

**STATE OF FLORIDA
DEPARTMENT
OF
ENVIRONMENTAL PROTECTION**



**Electrical Power Plant Site Certification
Project Analysis Report**

**Gainesville Renewable Energy Center, LLC
Gainesville Renewable Energy Center**

**PA 09-55
DEP OGC Case No. 09-4002
DOAH Case No. 09-6641 EPP**

July 12, 2010

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1.0 INTRODUCTION

Gainesville Renewable Energy Center, LLC (GREC LLC/Applicant), a subsidiary of American Renewables, LLC, is proposing to construct and operate a nominal net 100 megawatt (MW) biomass-fired electrical power plant and associated facilities at the existing Gainesville Regional Utility (GRU) Deerhaven Generating Station (DGS) site in Gainesville, Alachua County, Florida. GREC LLC submitted a Site Certification Application (SCA) to the Department of Environmental Protection's (DEP) Siting Coordination Office (SCO) for the proposed Gainesville Renewable Energy Center (GREC) on November 30, 2009. GREC LCC also filed jointly with GRU for a need determination pursuant to Section 403.519, Florida Statutes (F.S.), on September 18, 2009.

The procedures and requirements for granting or denying a certification to construct and operate an electric power generating facility in the state of Florida are set forth in the Florida Power Plant Siting Act (PPSA), Sections 403.501-518, F.S., and the Electrical Power Plant Siting Rule, Chapter 62-17, Florida Administrative Code (F.A.C.). The DEP has been designated as the lead coordinating agency for the review and evaluation of SCAs and is charged with preparing a Project Analysis Report including a recommendation for granting or denying the requested certification. This report addresses the site and associated facilities and has been prepared as a fulfillment of specific PPSA requirements. It should be noted that the scope of a certification under this act includes only state, regional, and local requirements. All federal permits are processed separately from the SCA. Federal permits being sought in association with this project include a Prevention of Significant Deterioration (PSD) air construction permit and Generic Permits under the National Pollution Discharge Elimination System (NPDES) requirements.

2.0 SITE AND FACILITIES OVERVIEW

The following information was derived primarily from the SCA and additional information submitted by the Applicant.

2.1 Site Location

The proposed GREC will be located on a 131 acre leased area within the boundaries of GRU's previously certified 1,146 acre DGS site in Gainesville, Alachua County, Florida. The site is approximately 8 miles northwest of downtown Gainesville and 7 miles southeast of the City of Alachua downtown area. The site falls entirely within the incorporated city limits of Gainesville. The City of Alachua is the next closest incorporated municipality, located across U.S. 441 to the northwest. Refer to Figure 1 for the general GREC site location. The site boundary is bordered on the north by Northwest 128th Lane, on the south by U.S. Highway 441, on the east by DGS property, and on the west by county property and facilities. Refer to Figure 2 for the GREC site boundary.

2.2 Site Description

The portion of DGS property where the GREC site will be located is currently undeveloped and actively managed for timber production. The site has been significantly altered due to historic silviculture activities and installment of the numerous unpaved roads and manmade swales/ditches that transect the property. The existing vegetation types on the site consist primarily of pine plantations, mixed pine and hardwood forests, several wetland communities, herbaceous dry prairie, and other non-forested, open land.

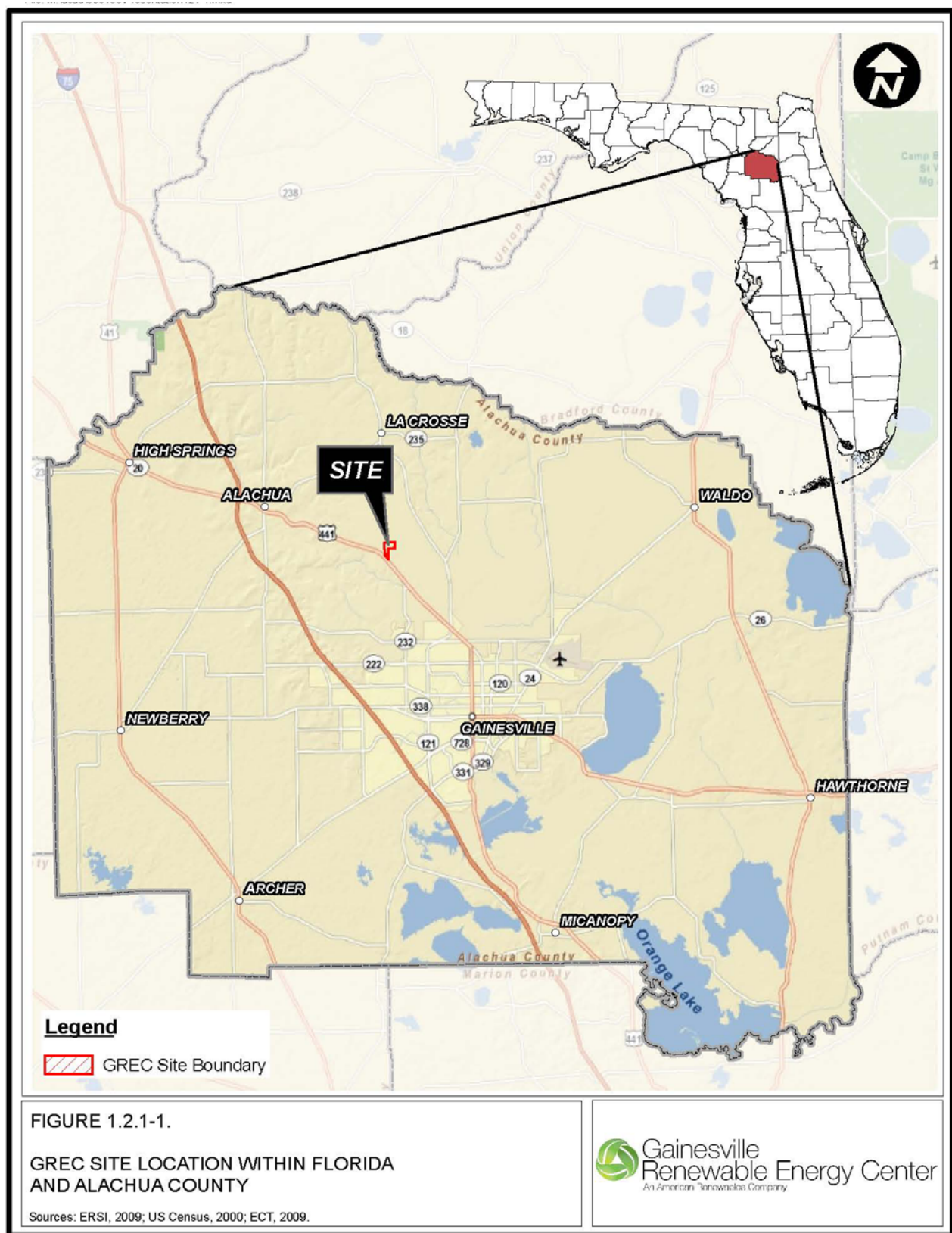


Figure 1. GREC Site Location (GREC SCA)

