowest daily flow conditions and will thus not be impacted by dry periods.

The Project will require approximately 1,000 tons per day of wood fuel to produce approximately 37.5 MW net output. With traditional green wood and urban wood waste available as fuel sources, PRE intends to acquire significant portions of the Project's fuel requirement from clean urban wood waste. The Project will obtain this fuel from various sources, with a primarily focus on processing facilities and municipalities in the Connecticut area. As noted below, the Project will rely upon a wide range of suppliers and biomass wood sources.

Several independent studies of available green biomass have been made in the past four years. Based on sources and data identified in the reports, there are approximately 600,000 tons per year of clean wood available for fuel indigenous to Connecticut.

Additionally, there are between 500,000 -700,000 tons of recoverable construction and demolition or waste wood fuel available in State.

PRE has obtained executed MOUs with 4 firms representing 97,000 tons per year and LOIs with 3 firms representing 187,200 of wood supply, which represents approximately 84 per cent of the facility requirements. This does not include the set aside for municipal green waste. PRE expects the memoranda will ultimately become formal contracts for delivery. As such, there will be significant alternatives should any problems arise.

In addition, the site will contain covered and uncovered storage capacity equivalent to 45 days of fuel inventory. Because of some seasonal variation in supply, the inventory is usually managed to peak in late November, providing sufficient buffer for the lower-availability winter months.

3. Mechanisms for Contingency

As a renewable fuel, wood is not subject to the same curtailment risks of fossil fuels. The impact of any potential fuel interruptions is offset by the 45 days of inventory on site.

Quinebaug River conditions indicate minimal risk of water supply interruptions due to drought. An on-site water storage tank is sufficient to supply the Project during any required repairs to the water transmission line.

A comprehensive maintenance plan, including long term preventative maintenance, minimizes times for any gasification, combustion or turbine generator outages, providing the Project with long term availability well in excess of utility standards.

4. Availability of Fuel

PRE does not anticipate any difficulties regarding fuel availability. Processing biomass for the Project in the State is more cost effective than transportation and disposal at out-of-state locations. Although abundant, with no other dedicated wood plants in the State and there has been only minimal use of local equipment that can process the renewable, available wood to the Project's specifications. Because of the cost advantage of processing the wood versus transportation and disposal at out-of-state locations, wood handlers face significant economic incentives to install modest processing equipment to handle this task.

This is evidenced by PRE's executed MOUs with 4 firms representing 97,000 tons per year and LOIs with 3 firms representing 187,200 of wood supply, which represents approximately 84 per cent of the facility requirements.

B. Safety and Reliability

The Project will not have any significant safety impacts on Plainfield, Canterbury or the area in the immediate vicinity of the Project. Moreover, the Project's construction and operation will not have an adverse impact on Plainfield's delivery of any public safety services, including police and fire services.

1. Emergency Management, Safety & Evacuation Planning

The Project will be designed, constructed, and operated in accordance with all applicable laws, codes and standards, and in compliance with good engineering and operating practices.

A modern control system will be installed that will safely and quickly shutdown the gasification and combustion processes in the event of an upset or emergency condition.

The technology employed (fluidized bed staged gasifier with close-coupled combustion chamber and boiler) is inherently safe and it is unlikely that any incident at the site could result in a significant off-site impact. This technology does not lend itself to the release of hazardous materials or conditions that might, potentially result in a need to call for the evacuation of residents in the surrounding area, as might be associated with other generation technologies.

PRE will work with local emergency management officials and agencies (fire and police, in particular) in implementing an emergency management/response plan for the Project. Further, PRE will invite local officials to visit PRE on a periodic basis to allow them to become familiar with the Project, operating procedures and its components.

During the construction phase, PRE's contractor will comply with all applicable local, state and federal health and safety requirements. A Project safety manager will be identified, who will have responsibility to monitor construction activities and each contractor and subcontractor's activities. Gates and fencing will be used, as appropriate, to enhance site security and safety.

Following the commencement of operations, PRE will identify a site safety manager that will be responsible for development and implementation of the site safety plan and emergency management/response plan. Key elements of the Project design, operating procedures, and the emergency management and response plan that will contribute to the safety of the Project:

- Training for all plant Project operating staff with regard to the emergency management plan and related requirements. Additional training for impacted staff will focus upon such health and safety issues as confined space work, handling of toxic or hazardous chemicals, electrical work, spill prevention and response, first aid, and similar issues. Additionally, staff will be trained in fire fighting procedures in all areas of the Project;

- The plant control systems will include automatic shutdown procedures for all key systems such as the gasifier and combustion zones, steam cycle and equipment, fuel feeding, and similar components;
- The Project equipment include an emergency generator capable of providing emergency power including lighting, security, safety, and equipment shutdown as required, in the event of a loss of grid service and/or connection;
- The emergency management plan will address at a minimum the following issues:
    - Appropriate operating systems and equipment response for each of the two basic operations at the site; operation of the gasification/power block equipment; and, operation and management of the biomass wood storage area;
    - Communications and coordination with all local, state, and federal emergency response personnel;
    - In-plant communications during emergency conditions;
    - Means of notifying all employees of emergency conditions;
    - Identification of all parties to be notified in the event of an emergency, and the sequence in which they are to be contacted;
    - Consideration of natural and man-made emergencies, including internal sources of emergencies;
    - As applicable, means to rescue, evacuate and treat operating employees impacted the emergency conditions;

- Identification of responsible parties to implement each response action;

- Regular maintenance and inspection programs will be implemented that will insure the Project equipment is in good operating condition at all times, and to maximize performance of preventive maintenance for all systems and equipment that will detect and support emergency management functions; and,
- The Project will be designed to provide for fire detection, suppression, and ease of access by emergency vehicles and equipment.

PRE does not expect that an event will require the evacuation of the Plainfield community. As such, PRE does not anticipate that an evacuation plan will be needed. In the event local emergency management officials wish to evacuate residents, only a limited number of dwellings would be impacted. Additionally, the area contains a robust roadway network, including State Route 12.

2. Provisions for Emergency Operations & Shutdowns

The Project is being designed with a modern plant operating control system, which will automatically, and in concert with Project operations staff, assist in the efficient shutdown of the fluid bed staged gasification energy system and related equipment.

In the event of a Project systems emergency, the automatic systems will efficiently shutdown operating equipment, including the boiler, boiler support systems, turbine generator and related systems, and all other equipment.

In the event a site emergency occurred that should reasonably result in suspension of deliveries, acceptance of biomass will be terminated until plant operators and, as applicable, emergency personnel, have determined that the emergency conditions have been addressed, and it is safe to resume accepting deliveries.

Hand held radios will be used at the site for instant communications between operating personnel. In addition, telephone service will be available at the site, in the event emergency personnel needed to be contacted.