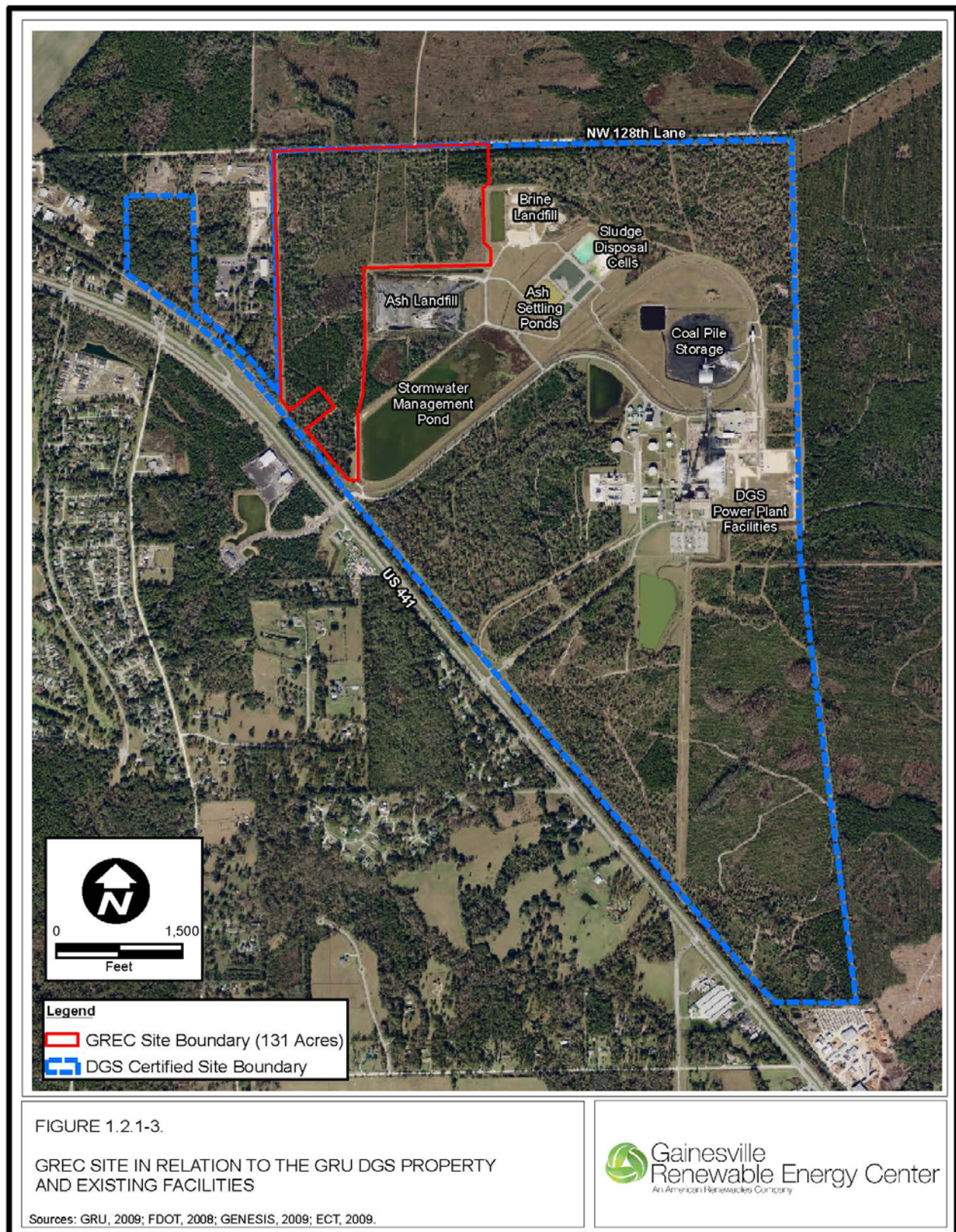


Figure 2. GREC Site Boundary (GREC SCA)

2.3 Area Land Use

Land uses near and adjacent to the GREC site are predominantly commercial/industrial or undeveloped land. The certified DGS and its associated facilities are located immediately east of the proposed site. To the north and northeast of the site lies undeveloped land owned by the City of Gainesville. Alachua County Public Works facilities, a radio tower, and undeveloped land are situated to the west of the site. U.S. 441, a CSX rail line, and commercial operations including construction supply stores, a carwash, boat sales and storage, and shed sales are located south and southwest of the site. According to the SCA, the nearest residences are located approximately 0.8 mile from the site on the southwest side of U.S. 441 and are associated with the Turkey Creek Subdivision. No other residential developments are located within 1 mile of the GREC site boundaries. There are also no significant scenic, cultural, or natural landmarks located within 3 miles of the site.

2.4 Proposed Project Description

GREC LLC plans to construct and operate a nominal net 100 MW (approximately 116 MW gross) woody biomass-fired electrical power plant and associated facilities on a 131 acre site within GRU's certified DGS site. GREC LLC will lease the site from GRU for a term of 47 years. The electrical output from the GREC will be purchased by GRU under a 30 year power purchase agreement between the City of Gainesville (d/b/a GRU) and GREC LLC.

The main GREC power block facilities will consist of a bubbling fluidized bed (BFB) boiler, conventional steam turbine generator, air emission control equipment, a 230 foot tall boiler stack, and a mechanical draft cooling tower. Other major associated facilities include an administrative building, warehouse, water (process and potable) and wastewater treatment systems, handling and storage facilities for BFB boiler bottom and fly ash, two emergency diesel engines, a switchyard, biomass fuel handling and storage facilities, a scale house, parking areas, and stormwater management basins. Linear facilities include roads, sanitary sewer and natural gas pipelines, and a 138 kV transmission line. Approximately 60.5 acres of the 131 acre site will be occupied by the proposed GREC facilities.

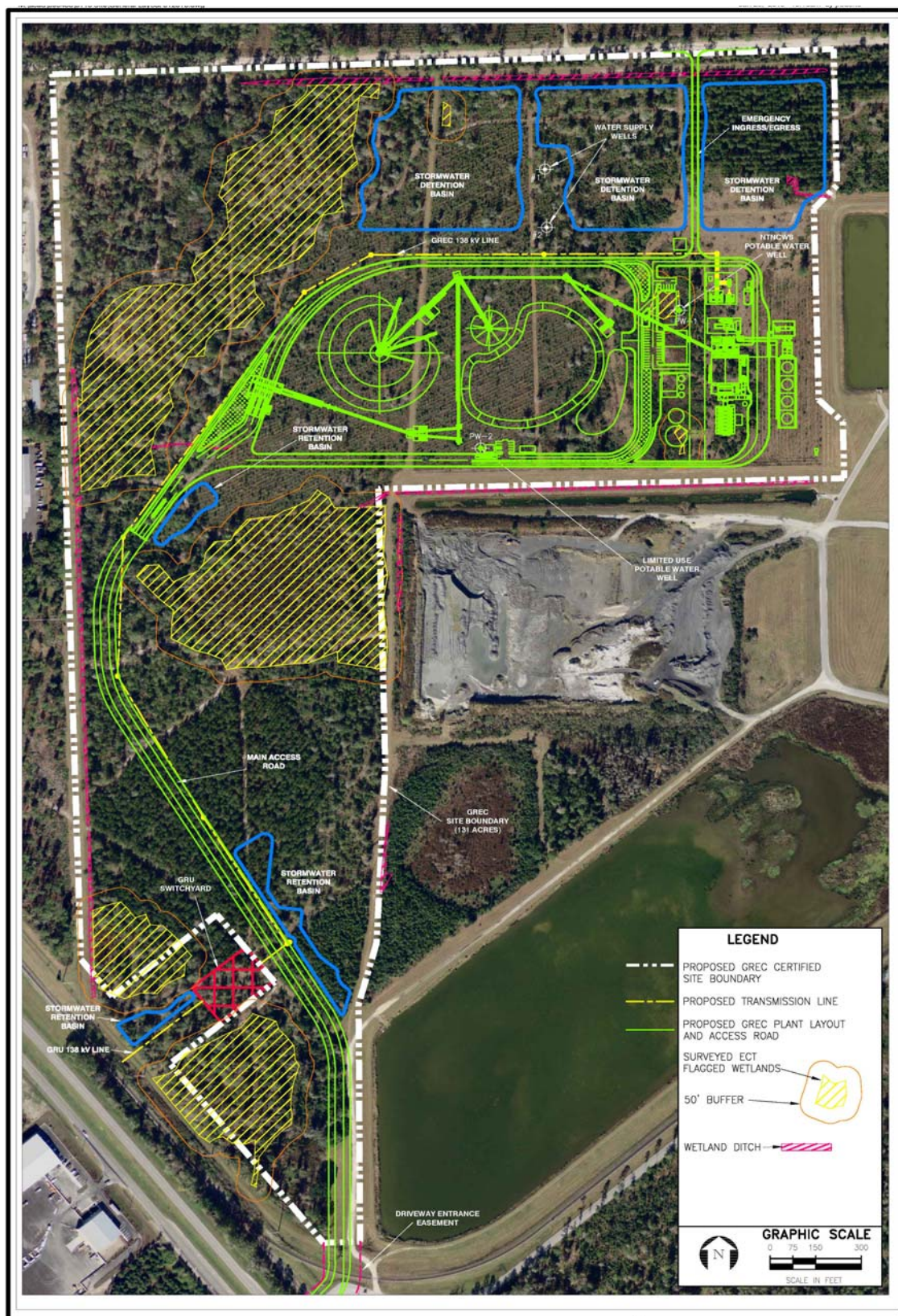


To the left is a conceptual view of the GREC. The view is looking from the DGS site towards the northwest.

Figure 4 on the next page shows the site layout of the GREC. The main facilities were situated in the northeastern portion of the site in an effort to minimize wetlands and noise impacts.

Figure 3. Conceptual view of the GREC (GREC SCA)

Figure 4. GREC Site Layout (GREC SCA)



The main entrance road to the GREC site will be constructed at the existing GRU ancillary entrance to the DGS site accessed from U.S. 441. The roadway will be widened and improved, and the existing turning lanes on U.S. 441 will be lengthened per Florida Department of Transportation (FDOT) regulations, which are addressed in the proposed conditions of certification (COC) attached as Appendix I. The entrance road also crosses a CSX rail line. GRU will amend their existing license agreement with CSX for the crossing to allow for a wider roadway. An additional emergency entrance will be located along the northeastern boundary of GREC and accessed from NW 128th Lane.



Figure 5. Photo of GRU ancillary entrance to the DGS site taken by DEP staff June 23, 2010

Electricity generated from the GREC power block will be transmitted to a nearby switchyard. A 138-kV transmission line will run from this switchyard along the main access road and connect to a switchyard located on DGS property just outside the GREC leased boundary near U.S. 441 and the CSX rail line. GREC LLC will be responsible for constructing the switchyard on DGS property but it will be owned and maintained by GRU. GREC LLC will also construct two 138-kV transmission lines that will run from this switchyard and tie into the existing GRU 138-kV transmission lines that run along the CSX rail line (shown in photo on the right). These lines will also be owned and maintained by GRU.



Figure 6. Photo of GRU 138-kV lines taken by DEP staff on June 23, 2010

GREC will tie into GRU's existing sanitary sewer system and natural gas pipeline via a single corridor running from GREC facilities to the existing GRU lines. Figure 7 below shows the proposed location for the multi-pipeline corridor. The natural gas pipeline will be approximately 4,500 ft long and tie into DGS's existing natural gas station. The sewer force main pipeline will span approximately 4,900 ft and tie into DGS's existing sewer force main. GREC LLC will be responsible for constructing both pipelines but GRU will own and maintain them.