3. Fire Suppression Technology

The Project will employ 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.

The power block and related electrical systems will be designed in accordance with National Fire Protection Associations ("NFPA") 850: Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations, which code provides design and installation requirements. In addition, the Project design will be reviewed with the Fire Marshal and also with the Project's insurer's technical staff.

Features of the Project associated with fire protection are as follows:

- Alarms: The alarm system will be designed in accordance with NFPA standards, and assist in prompt notification of the fire department and plant operating staff of any emergency situations;

- Power Block: The power block will include building design features and active suppression protection. This will include minimum standards for fire-rated construction and separation distances for offices, storage areas and warehouses, control rooms, electrical rooms, fuel handling, turbine generator, fire pumps and diesel generators;
- Staged Gasifier System: Key equipment components will be designed in accordance with NFPA and good operating standards;
- Lube Oil Systems: These systems will be designed to provide fire protection and suppression, including oil containment for environmental and fire protection purposes;
- Cable Trays: The trays ill be designed and located to minimize the potential for fire hazards;
- On-Site Propane Storage Tank: PRE will exercise caution in the placement and protection of the on-site propane storage tank, anticipated to be used for gasifier start-up;
- Other Systems: PRE will insure that transformer system, control room, cooling tower, and other Project components are designed to minimize the occurrence of a fire emergency, gain rapid alarm notice of any emergency, and to protect the plant operating and other staff;
- Underground Hydrant System: A water main supply system with underground piping and strategically located hydrants will be incorporated into the Project's design;

- Cooling Water Storage Tank: The on-site cooling water storage tank will be designed to complement and supplement the public water supply for fire fighting purposes as necessary;
- On-site Water Supply Systems: All on-site water supply systems, including sprinkler supply, will be design to meet NFPA standards for supply capability in excess of the largest system demand;
- PRE will work with the local fire department to develop and put in place an emergency plan to respond to any fire emergency condition.

Fire prevention, detection, and protection related to biomass deliveries to the site will be addressed as follows:

- Incoming deliveries of biomass wood will be initially screened at the scale, to identify any evidence of fire or smoldering. No materials other than biomass wood will be accepted for processing at the Project;
- As biomass is received at the truck tipper, and delivered to the wood storage area, it will be visually inspected. Should there be any evidence of smoldering or fire, the conveyor system can be stopped and the issue addressed. Should any incoming material exhibiting smoldering or fire be conveyed to the wood storage area, it can be immediately segregated with the on-site material handling equipment, and immediately doused with water;
- The biomass storage area will have two "high capacity" deluge-type nozzles strategically located so that the entire storage area can be subject to high-volume delivery of water in the event of an emergency;

- Public Water Supply will be used for fire-fighting for the biomass wood storage area;
- To avoid the potential for long-term on-site storage of biomass wood, records will be maintained of daily deliveries and location in the biomass storage area. PRE will utilize a first-in, first-out system for withdrawing biomass wood from storage. In the event of a prolonged outage at the Project, PRE will implement a plan to divert biomass wood to alternative facilities;
- The appropriate structures such as the administration building, scale house, biomass wood hog building will have smoke/fire detectors;
- Operating personnel will be trained as to the location of chemical fire extinguishers, which can be found throughout the Project; and,
- The Project site is served by a public water supply system, and fire hydrants will be located on-site.

4. Safety Warning System

As detailed in this petition, the Project will be designed to provide for the safety of plant operating staff, adjacent properties, and the community-at-large.

The design, construction and operation of the Project will incorporate good engineering practice, and comply with local, state, and federal applicable law. Further, the Project will conform to the latest guidelines and codes administered by organizations such as the American Society of Mechanical Engineers, American National Standards Institute, NFPA, National Electrical Manufacturing Association, and United States Occupational Safety and Health Administration.

The technology employed (fluidized bed staged gasifier with close-coupled combustion chamber and boiler) by the Project is inherently safe. It is unlikely that any incident at the site could result in a significant off-site impact. Unlike other generation technologies, the release of hazardous materials or conditions resulting in evacuation of residents of the surrounding areas are not associated with the technology used by the Project. As such, PRE determined that a public warning plan is not warranted. In the event local authorities deem evacuation appropriate, only a very limited number of dwellings would be impacted. Additionally, the area contains a robust roadway network, including State Route 12. Accordingly, it is not necessary to develop a public warning or evacuation plans for this Project.

5. Proximity to Municipal Fire Stations

Plainfield's Fire Department station house is located approximately one mile north of the Project site on Route 12 at 620 Norwich Road.

6. Protective Gear & Control Systems

The Operations Supervisor for the Project will be the corporate compliance officer with respect to health and safety issues. The Operations Supervisor will ensure that all on-site operations are performed in accordance with applicable regulations and implement informational programs for employees with respect to on the job health and safety on an as needed basis.

Safety issues of special importance to the Project are those typically associated with solid fuel power plant operations. An essential element of PRE's safety program will be the effective design and construction of the Project and

equipment to comply with good engineering practices and applicable codes and regulations. Further, PRE will implement administrative controls and work practices to protect employees from the risk of injury at the Project.

The safety plan will place an emphasis upon procedures and precautions typically associated with high pressure steam systems, combustion systems, and industrial equipment operations, and heavy equipment operations.

An important element of the training for each new employee will include information regarding workplace hazards and safety procedures to be complied with at the site. The training will include use and fitting of personal protective equipment, education and responsibility of supervisors and employees, recordkeeping requirements, fire protection equipment and devices, and response procedures and identification of on-site emergency response coordinators. New employees that will be operating heavy equipment, such as in the fuel storage area, will be subject to an extensive training program to ensure each such individual is qualified to operate the assigned equipment.

The Project will be designed to comply with all applicable safety codes, including, as applicable, OSHA, American Society of Mechanical Engineers and other agencies. Prior to the start of operations, a project specific safety plan will be prepared and instituted for the Project. The plan will include administrative controls, training, equipment and related safety issues. Further, such plan will identify required engineering controls including enclosures, shields, and installed equipment such as eyewash stations, and emergency showers. Finally, the

Project will be subject to an insurance inspection by its underwriter on a periodic basis.

Supervisors will be responsible for the implementation of personal protective equipment ("PPE") requirements for the Project, including provision of appropriate PPE and replacement of damaged PPE, ensuring employees are trained, maintaining records on training, and notification and assistance in evaluation of new hazards as introduced to the Project. Employees are to be responsible to wear PPE as appropriate to their job functions, attend training programs, and ensuring PPE is in good working condition.

A hazard assessment will be conducted of the Project to identify the need for PPE and facilitate identification of the appropriate PPE for each task. This will include a review of the sources of hazards, including impact, penetration, compression, chemical, heat, dust, electrical sources, material handling and other risks.