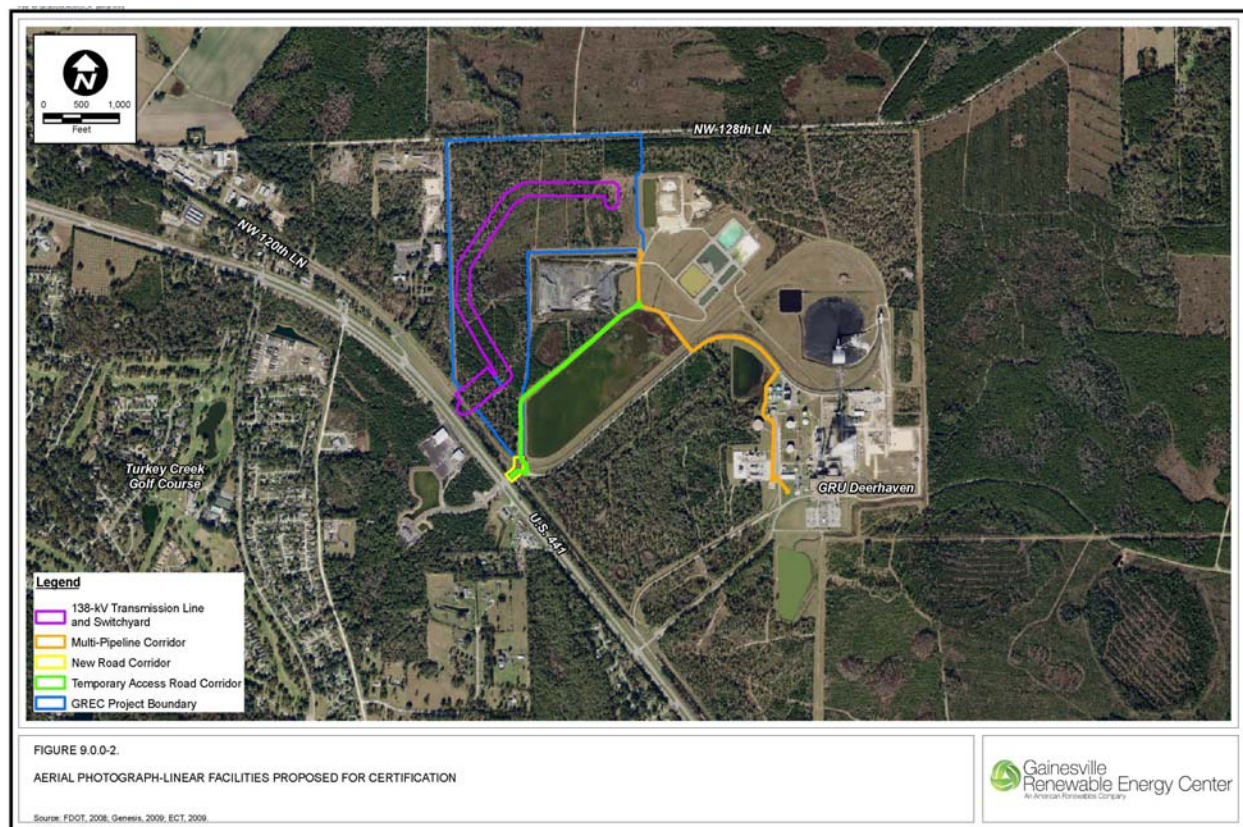


Figure 7. GREC Linear Facility Corridors (GREC SCA)

Several changes to GRU's DGS site certification will be required to accommodate the new GREC including: changes to DGS's existing footprint and facilities; inclusion of appropriate permits/easements for linear facilities and mitigation areas; and a reduction in permitted groundwater withdrawals (discussed in Section 3.4). Following certification of GREC and prior to the commencement of construction, the DEP will work with GRU to make the necessary modifications/amendments to DGS's site certification. Construction activities are anticipated to begin in late 2010 and the plant is expected to be in commercial operation by late 2013.

2.5 Fuel and Fuel Handling

GREC will use clean, woody biomass material as its primary fuel and limited quantities of natural gas as a startup fuel (approximately 43.8 million cubic feet per year according to the SCA). The Applicant anticipates that the plant will require approximately 1 million tons of biomass per year for its power generation needs. GREC LLC plans to enter into contracts with forest landowners within a 75-mile radius of the site to secure most of the plant's biomass fuel. Biomass sourced from landowners will include forest residue left from logging operations such

as pre-commercial thinnings and traditional harvesting. Mill residue and urban wood waste such as tree trimmings created by land clearing, right-of-way maintenance, and other non-forestry derived sources of woody debris will be used as available. GREC will not use treated, painted, or coated wood; municipal solid waste; construction or demolition debris; coal; petroleum coke; or tires as a source of fuel.

The biomass fuel will be chipped at offsite locations and delivered to GREC by covered trucks where it will be stored in the fuel storage areas until it is reclaimed. Fuel deliveries will typically occur over a 15 hour period per day (5am to 8pm) for six days out of the week (Monday through Saturday). According to the Applicant, approximately 130 to 150 trucks with an average of 25 tons per load are expected to be delivering fuel to the site on a daily basis. The trucks will be weighed at the scale house upon entering and departing the facility to determine fuel weight. The fuel will then be unloaded into receiving hoppers and transported through the fuel processing system via a conveyor belt system.



Figure 8. GREC's conveyor belts will be covered and the major transfer points will be enclosed to reduce particulate matter air emissions. The images above were provided by the Applicant to depict the proposed conveyor system for the GREC.

The conveyor system first sends the chipped biomass through a metal detector and magnet to remove ferrous metals from the fuel source. The fuel chips will then be fed into a screening system to separate out particles larger than 3 inches. The larger particles that are captured will be further reduced using two hammer hogs. The fuel resizing equipment will be enclosed and include a dust collection system to eliminate particulate matter air emissions. After the fuel has been processed, it will be transported to the fuel storage area.

Fuel will be stored in one of two piles in the fuel storage area located adjacent to the power block facilities. The storage area will have the capacity to store 15 to 20 days worth of fuel for plant operations. GREC will operate on a first-fuel-in, first-fuel-out basis to minimize potential odor and spontaneous combustion fire issues. To achieve this practice, the fuel piles will be stacked and managed accordingly. Fire hydrants and water spray stations will also be located next to the piles to help prevent fire issues and control dust emissions. The ground under the storage area will be compacted clay covered by a layer of wood chips and contoured to facilitate stormwater drainage to the treatment basins located to the north of the fuel storage area.

According to the SCA, the biomass fuel will have varying moisture contents with an average of approximately 50 percent. Heating values will also vary according to the moisture content and type of biomass. Table 1 below provides a summary of the typical constituents and gross heating values of different types of wood that will likely be used as fuel for the GREC. Based on the BFB boiler design (discussed further in Section 2.6), which is able to efficiently burn fuel sources with varying moisture contents, the Applicant anticipates that the majority of fuel material will be combusted and exit the boiler as fly ash. Noncombustible materials within the fuel source such as glass, metal, sand, etc. will drop out as bottom ash. Bottom ash will be placed in containers and hauled offsite to a permitted landfill. The fly ash from the boiler will be collected in a filter fabric and transported pneumatically to an onsite storage silo. When feasible, the fly ash will be used as an agricultural or timberland soil supplement. Any remaining fly ash will be hauled offsite by covered trucks to a permitted landfill.