PPE will be properly designed and constructed for each application. PPE equipment selection will generally follow the following categories:

- Ear Protection;
- Eye and Face Protection;
- Head Protection;
- Foot Protection;
- Hand Protection.

An overview of selected safety procedures applicable to the Project is provided in Table 8 it will be supplemented with the final safety plan prior to operations.

Table 8 - Examples of Project Safety Requirements & Compliance

OSHA REQUIREMENTS WHICH MAY APPLY TO SITE ACTIVITIES	METHOD OF COMPLIANCE
Record-keeping, with respect to injuries and illnesses; Form 101, 200, or equivalent.	In accordance with OSHA regulations, our insurance carrier maintains records of injuries. PRE will evaluate the record of injuries on an on-going basis, in order to evaluate the record, and to take corrective measures to minimize hazards.
Noise protection (OSHA 1910.95)	Employees in areas of high noise are instructed to wear ear protection, and trained accordingly.
Eye Protection (OSHA 1910.133)	Eye protection requirements will include protection from hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.
Respiratory Protection (OSHA 1910.134)	Workplace hazards will be evaluated to identify each task and area where respiratory protection is appropriate to protect workers including but not limited to confined spaces, identification of the appropriate device and operating procedures, and employees will be required to implement such procedures at all times. PPE considerations will include: disposable dust respirators, air purifying respirators, supplied air respirators, and supplied air hoods.
Head Protection (OSHA 1910.135)	Head protection will be required in all areas where there is a risk of falling objects or electrical shock hazards.
Foot Protection (OSHA 1910.136)	Employees will be required to wear protective footgear in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards.
Electrical Protective Devices (OSHA 1910.137)	Employees in areas subject to electrical risks will be required to use appropriate insulating blankets, matting, covers, line hose, gloves and sleeves, including both protective and rubber devices as suitable for each task.
Hand Protection (OSHA 1910.138)	Employees will be required to use appropriate hand protection when hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

OSHA REQUIREMENTS WHICH MAY APPLY TO SITE ACTIVITIES	METHOD OF COMPLIANCE
Power equipment lock-out during servicing (OSHA 1910.147)	Major equipment components will be locked-out when being serviced by personnel. Lock-out, tag-out procedures will be established and personnel will be trained accordingly.
Maintenance of major equipment components (e.g. conveyors, loaders, etc.) (OSHA 1910.178 & 179)	Recommended manufacturer maintenance programs are followed, and personnel are trained with respect to safety and maintenance procedures.
General Machinery point of operation (OSHA 1910.212)	Point of operation of equipment such as hoggers, conveyors, and similar equipment to provide protection to operating personnel.
Use of hand & power tools. (OSHA 1910.242-244)	Personnel are trained as to proper operation, and safety procedures for all power and hand tools which may be used at the site from time-to-time.
Protection from hazards from welding. (OSHA 1910.251-254, and 1910.1025,1027)	Qualified, trained welding personnel are used.
Electrical Hazards Subpart S (1910.302-335)	PRE will use licensed electricians for all wiring and control activities at the Project.
Dozer, payloaders, forklifts, etc.	Back-up alarms, roll-protection, etc.

Compliance with safety requirements at the Project will be the responsibility of both PRE and its contractors (such as for boiler maintenance, welders, electrical contractors, and similar parties).

7. Operational Safety Procedures

Safety procedures to be used at this site will include, but are not limited to, the following:

- Maintain Material Safety Data Sheets for all chemicals and supplies;
- Develop and implement an employee safety plan, and train all employees regarding the provisions specified therein;
- Employ at all times, lock-out tag-out procedures for critical equipment during maintenance activities;

- Follow all recommended precautions for employee safety when maintenance activities are conducted in confined spaces;
- Keep hands away from the moving parts of machinery and vehicles;
- No smoking in designated non-smoking areas;
- Identify all materials, etc. prior to handling;
- Know emergency exits and locations of fire-fighting equipment;
- Utilize available safety equipment when necessary;
- Ensure that all vehicles and rolling stock at the Project are equipped with back-up alarms and related safety equipment.

XXI. SITE IDENTIFICATION AND EVALUATION PROCESS

PRE evaluated several sites before determining that the proposed site is the ideal location for the Project. These sites were identified using various site selection criteria including:

- A minimum of seven acres (later expanded to properties with a minimum of ten acres);
- Industrial zoning or with an overlay zone that would allow for the proposed use;
- Close proximity to an interstate highway while removed from significant residential development;
- Rail and barge access;
- Reasonable proximity to a grid connection;
- The topography of the site;
- Acquisition and development costs;
- The attitude toward the project by the potential host community.

A. Sites Covered

With these criteria as a background, the following sites were considered and not pursued for the reasons indicated.

1. Louis Dreyfus Holdings, Shipping Street, Norwich

This fourteen acre site had rail and barge service available with fair highway and grid access. However, while this site was under review, the City of Norwich began to consider rezoning the area for a special waterfront development district. Due to the potential of a zoning conflict, evaluation of the property was terminated.

2. Norwich State Hospital Property, Norwich

PRE evaluated this twelve acre parcel, which is detached from the main parcel, and had discussions with the marketing and development company engaged by the State. The property has rail and potential barge access. While the property is viable, little interest was shown by the marketing company in selling the parcel. Due to lack of willingness to proceed, PRE pursued other potential sites.

3. Castle Property, Preston

This site consists of 25 acres with rail access and reasonable proximity to highways. The site topography is challenging, however. The grade dropped significantly from the entrance of the site to the elevation where the plant would be located. Due to difficulties with truck access, PRE eliminated the property from consideration.

4. Agway Property, Plainfield

This seven acre site on Roode Road has an established rail spur. The site has topographic issues **[such as?]** that ultimately rendered it too small for the Project. Additionally, there three houses next to this property.

5. Mashantucket Pequot Property, Route 32, Waterford

This site consists of three hundred acres and is a mixed residential and industrial zoned property. The site is served by rail and water. However, the site presents several problems. For example, access from Route 32 is constricted, and compatibility of the Project with anticipated future residential development on

the property is problematic. Waterford is also home to another major power Project, which PRE viewed as an impediment.

B. Advantages of Proposed Site

The proposed site has numerous advantages over the other sites assessed by PRE. PRE's selection of the Project site was based on consideration of the following factors:

- Need for power;
- Proximity to biomass fuel sources;
- Access to the site for biomass fuel delivery trucks;
- Proximity to electricity transmission grid;
- Availability of water resources;
- Proper zoning;
- Acceptability of impacts on environmental resources (air, water, visual, etc.;)
- Distance from population centers; and
- Acceptable topography, geology and land cover.