	Percent by Weight Dry (Unless Otherwise Noted)				
	Slash Pine	Loblolly Pine	Sand Pine	Hard-wood	Weighted Average
Percent of Fuel Mix	59	9	4	28	100
Carbon	50.0	47.3	48.6	47.3	49.0
Sulfur	0.017	0.018	0.016	0.020	0.018
Hydrogen	6.9	5.1	4.4	5.5	6.3
Oxygen	42.1	46.6	45.9	44.5	43.3
Nitrogen	0.16	0.24	0.25	0.20	0.18
Chlorine (ppmw)	36	40	28	54	41
Ash	0.78	0.763	0.76	1.46	0.98
Gross heating value (Btu/lb)	8,624	8,835	8,985	8,166	8,529
Note: Btu/lb = British thermal unit per pound. ppmw = part per million by weight.					
Sources: GREC, 2009. ECT, 2009					

Table 1. Typical constituents and gross heating value of different types of wood (GREC SCA, figure 4.3.4-1)

2.6 Bubbling Fluidized Bed Boiler and Steam Turbine Generator

GREC will be equipped with a BFB boiler and conventional steam turbine with the capacity to generate approximately 116 gross MW of energy. Fluidizing bed combustion technology has been commercially applied around the world since the 1970s and is regarded for its ability to burn a wide variety of fuels cleaner and more efficiently.¹ In Florida, this technology is currently employed by Jacksonville Electric Authority (JEA) at their Northside Generating Station where two circulating fluidized bed (CFB) boilers are used to burn coal. This technology helped JEA reduce their emissions from Northside by 10 percent.² A primary difference between CFB and BFB boilers is that BFB boilers are able to accommodate fuel sources with varying moisture contents and heating values making them suitable for burning biomass while CFB boilers are optimal for lower moisture and higher heating value fuels such as fossil fuels.³ Figure 5 below shows a schematic of a typical BFB boiler design.

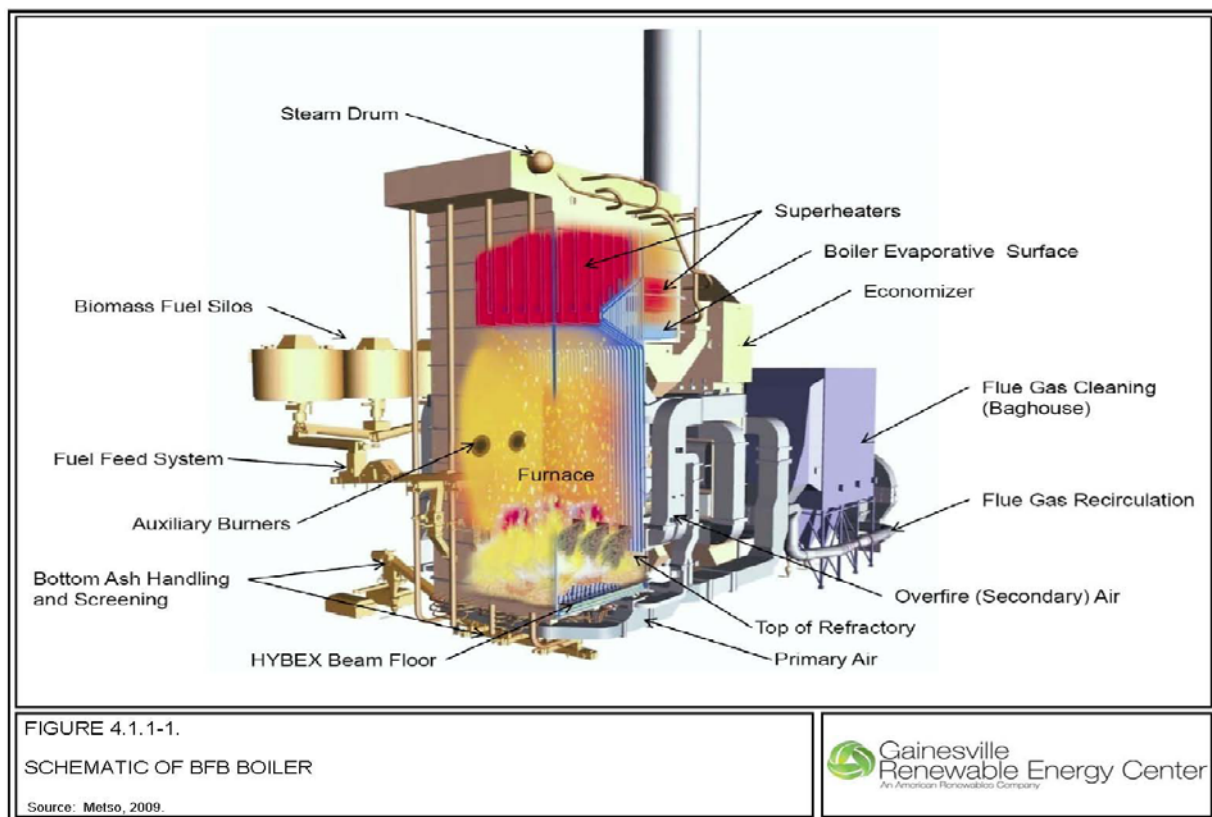


Figure 9. BFB Boiler (GREC SCA, source: Metso, 2009)

In BFB boilers, combustion of biomass material takes place in the furnace above a dense fluidized bed in temperatures normally ranging between 1,350 and 1,700F. The fluidized bed

¹ U.S. Department of Energy. Fluidized Bed Technology. Available at: http://www.fe.doe.gov/programs/powersystems/combustion/fluidizedbed_successes.html

² U.S. Department of Energy and JEA, 2003. The JEA Large-Scale CFB Combustion Demonstration Project Report. Available at: <http://www.netl.doe.gov/technologies/coalpower/cctc/topicalreports/pdfs/topical22.pdf>

³ Metso, 2010. Fluidized Bed Boilers. Available at: http://www.metso.com/pulpandpaper/recovery_boiler_prod.nsf/WebWID/WTB-090522-22575-9DD0D?OpenDocument

contains sieved natural sand which serves as a heat transfer media. The sand and fuel chips are maintained in suspension by a fluidizing air system. This turbulence increases heat transfer rates and improves combustion efficiency. The “staged” introduction of air into the fluidized bed during the combustion process, lowers combustion temperatures, while reducing emissions including nitrogen oxides (NO_x), and volatile organic compounds (VOCs).⁴

The BFB boiler’s design allows for the majority of biomass fuel to combust into fly ash and exit the furnace with the flue gas. At GREC, the flue gas will be discharged into the atmosphere via the 230-ft stack after it passes through a series of air emission control equipment including: a dry sorbent injection (DSI) system to reduce sulfur dioxide (SO₂) emissions; a selective catalytic reduction (SCR) system to further control NO_x emissions; and a baghouse filter to collect particulate matter. Air emissions and control equipment associated with GREC are discussed in more detail under Section 3.1, Local Air Quality Impacts.