1. Need for Power

Connecticut is currently experiencing a significant power generation deficit. Estimates of the near term need for power generation in Connecticut from LaCapra Associates, London Economics and the ISO-NE range from 312 MW to 1,200 MW. *See* DPUC Docket 05-07-14PH02. Connecticut faces over $500 million in Federally Mandated Congestion Control charges and an aging power generation fleet. The Project will lessen this power generation deficit and contribute to the fuel diversity used in Connecticut's power generation.

2. Proximity to Wood Fuel Resources

The Connecticut Clean Energy Fund commissioned a wood fuel resource study by the Antares Group[4] which identified two optimum locations within Connecticut for siting a biomass plant. One of these locations was Eastern Connecticut (which includes Plainfield). The study reviewed the available wood sources, location, fuel quality, logistics and potential purchase economics. PRE has spent time and resources confirming these results and have held extensive discussions with potential wood fuel suppliers.

3. Access to the Site for Biomass Fuel Delivery

The proposed site is located in close proximity to I-395 and provides excellent access for fuel delivery by truck. State Road 12 runs from I-395 directly to the site. The State and Plainfield jointly upgraded this route within the last two years to support major truck traffic associated with a large-scale distribution Project located within one mile of the Project. The site is also adjacent to the Providence & Wooster Railroad. PRE intends to explore the use of rail cars for fuel deliveries.

4. Proximity to the Electricity Transmission Grid

The proposed site is located approximately 1,500 ft. from the Fry Brook substation. PRE has begun the formal interconnect process, completing an interconnection application, executing an Interconnection Study Agreement and obtaining positive feedback in discussions with CL&P and ISO-NE. Two 115-kV

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[4] Fuel Supply Assessment for Waterbury and Plainfield Areas, prepared for Connecticut Clean Energy Fund, Connecticut Innovations; prepared by ANTARES Group Inc., (August 25, 2004.)

transmission lines connect to the Fry Brook substation and will permit for a robust interconnection for the Project.

5. Availability of Water Resources

The site is located approximately 3 miles from the Quinebaug River from which sufficient water quantities are available for the Project's needs. The Project's water discharge from the process cooling cycle will also be released into the river. All intake and discharge will conform to CTDEP requirements and standards.

6. Proper Zoning

Plainfield previously zoned the proposed site industrial with permitted uses that include the construction and operation of an electrical generation Project.

7. Acceptability of Impacts on Environmental Resources

The EPA and CTDEP classified the proposed site as a Superfund location approximately thirty years ago. Remediation has been underway since that time and is now complete. The Project is an excellent use of the location with this environmental background. The environmental permitting of the site will be consistent with local, state and federal requirements. Air permitting is based on PRE's use of the most stringent air emission control technology. Similarly, water discharge will be carefully monitored to meet all environmental permits. The Project's visual impact is significantly reduced by the site's topography. The Project will be located so that an elevated portion of the property runs along the Project's length, effectively screening much of the Project from the public's view.

8. Distance from Population Centers

Plainfield is a rural location and has zoned certain locations as industrial. As such, the Project's location in one of these industrial zones results in a site that has few abutting residences. A total of eight properties abut the site, and of these, five are residences. All properties are also located on industrially-zoned property. Over (75%) of the adjoining acreage is either for industrial or municipal use.

9. Acceptable Topography, Geology and Land Cover

The most recent uses of the site were as a quarry and then as a repository for hazardous waste which was remediated in part by soil removal. As a result, the site's land cover had been greatly altered from its original condition. The Project will be constructed around the land's current use restriction associated with an Environmental Land Use Restriction covenant. As mentioned previously, the Project will make use of the natural topography to reduce the visual impact to the surrounding area and region. Existing tree lines will be maintained as much as possible to enhance this effect.

Following an examination of these factors, PRE concluded that the Project should be located on the proposed site in Plainfield.

XXII. POTENTIAL ENVIRONMENTAL EFFECTS

A. No Substantial Environmental Effect – Public Health and Safety

CTDEP and US EPA ambient air quality standards, emissions standards, and permitting requirements are designed to ensure protection of public health and safety, even for the most sensitive individuals, including the elderly and the young. Compliance with all applicable regulatory requirements, as summarized in Section VI, must be demonstrated as part of the CTDEP air permitting process. A substantially complete air permit application was submitted to the CTDEP on August 8, 2006, including demonstrations of compliance with Best Available Control Technology (BACT) and Lowest Achievable Emission Rates (LAER) control technology requirements and Maximum Allowable Stack Concentrations (MASCs) for CTDEP-regulated hazardous air pollutants. The results of the BACT/LAER analysis are summarized in Attachment E. Demonstration of compliance with CTDEP MASC requirements is summarized in Attachment F. Complete documentation of these and other required analyses are provided in the air permit application.

An air quality impact analysis using analytic dispersion models is currently being performed and will be submitted as a separate document to CTDEP. The air quality impact modeling analysis includes emissions from the proposed PRE project and other sources in the area and must demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) and applicable PSD Increments. In addition, the modeling analysis must provide an assessment of the impact of new emissions on environmental resources such as soils and vegetation.

B. Local, State, and Federal Land Use, Conservation, and Development Plans

The Town of Plainfield Zoning Commission has designated the property and its surroundings as industrial zoned land. The purpose and intent of the Industrial Zones as stated in the Zoning Regulations of the Town of Plainfield is to "provide and utilize Industrial Zones for a full range of manufacturing, industrial, production and supporting facilities in Town..."

The Town of Plainfield Plan of Conservation and Development identifies the area as a commercial and industrial growth area. It also encourages the development in those portions of the area with public sewer and water services. As part of the road improvement project, the Town constructed public sewer and pump stations to service the site and surrounding properties. In addition, the Connecticut Water Company installed 12" water mains as part of the road project. The Town Planner has indicated that the Plan of Conservation and Development is currently being updated, and that the new plan, when adopted, will identify the area as an industrial growth area.

In accordance with Conn. Gen. Stat. §§ 16a-24 through 16a-33, the Office of Policy and Management ("OPM") is required to prepare a State plan of conservation and development on a recurring five-year cycle. The State Plan serves as its statement of the development, resource management and public investment policies for the subject area. The Plan is used as a framework for evaluating project plans and proposals submitted to OPM for review through mandated review processes. OPM drafted a recommended plan titled

"Conservation and Development Policies Plan for Connecticut 2005-2010", in 2004.

On May 27, 2005 the Connecticut House of Representatives voted in favor of adopting the Recommended Plan, and on June 2, 2005, the State Senate also voted to adopt the Recommended Plan. In accordance with Section 12 of P.A. No. 05-205, the Conservation and Development Policies Plan for Connecticut 2005-2010 is now in effect. The "locational guide" portion of the plan for the Town of Plainfield identifies the site and the surrounding properties as "growth areas".

The Project is consistent with local and state land use plans and zoning and does not conflict with any known federal plan for the site.

C. Existing and Future Development

The existing development in the area includes recent construction of Lowe's warehouse, reported to be over 1,200,000 square feet of building area with associated site development. The current Town Plan of Development identifies the area as a "high commercial growth area" in the years prior to the plans adoption in 1998. Although the Town Planner could not identify specific proposals, he indicated that the Town anticipates industrial and commercial development in the area.

D. Adjacent Land Use

The adjacent land uses include power transmission lines, an active freight line of the Providence and Worcester Railroad, a plumbing supply house, two sewage pump stations, and other commercial and some residential uses. A major distribution warehouse was constructed down Mill Brook Road from the

site within the last few years. The site was formerly used for gravel mining. The trend in recent years has been toward promotion of commercial and industrial uses by zoning and construction of public utilities.

E. Ecological, Vegetation and Wildlife and Natural Diversity Database

The Project will not have an adverse impact on ecology, wildlife or vegetation. A detailed terrestrial ecology study of the site has been performed by Kleinschmidt USA of Essex, Connecticut ("Kleinschmidt"). This study characterizes the nature of plant communities, habitats, and wildlife species present on the site and describes the nature of the impacts to flora and fauna associated with the construction and operation of the proposed facility. A complete copy of this report is presented in Exhibit C.

Kleinschmidt identified seven different 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. Additionally, observed and expected wildlife species in each of these habitats were discussed. The report states that much of the site has been disturbed from past operations and ongoing dirt bike and all terrain vehicle activity, and that these disturbed areas provide limited wildlife habitat. Potential impacts from site construction, siting, air emissions, and site operation are discussed, and methods of mitigating these impacts are presented. Mitigation measures include soil stabilization and planting plans, restoration of wetlands and the integration of the existing wetlands with proposed detention basins to enhance the function of the

wetlands, wetlands buffer plantings, and use of best management practices with regards to construction and erosion and sedimentation controls.

Based upon the CTDEP's Natural Diversity Database maps, one endangered specie (the eastern spadefoot toad), one threatened specie (the blue-spotted salamander), and one specie of special concern (savannah sparrow) occur in the vicinity of the project site. In 1993, the U.S. Fish and Wildlife Service conducted a survey of the Project property and did not identify any federally or state listed rare, threatened, or endangered species. As part of the terrestrial investigation associated with this Project, Kleinschmidt USA surveyed the site for evidence of these species in May of 2006. A complete copy of their report is presented in Exhibit C. Following is a direct summary of their results:

- Although suitable habitat for the eastern spadefoot toad is present on the site, neither individuals nor evidence of breeding activity were observed during the vernal pool study;
- The results of the vernal pool survey indicated that evidence of the blue-spotted salamander breeding activity is not present on this site, nor was there evidence of breeding behavior of other mole salamanders, e.g. spotted salamanders. Also, many of the vernal pool species observed in the largest pool on the site are considered facultative species which makes it less likely that that obligate vernal pool species, such as the blue-spotted salamander, would be observed on the site;
- Given the small size of the site, and the lack of open area, suitable habitat for the savannah sparrow is not present. As such, this species was neither observed during the survey period, nor is it likely that the breeding populations of the savannah sparrow would be able to use this site;
- In that rare, threatened, and endangered species are not present on the site due to the absence of suitable habitat, impacts to these species will not occur.

Based upon these reports, no associated substantial environmental effect is anticipated from the development of the Project.

F. Noise

A noise study has been commissioned and background noise levels at the site have been obtained. Modeled noise levels generated from the Project are anticipated to be less than the background noise levels at the identified receptors. Additional noise control measures may have be considered during final design of the Project and its components to achieve compliance with the Connecticut Noise Regulations concerning noise levels at the property lines. The noise control measures may include an acoustically-treated building and acoustical treatment for the fans. The Project will be designed to meet the Connecticut Noise Regulations. Therefore, no associated substantial environmental effect is anticipated from the development of the Project.

G. Consistency with Development Plan

Local and State Land Use plans are described in subsection B., above. The project is consistent with local and state land use plans, and the local zoning designation, and does not conflict with any known federal plan for the site.

H. Plume Visibility Analysis

As part of the visibility analysis, a cooling tower plume analysis was performed to assess the frequency and extent of visible plumes from the cooling tower as well as potential effects of fogging and icing on local roadways, and on switchyard and transmission lines and towers. The results of this analysis are summarized as follows.

The Project will employ a mechanical draft evaporative cooling tower to remove waste heat from the steam condenser cooling water at the proposed biomass power plant. Mechanical draft cooling towers can produce some

adverse environmental effects due to the liquid water plume coming directly from the tower (known as "drift"), as well as from the secondary liquid water formation caused by the condensation of water vapor ("fogging"). These adverse effects include: local shading of the sun due to a visible plume, fogging at ground level and ice build-up, and deposition of dissolved salt particles.

A detailed modeling analysis of cooling tower impacts was performed to evaluate the potential for these impacts from operation of the Project using the Seasonal/Annual Cooling Tower Impact (SACTI) model (Version 09-01-86). The SACTI model was funded by the Electric Power Research Institute (EPRI). It is based on studies conducted by Argonne National Laboratory that evaluated the theory and performance of over 30 cooling tower plume and drift models. The SACTI model was used for this analysis because it is a validated cooling tower plume and drift model that has been widely used in preparing environmental assessments of cooling towers for regulatory purposes. The SACTI model uses cooling tower design and operational data along with hourly meteorological data to predict the probable impact of cooling tower plumes.

The complete report summarizing the inputs and results of the SACTI modeling analysis is provided in Exhibit B. The results of the analysis are summarized in the following table:

Table 9 - Plume Visibility Analysis Results

Cooling Tower Impact Description	Estimated Impacts (units based on 5 years of hourly meteorology)	Estimated Location and Extent of Impacts
Plume Fogging	2.8 hours per year	Predominantly within 400 to 600 meters south of the cooling tower.

Rime Icing	0.16 hours per year	Northeast of the cooling tower (< 0.5 hour of icing over 5 years on local roadways).
Salt Deposition	Maximum 675 kg/m^2-month on site	Predominantly within 200 meters of tower and on site.
Plume Shadowing	Maximum 40 hours/year	Predominantly within 200 meters of tower and on site.
Plume Visibility	Offsite visible plume estimated to occur less than 3 percent of the time, not accounting for nighttime hours, hours of precipitation and low visibility periods.	Visible plume predominantly located onsite with dimensions less than 100 meters in length, 20 to 30 meters in height and 15 meters in radius.

In summary, the Plainfield Renewable Energy Project cooling tower was evaluated for adverse environmental impacts using the SACTI model. Based on this analysis, no adverse off-site environmental effects are expected.