Next to the furnace in the BFB boiler is a system of tubes containing water that is heated during the combustion process to produce steam. The pressurized steam generated in the boiler is used to drive a steam turbine, which powers an electrical generator to produce electricity. After the steam goes through the turbine, it is condensed back to water and reused in the boiler. The boiler/steam cycle is generally a closed system so little water is lost through this process; however, the water must be treated and/or periodically replaced to prevent the buildup of minerals that may damage or clog the tubes.

2.7 Cooling System

GREC’s heat dissipation system will be a closed loop circulation water system with a mechanical draft cooling tower, circulating water pumps, surface condenser, and closed system heat exchanger. At maximum load, cooling tower evaporation loss is estimated to be 1.34 million gallons per day (MGD), and approximately 0.18 MGD of blowdown water will be required to control the concentration of dissolved solids. The majority of makeup water for the cooling tower will come from ground water supplied by two onsite wells. The ground water will be treated with lime softener to reduce hardness and contained in a 1,000,000 gallon tank before it is used.

Cooling tower water will also be replaced with recycled/reclaimed water to the extent available. GREC will utilize a zero liquid discharge system (ZLD) to treat and reuse all industrial wastewater including process wastewater, steam cycle blowdown, and cooling tower blowdown. The wastewater treated in the ZLD system, comprised mostly of cooling tower blowdown, will be recycled back to the cooling tower. GREC LLC also expects to gain access to reclaimed water from the City of Alachua’s sanitary wastewater treatment facility to provide cooling tower makeup water by the time the power plant starts commercial operations.

2.8 Stormwater Control

For stormwater attenuation and treatment, the GREC will have three wet detention basins with a total area of 14.38 acres located adjacent to each other in the northeastern portion of the site near the main facilities and two dry retention basins with a total area of 0.58 acre, one located along

⁴ Metso, 2010. Bubbling Fluidized Bed Combustion Technology. Available at:
[http://www.metso.com/energy/boiler_prod.nsf/WebWID/WTB-090517-22575-35FC6/\\$File/HYBEX.pdf](http://www.metso.com/energy/boiler_prod.nsf/WebWID/WTB-090517-22575-35FC6/$File/HYBEX.pdf)

the main access road and one next to the GRU-owned switchyard just outside the GREC leased boundary. The stormwater management system will also include 3.67 acres of swales and ditches. A third dry basin of approximately 0.67 acre will be temporarily used for drainage of the parking area provided during construction.

Prior to construction, the Applicant must obtain a DEP Generic Permit for Stormwater Discharge from Large and Small Construction Activities, and once the plant is in operation, a DEP Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity will be required. The Applicant plans to file Notices of Intent for these Generic National Pollutant Discharge Elimination System permits to DEP when appropriate.

3.0 ENVIRONMENTAL AND SOCIAL IMPACTS

3.1 Local Air Quality Impacts

The DEP's Division of Air Resource Management (DARM) regulates major air pollution sources in accordance with Florida's Prevention of Significant Deterioration (PSD) program, as defined in Rule 62-212.400, F.A.C. For new major facilities, or for modifications to existing facilities, each regulated air pollutant is reviewed for PSD applicability based on emissions thresholds known as Significant Emission Rates (SERs).

Best Available Control Technology (BACT) review is required under DEP and US Environmental Protection Agency (EPA) regulations pertaining to PSD. BACT is applicable to all pollutants for which PSD review is required and is pollutant specific. It is an emission limitation that is based on the maximum degree of reduction for each regulated pollutant, which is determined to be appropriate after taking into account energy, environmental, economic impacts, and other costs. BACT cannot be any less stringent than the federal New Source Performance Standards (NSPS) applicable to the source under evaluation.

The following information was derived from DARM's technical evaluation report and draft PSD permit.

BACT air pollution control equipment to be utilized for the GREC project include:

- Efficient combustion of clean woody biomass in the BFB boiler to minimize formation of particulate matter (PM/PM₁₀/PM_{2.5}) henceforth called PM, nitrogen oxides (NO_x), carbon monoxide (CO) and volatile organic compounds (VOC);
- Limitation of biomass to woody untreated biomass to minimize sulfur dioxide (SO₂) and hazardous air pollutant (HAP) formation, including acid gas HAPs, including hydrogen chloride (HCl) and hydrogen fluoride (HF);
- Use of an inherently clean natural gas as the startup fuel for the BFB boiler;
- Use of an inherently clean ULSD fuel oil and good combustion practices in the emergency generator and emergency fire pump engine to control emissions of CO, SO₂, NO_x, PM, VOC and HAP;
- Ammonia (NH₃) injection into a selective catalytic reduction (SCR) reactor to destroy NO_x;
- The alkaline properties of the fly ash and an in-duct sorbent injection system (IDSIS) to control SO₂, HCl and HF;
- A fabric filter baghouse to further control PM and to remove injected sorbents;
- Reasonable precautions and best management practices to minimize fugitive PM emissions from biomass handling, storage and processing, ash (bottom and fly) handling, storage and shipment and alkaline sorbent handling, storage and processing; and

- A well designed mechanical draft cooling tower to minimize drift (PM).

The GREC project will increase emissions of three pollutants at levels in excess of the SERs with respect to the rules for the PSD. The three pollutants are particulate matter (PM), PM with an aerodynamic diameter less than 10 microns (PM₁₀), carbon monoxide (CO) and volatile organic compounds (VOC). PM₁₀ is a criteria pollutant and is subject to national and state ambient air quality standards (AAQS), PSD increments, significant impact levels (SIL) and de minimis monitoring levels. CO is a criteria pollutant and is subject only to AAQS, SIL and de minimis monitoring levels. There are no applicable PSD increments, AAQS, SIL or de minimis monitoring levels for VOC.

Note that SO₂ and NO_x emissions from GREC are expected to be small in comparison to coal-fuel plants in the region, and will be offset by permanent and enforceable reductions required at the DGS following recent installation and start up of new air pollution control systems (APCS) in 2009.

According to the DARM's technical evaluation, the proposed GREC project will comply with all applicable state and federal air pollution regulations as conditioned by the draft PSD permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the Applicant, and the conditions specified in the draft PSD permit. The final PSD permit and subsequently issued Title V operational permit will be incorporated into the COC.