I. Roads

The Project is consistent with the existing federal, state and local road network. Interstate 395, State Route 12, and Mill Brook Road each have sufficient available capacity and appropriate geometric design to accommodate all the traffic that will use the facility. The Town of Plainfield implemented road improvements in recent years in order to accommodate traffic flow to the recently opened Lowe's distribution warehouse and to facilitate access to the industrial zoned property in the area. These improvements included reconstruction and realignment of Mill Brook Road and widening and reconstruction of a portion of State Route 12.

J. Wetlands and watercourses

Wetlands have been delineated on the site by a Connecticut certified soil scientist and their locations are presented on the site plan. These flora and fauna associated with these wetlands are evaluated in the Kleinschmidt Terrestrial Report, which is presented as Exhibit C.

Identified wetlands include the red maple forested wetland on the northern side of the site associated with Mill Brook and five isolated wetlands. The largest of these isolated wetlands was likely directly associated with the large and degraded white cedar swamp on the western side of the Providence & Worcester Railroad tracks prior to construction of the railroad tracks and other filling activities. This largest isolated pool contained standing water and is considered to be productive. Three other isolated wetlands have developed within shallow depressions formed during previous excavation activities associated with the gravel pit. Given their extremely small size and disturbed nature, they are unlikely to be productive and support large wildlife populations.

As shown on the site plan, it is anticipated that two delineated wetlands will be impacted by site development activities. Approximately 190 square feet of the red maple forested wetland on the north side of the site will be impacted by the proposed access road. Impacts in this area were unavoidable. However, mitigation in the form of excavating a small area adjacent to the filled area and wetlands planting is proposed. Approximately 90 square feet of a single disturbed isolated wetland will be impacted by grading activities. This was largely done to avoid impacts to the largest and most productive isolated

wetland. A combination of wetlands restoration for the undisturbed section of the isolated wetland and construction of a detention basin will improve the overall function of these wetlands.

Construction of buffer zones around other existing wetlands which are most susceptible to construction related impacts and use of best management practices (BMPs) during construction are recommended to mitigate potential impacts. These mitigation measures are discussed in more detail in the attached Kleinschmidt report. With these measures in place, there is no substantial environmental effect anticipated to the wetlands associated with this site.

There are no watercourses on the subject property. Mill Brook is located to the north of the site. No substantial environmental effects are anticipated to Mill Brook.

K. Public Water Supply Watershed and Aquifer Areas

The site is not located within a public water supply watershed or aquifer protection area. Therefore, no associated substantial environmental effect is anticipated from the development of the Project.

L. Archaeological and Historic Resources

The Project will consult with the Connecticut Commission on Culture & Tourism (State Historic Preservation Officer) in order to insure an appropriate analysis of cultural resource issues is undertake prior to the construction of the Project.

M. Other Environmental Concerns

The Project site has been identified on the EPA's National Priority List as a Superfund site. It is recorded as Gallup's Quarry (Tarbox Road), and the

USEPA Identification Number for the site is CTD108960972. Gallup's Quarry was a former gravel mining operation that accepted and disposed of industrial liquid wastes without a CTDEP permit. The illegal disposal activities occurred in 1977, and three distinct disposal areas were identified: a Primary Disposal Area, a Secondary Disposal Area, and a Seepage Bed. Chemicals containing methyl ethyl ketone, methyl isobutyl ketone, toluene, tetrachloroethylene, trichloroethylene, and 1,1,1-trichloroethane were disposed on-site in drums and as free liquids. Several of these volatile organic chemicals, as well as copper, nickel, and chromium, have been detected in on-site monitoring wells.

Past remedial measures, which occurred in 1978 under the supervision of the CTDEP, include removal and disposal of 1,584 drums, 5,000-gallons of free liquid, and 2,277 cubic yards of contaminated soil from the property. It is believed that all drums were removed from the property during the CTDEP-supervised cleanup activities.

Extensive soil and groundwater testing has been performed at the site by the CTDEP, the Connecticut Department of Health, and the EPA subsequent to the cleanup activities described above. Over the years, numerous environmental reports/actions have been performed under EPA and CTDEP supervision. Results of this testing revealed site groundwater was contaminated both on-site and off site to the west and northwest with volatile organic compounds (VOCs) and certain metals, and that site soil was impacted with VOCs, semi-volatile organic compounds (SVOCs), and certain metals. Polychlorinated biphenyls (PCBs) have also been detected in site soils, however, it has been reported that

the detected concentrations do not pose an unacceptable risk through direct contact.

In 1993, the EPA entered into an Administrative Order by Consent with twenty-three (23) potentially responsible parties (PRPs) for the performance of a Remedial Investigation/Feasibility Study (RI/FS) at the Gallup's Quarry site. This study was performed between 1993 and 1997, and it evaluated impacts to soil, groundwater, air, surface water and sediments.

Several alternative cleanup scenarios were developed, and the EPA selected a final remedy in September 1997. The selected institutional control was the placement of an Environmental Land Use Restriction on approximately 1.8-acres of the Gallup Quarry site. The location of the ELUR in relation to the Project site is identified on the site plan.

The intent of the institutional controls is to limit the use and disturbance of contaminated soils, to prevent the use of contaminated groundwater, to restrict development for residential activities, to require EPA approval of any proposed construction activity that may disturb contaminated soils at the site, and to bind and inform future purchasers of the site with respect to groundwater and other restrictions at the site. The types of institutional controls proposed for this site include land use (deed) restrictions, posting and periodic maintenance of warning signs and an entry gate, and periodic sampling and analysis of contaminated unsaturated soils for contaminants of concern.

The status of the Gallup Quarry site contamination is that in general, concentrations of VOCs in groundwater continue to show decreasing trends,

though certain constituents (i.e. vinyl chloride) remain above their respective cleanup levels. The overall total VOC concentrations have declined significantly since 1996 and the groundwater plume remains within the limits predicted by previous computer modeling. No recommendations for further environmental studies or remedial actions are planned for the Gallup Quarry site.

In accordance with the institutional controls proposed for the site, a 1.8-acre Environmental Land Use Restriction (ELUR) has been placed on properties to the north and west of the Project site. The proposed Project will not be constructed upon or disturb soils within the ELUR. Additionally, no groundwater supply wells will be installed on the site so as not to alter the direction of groundwater flow or the location of the existing contaminant plume from the historic dumping activities. This requirement is in keeping with the wishes of CTDEP and EPA staff assigned to the Gallup's Quarry site. This requirement necessitated the proposed water diversion from the Quinebaug River discussed earlier in this Petition.

To support the development of this Brownfields site, the Project developers have applied for and anticipate receiving a Covenant Not to Sue from the CTDEP. As part of the Covenant Not to Sue agreement, this currently vacant Superfund site will be returned to a productive, environmentally friendly use.