3.2 Carbon Dioxide Emissions

In light of heightened concerns over global warming and Florida's commitment to *The Climate Registry*, it is appropriate to consider carbon dioxide (CO₂) emissions from the proposed project. The following summary is intended to put into perspective the projected CO₂ emissions from the GREC project with respect to national CO₂ emissions and CO₂ emissions from other types of electrical generating facilities.

According to national greenhouse gas emissions inventories, energy-related activities account for over 80 percent of CO₂ emissions in the United States, and the vast majority of these CO₂ emissions are from the combustion of fossil fuels.⁵ Florida currently ranks fifth in the nation for CO₂ emissions from fossil fuel combustion, contributing to almost four and one-half percent of the nation's total emissions in 2007.⁶

Emission Origin	2007 Total CO ₂ Emissions (million metric tons)
Texas	676.75
California	402.77
Pennsylvania	274.30
Ohio	267.67
Florida	256.27
United States	5,757.0

Table 2. CO₂ Emissions Comparison (EPA)

⁵ U.S. Environmental Protection Agency. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008. Available at: <http://epa.gov/climatechange/emissions/usinventoryreport.html>

⁶ U.S. Environmental Protection Agency. State CO₂ Emissions from Fossil Fuel Combustion, 1990-2007. Available at: http://epa.gov/climatechange/emissions/state_energyco2inv.html

The amount of CO₂ emissions associated with electrical power plants largely depends of the type and amount of fuel being utilized. Figure 6 below provides a comparison of CO₂ emissions from various fuel types per heat energy unit (lb/MMBtu).⁷

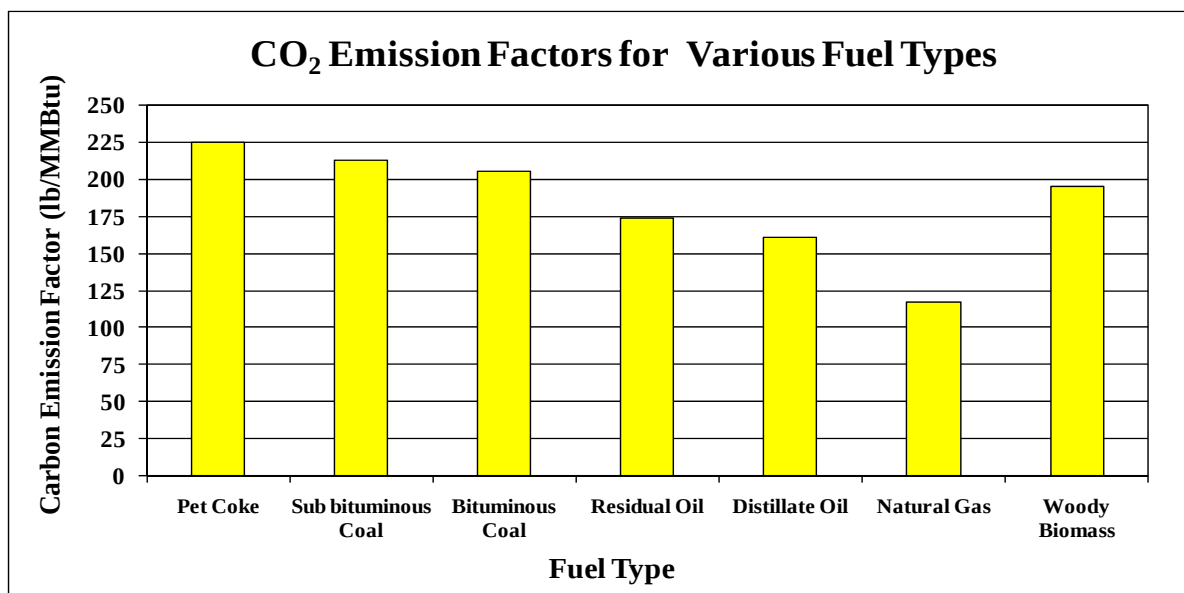


Figure 6. Carbon Dioxide Emission Factors (Energy Information Administration)

Although woody biomass fuels do release CO₂ when they are combusted, they have been historically excluded from greenhouse gas emission inventories due to their biogenic origin.⁸ Unlike fossil fuels, biogenic fuels release CO₂ gases that have been recently sequestered and are considered part of the current atmospheric carbon cycle. Theoretically, if the land that the biomass is harvested from continues to support growing plant material, a sustainable balance is maintained between the carbon emitted and absorbed. This has lead many studies to conclude that biomass fuel is carbon neutral with respect to CO₂ emissions.⁹ Figure 10 provides an illustration of the sustainable balance of CO₂ emissions from biomass power plants.¹⁰

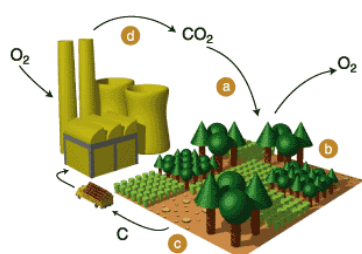


Figure 10. Carbon Balance

- (a) As trees in the forest grow, they absorb CO₂ from the atmosphere.
- (b) During photosynthesis the trees store carbon in their woody tissue and oxygen is released back to the atmosphere.
- (c) At harvest, biomass fuel is transported to the power generating plant.
- (d) As the wood is burned the carbon stored in the woody tissue combines with oxygen to produce CO₂, and is emitted back to the atmosphere in the exhaust gases.

⁷ U.S. Energy Information Administration. Fuel and Energy Source Codes and Emissions Coefficients. Available at: <http://www.eia.doe.gov/oiaf/1605/coefficients.html>

⁸ International Panel on Climate Change. 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Available at: <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>

⁹ University of Florida IFAS Extension. Wood to Energy Fact Sheets: Available at: http://edis.ifas.ufl.edu/topic_series_wood_to_energy

¹⁰ Biomass Energy Centre. <http://www.biomassenergycentre.org.uk/>

Recent studies have criticized the assertion that biomass is a carbon neutral energy source. The primary assumption of carbon neutrality, which is that forest biomass combustion results in no net increase in CO₂ levels, has been challenged on the grounds that such a characterization ignores differences in the *timing* of carbon releases and subsequent resequestration in growing forests.¹¹

Regardless of these conclusions, the Applicant maintains that GREC will be a carbon neutral source of biomass energy production, and that it may even potentially result in the net reduction of overall emissions based on the premise that it will primarily use forest and urban wood waste that would otherwise be burned openly or left to decay in forests or landfills. Furthermore, GREC's minimum sustainability standards required of all fuel suppliers and supplementary forest stewardship incentive program is expected to promote forest sustainability, which is paramount to the theory of carbon neutrality.