The proposed Project will have no substantial environmental effect on the Superfund-regulated aspects of the site. The Project will not affect the existing groundwater contaminant plume associated with the Gallup Quarry site and will continue to provide access to State and federal regulators, to the PRPs, and to

their consultants for the selected remediation strategy, on-going natural attenuation monitoring.

XXIII. THE PROJECT'S LOCATION WOULD NOT POSE AN UNDUE HEALTH HAZARD TO PERSONS OR PROPERTY AT THE SITE

A. Overview

The Project's design and utility interconnection is consistent with the Council's Best Management Practices for Electric and Magnetic Fields. The Project will result in relatively minimal electric and magnetic field impacts along the Project site boundaries, as well as along the boundaries of the right-of-way from the Project site, to the nearby utility interconnection substation.

PRE retained PLM Electric Power Engineering ("PLM") to obtain ambient magnetic field readings and to determine the resulting impact due to the addition of the transmission line. PLM conducted a variety of readings at locations along the existing distribution line from the site to the Fry Brook substation. PLM also obtained readings within the site itself.

B. Project Description

The Project site is an approximately thirty-acre industrial zoned parcel. The Project is sited along the parcel's western portion parallel to the Providence and Wooster Railroad tracks that form the parcel's western border. The Project will generate power at 13.8 kV and transform to 115-kV via a 13.8-115-kV Generator Step-Up ("GSU") transformer.

The Project will electrically interconnect to the nearby 115-kV CL&P Fry Brook Substation via a single-circuit overhead 115 kV transmission line approximately 1,500 feet in length. The Project 115-kV transmission line routing

is along the existing CL&P right-of-way adjacent to an existing 23 kV CL&P overhead double-circuit pole line that runs through the Project Site's northern corner to the Fry Brook Substation.

The CL&P right-of-way parallels the Providence and Wooster Railroad tracks and includes the Project site and other parcels owned by the Town of Plainfield and the Connecticut Yankee Community Avenue Associates. The Plainfield parcel is undeveloped and the Connecticut Yankee Community Avenue Associates' parcel is zoned industrial. The Fry Brook substation is located within the CL&P right-of-way on the Connecticut Yankee Community Avenue Associates parcel.

The maximum anticipated loading of the Project 115-kV transmission line is approximately 190 amps based on the maximum rated net output of the Project. At this time, there are no known transmission system grid constraints that would restrict the range of dispatch of the Project generating Project. A System Impact Study is currently being performed by ISO-NE to evaluate potential transmission system impacts and to study proposed utility interconnection arrangements. The Fry Brook Substation interconnection scenarios currently under study include a 115-kV radial tap interconnection or a 115-kV ring bus interconnection to the Project site.

The Project's final interconnection route and arrangement is part of the ongoing ISO-NE Large Generator Interconnection Process. The proposed interconnection options are either to locate the transmission line alongside the existing distribution line depending on the allowable right of way or to share a

common pole. In either case, the resulting cumulative magnetic field resulting from the additional transmission line will either be the same as the original distribution line only case or less because of the electric field cancellation between the two lines.

C. EMF Analysis - Project Site Boundaries

1. Existing Facilities

The maximum existing EMF levels at the boundaries of the Project site occur where the existing 23-kV CL&P overhead double-circuit pole line crosses the Project site property lines. Maximum existing magnetic field levels at the boundaries of the Project site were calculated to be approximately 15 mG. Magnetic field levels were field measured and compared favorably with calculated results. Maximum existing electric field levels at the boundaries of the Project site were calculated to be 0.13 kV per meter.

2. Project

The maximum EMF levels at the boundaries of the Project site following construction of the Project occur where the proposed 115 kV transmission line crosses the Project site's northern property boundary. Maximum expected magnetic field levels were calculated to be approximately 20 mG and maximum expected electric field levels were calculated to be 0.46 kV per meter. This location is over 300 feet from the boundary of the closest third party land owner.

D. EMF Analysis – CL&P Right-of-Way

1. Magnetic Fields - Existing Facilities

Maximum existing magnetic fields within the CL&P right-of-way were calculated to be approximately 15 mG. Maximum existing magnetic field levels at the eastern and western boundaries along the CL&P right-of-way were calculated to be approximately 4 mG and 10 mG respectively. Magnetic field levels were field measured and compared favorably with calculated results.

2. Magnetic Fields - Project

The maximum expected magnetic fields within the CL&P right-of-way following construction of the Project were calculated to be in the 40-50 mG range depending upon the phase orientation of the Project 115-kV transmission line. Maximum expected magnetic field levels at the boundaries along the CL&P right-of-way were calculated to be in the 4-15 mG range depending upon the phase orientation of the Project 115-kV transmission line.

3. Electric Fields - Existing Facilities

Maximum existing electric fields within the CL&P right-of-way were calculated to be approximately 0.13-kV per meter. Maximum existing electric field levels at the eastern and western boundaries along the CL&P right-of-way were calculated to be approximately 0.01-kV per meter and 0.08-kV per meter respectively.

4. Electric Fields - Project

The maximum expected electric fields within the CL&P right-of-way following construction of the Project were calculated to be 1.4-kV per meter. Maximum expected electric field levels at the eastern boundary along the CL&P right-of-way were calculated to be 0.4 kV per meter. Maximum expected electric field levels at the western boundary along the CL&P right-of-way were calculated to be in the 0.07-0.17 kV per meter range depending upon the phase orientation of the Project's 115-kV transmission line.

E. Conclusion

The expected magnetic and electric field levels attributable to the Project are well within the acceptable range for these types of facilities. As a result, PRE is not recommending any design considerations specific to reducing electric and magnetic fields nor is PRE recommending any exposure limits for electric and magnetic fields at the Project.

XXIV. PROJECT SCHEDULE

The following chart provides a generalized overall schedule for the construction, testing and commissioning of the Project. Construction is anticipated to begin in 2007 with commercial operations anticipated in late 2008 or early 2009.

XXV. GOVERNMENT APPROVALS

In addition to the Council's approval, the Project may require the following approvals, reviews and permits:

A. Air Permit

The Project will need an air permit from CTDEP to construct and operate the Project. The permit was submitted on August 8, 2006 and includes a major source review such as Prevention of Significant Deterioration and non-attainment major source reviews. The Project will also be required to comply with Lowest Achievable Emission Rate (LAER) and Best Available Control Technology (BACT) standards.

B. Wastewater Permits

Wastewater discharge permits will be required for the discharge of the equipment service water to the local wastewater treatment plant and the discharge of the (re-circulated) non-contact cooling water to the Quinebaug River.

C. Water Diversion Permit

The Project will need this permit to withdraw up to 994,000 gallons daily from the Quinebaug River for the non-contact cooling water and spray dryer (air emissions scrubbing) systems.[5]

D. Solid Waste Permit

This permit was submitted August 11, 2006

E. Volume Reduction Facility

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[5] Approximately 20% of the intake water will be returned to the same point at the Quinebaug.

The Project will file an application with the CTDEP for permitting of the Project as a form of volume reduction facility ("VRF").

F. Stormwater Discharge Permits

The Project will require permits for the discharge of stormwater during the construction and operation of the Project pursuant to CT DEP's general permit programs.

G. FAA

Notice in the form of FAA Form 7460-1 may need to be filed with the Regional FAA Air Traffic Division Manager if an object is to be constructed that is higher than 200 feet, in a traverse way, or if requested by the FAA. Detailed modeling for the facility's air emissions, which will determine the final stack height, is customarily performed in concert with the CTDEP following submission of the air permit application package. Therefore, a determination for the need of this notice cannot be made at this time. If necessary, this form and the associated form that is filed after construction has been completed, will be filed with the FAA.

H. State Traffic Commission

A State Traffic Commission (STC) permit is required for facilities of over 100,000 square feet of gross building area or 200 parking spaces that abut a state road. The project has a gross building area of over 100,000 square feet and will therefore require a State Traffic Commission (STC) permit. As the recent road improvements were reviewed and approved by the STC and implemented under an STC permit, no additional improvements are anticipated to be required for the project.

I. Connecticut Department of Transportation Encroachment Permit

Construction work within state owned roads require a Connecticut Department of Transportation Encroachment Permit. At the time of construction the contractor will obtain an encroachment permit to construct the sewer connection, the rear emergency access drive, and any ancillary construction required within the state owned right-of-way.

XXVI. OTHER RELEVANT INFORMATION

The CTDEP has just released its proposed new State solid waste management plan: "Proposed Amendment to the State Solid Waste Management Plan, July 2006" (the "Draft Plan"). The Project will help the state achieve many of its primary vision statements and goals, as embodied in the Draft Plan.

Key elements of the Draft Plan that this Project will contribute to achieving include:[6]

Connecticut's long-range vision for solid waste management is to:

- Significantly transform our system into one based on resource management through collective responsibility for the production, use, and end-of-life management of products and materials in the State;
- Shift away from the "throwaway society," toward a system that promotes a reduction in the generation and toxicity of trash, and where wastes are treated as valuable raw materials and energy resources, rather than as useless garbage or trash; and
- Manage wastes through a more holistic and comprehensive approach than today's system, resulting in the conservation of natural resources and the creation of less waste and less pollution, while supplying valuable raw materials to boost manufacturing economies.

The goals of the State Solid Waste Management Plan are:

[6] From Draft Plan, Executive Summary, pages ES-1 and ES-2.

- Goal 1: Significantly reduce the amount of Connecticut generated solid waste requiring disposal through increased source reduction, reuse, recycling and composting;
- Goal 2: Manage the solid waste that requires disposal in an efficient, equitable and environmentally protective manner, consistent with the statutory solid waste hierarchy;
- Goal 3: Adopt stable, long-term funding mechanisms that provide sufficient revenue for state, regional and local programs while providing incentives for increased waste reduction and diversion."

The Project will contribute to realizing each of the above vision and goal statements, with respect to a range of wastestreams, including land clearing debris, a range of clean wood wastes such as pallets, spools, sawdust and similar materials, oversized municipal solid waste (furniture, etc.), and construction and demolition debris.

A. How PRE Contributes Significantly to Realizing the State's New Vision/Goals

According to the Draft Plan, the State currently recycles approximately 30% of the municipal solid waste generated each year, but only 7% of the construction and demolition waste and oversized municipal wastes ("C&D/Oversized Municipal Solid Waste "MSW") such as furniture. The majority of these wastes are being sent to out-of-state landfills, some as distant as Virginia, Ohio and Kentucky.

In addition to its important contribution toward meeting the state's renewable energy goals, PRE will at the same time contribute to meeting the state's solid waste management goals:

1. PRE will create a needed "user" of the wood component of these wastes, which can be the single largest component by weight;
2. By establishing a market for the wood component, PRE will stimulate investment by the private sector (the primary handler of these wastes) in new processing and sorting systems. These new systems are specifically noted as necessary in the Draft Plan, and will result in recovery and reuse of many other components of the wastes, including; metals, inert brick, block and other materials, corrugated cardboard, plastic, and similar items;
3. The PRE project will support the economics of recycling and recovery of C&D/Oversized MSW wastes by consuming the acceptable wood fraction at little or no cost to the C&D processors;
4. PRE will contribute to substantial reductions in truck and railcar traffic to distant states where such wastes are being landfilled, thereby reducing fossil fuel consumption and helping minimize traffic impacts of current waste management practices;
5. The PRE project will become an integral component of the State's "resource management" approach to improved solid waste management practices for these wastestreams.

XXVII. COMMUNITY RELATIONS

Town of Plainfield Contacts and Meetings

Date	Meeting	Attendees
10/13/04	Project Introduction with First Selectman	Donald Gladding First Selectman
12/2/04	Project Introduction with Economic Development Commission	Elizabeth Swenson Director of Economic Development and other members of the EDC
2/16/05	Update Meeting with First Selectman and Staff	Donald Gladding First Selectman
9/15/05	Update Meeting with Economic Development Director	Elizabeth Swenson Director of Economic Development
10/27/05	Project Meeting with Town Planner and Economic Development Commission	Louis Soja Town Planner Elizabeth Swenson Director of Economic Development
11/17/05	Project Meeting with First Selectman	Kevin Cunningham First Selectman
2/6/06	Town Meeting	Town of Plainfield Officials CT Economic Development Office CT DEP Citizens of Plainfield (approximately 150 people)
2006	Various Project Update Meetings with First Selectman and Town Planner as part of ongoing project development process	Kevin Cunningham First Selectman Louis Soja Town Planner

XXVIII. ADMINISTRATIVE NOTICE, SERVICE AND OTHER FILING REQUIREMENTS

Although PRE is submitting a Petition, PRE provided copies of the Petition to certain federal, state and local government officials listed in Conn. Gen. Stat. § 16-501(b). The list of recipients of the Petition is at Attachment H.

PRE will be placing copies of the Petition in the public libraries in Plainfield and Canterbury.

XXIX. PETITION FILING FEE

The filing fee for this Petition is determined by the Council's filing fee schedule. A check for the Council's fee in the amount of $500 payable to the Council accompanies this Petition.

XXX. BULK FILING OF MUNICIPAL DOCUMENTS

A bulk filing of the municipal zoning, planning, planning and zoning, conservation and inland wetland regulations and by-laws of Plainfield and Canterbury are being provided to the Council.