3.3 Industrial Wastewater Discharge Impacts

No industrial wastewater will be discharged from the GREC site. GREC will be equipped with a ZLD system, which will allow for the treatment and reuse of industrial wastewater. Therefore, no NPDES permit for wastewater discharges is required for the project.

3.4 Water Use Impacts

The Applicant estimates that approximately 1.4 MGD of water will be needed for GREC operations. A small amount of this (less than 0.05 MGD) will be used for boiler water makeup, dust and fire control, and drinking or other potable water needs. The primary water use for GREC will be associated with cooling tower water makeup. According to the Applicant, approximately 1.34 MGD of water will be lost through evaporation in the mechanical draft tower. The ZLD system will provide a modest return of water to the cooling tower by treating and recycling the majority of blowdown water back to the makeup supply.

The Applicant plans to meet the water needs for GREC by installing four wells on site that will withdraw water from the Upper Floridan Aquifer. Two wells located north of the biomass fuel storage yard will provide treated groundwater for the cooling tower makeup, boiler/steam cycle makeup, dust control, fire prevention system, and other process water uses. The two other wells will provide potable water for drinking, restrooms, showers, eyewash stations, etc. The first potable water system will serve the administration and warehouse buildings and the second will serve the scale house.

The SCA contained a water use permit application for the proposed GREC groundwater withdrawals, which included provisions for the use of reclaimed domestic wastewater from the City of Alachua treatment facility as well as an agreement letter from GRU to reduce their permitted groundwater withdrawals for the DGS by 1.4 MGD to compensate for the GREC water requirements.

The Suwannee River Water Management District (SRWMD) is the agency responsible for regulating groundwater withdrawals. SRWMD staff reviewed the GREC water use permit application and determined that the proposed water withdrawals should not adversely impact surrounding natural features. However, SRWMD recommended that GRU be required to reduce

¹¹ Manomet Center for Conservation Sciences, 2010. Biomass Sustainability and Carbon Policy Study. Available at: http://www.manomet.org/sites/manomet.org/files/Manomet_Biomass_Report_Full_LoRez.pdf

its permitted groundwater withdrawals for DGS by 1.4 MGD, and recommended several specific conditions of certification that require GREC LLC to aggressively pursue a reclaimed water source for all or most of its cooling tower water makeup needs. SRWMD's specific conditions for GREC LLC have been incorporated into the proposed COC (Appendix I). SRWMD's recommendation for GRU will be incorporated into the conditions of certification for DGS.

3.5 Sanitary Wastewater Disposal

The sanitary wastewater from GREC facilities will be tied into DGS's existing sanitary sewer system, which is routed to the City of Gainesville's Kanapaha Water Reclamation Facility for treatment and disposal. Sanitary wastewater discharge amounts are determined based on a balance of the potable water needs. The Applicant estimated the potable water needs for GREC to be an average of approximately 2 gallons per minute or 2,880 gallons per day. According to GRU, the permitted capacity of the Kanapaha Water Reclamation Facility is 14.9 MGD, and the current flow (based on the 2009 annual average flow) is 11.48 MGD.

Based on this assessment and discussions with GRU engineering staff, the Applicant concluded that GRU's sanitary sewer system and the Kanapaha Facility should be able to handle the small increase in sanitary wastewater flow from the GREC. However, GREC LLC will still need to obtain approval from the City of Gainesville for the connection. A condition has been included in the proposed COC (Appendix I) requiring GREC LLC to submit the necessary information which would normally be included within a permit application to the City of Gainesville prior to connecting to GRU's DGS sewer system.

3.6 Solid and Hazardous Waste Disposal

Solid wastes generated during construction such as scrap wood, concrete, and metal that cannot be salvaged or recycled will be transported to an approved offsite construction and demolition debris disposal facility.

Nonhazardous solid wastes generated by plant operations will primarily be products from the combustion process, air quality control equipment, wastewater treatment facilities, and administrative buildings. Noncombustible materials comprising the bottom ash as well as sludge/solids produced from the wastewater treatment facilities will be collected in containers and hauled offsite to an approved landfill. The fly ash from the boiler will be collected in the baghouse filter and transported pneumatically to an onsite storage silo. When possible, the fly ash will be used as an agricultural or timberland soil supplement. All remaining fly ash will be hauled offsite by covered trucks to an approved landfill.

Other wastes such as waste paper, cardboard, office supply packaging, food packaging, food residue, plastic containers, etc., will be collected in dumpsters and disposed of at an approved offsite landfill. According to the Applicant, some of these wastes will likely be transported to the Alachua County Transfer Station and then trucked to the New River Regional Landfill located in Union County, Florida.

The Applicant anticipates that only small quantities of hazardous waste may be generated at the GREC from use of laboratory chemicals, cleaners, solvents, etc. These will be collected, handled, and stored in accordance with applicable hazardous waste rules and regulations until they are removed from the site for disposal by a licensed hazardous waste hauler.

The proposed COC (Appendix I) include provisions for complying with all applicable Florida rules and statutes regarding proper handling, transportation, and disposal of solid and hazardous wastes. In addition, conditions regarding sampling of fly ash were included to ensure that no harmful chemicals are contained in fly ash that could potentially be used as a soil supplement.

3.7 Terrestrial Impacts

According to the Applicant, the GREC site has been disturbed from historic silviculture activities and installation of the numerous unpaved roads and manmade swales/ditches that transect the property. Biological surveys conducted by the Applicant's consultant at the site in June 2008 and May through September 2009, identified twelve vegetation communities on the GREC site. These vegetation types and their acreage are listed in Table 3.

FLUCFCS Code	Vegetation/Land Use Type	Area (acres)	Percent of Site
194	Other Open Land	4.4	3.4
310	Herbaceous Dry Prairie	2.7	2.1
434	Hardwood-Conifer Mix	49.3	37.7
441	Coniferous Plantation	44.9	34.3
512	Manmade Ditch/Swale	1.2	0.9
621	Cypress Wetland	6.3	4.8
626	Hydric Pine Plantation	1.1	0.8
630	Wetland Forested Mixed	14.2	10.9
631	Wetland Shrub	0.2	0.02
641	Freshwater Marsh	0.2	0.2
643	Wet Prairie	0.04	0.03
814	Roads and Highways (Unpaved Roads, trails)	<u>6.2</u>	<u>4.7</u>
	Total	130.8	100.0

Table 3. Summary of Vegetation Types within the GREC Site (GREC SCA)

Permanent land impacts will occur to approximately 60.5 acres of the 131-acre site from construction of GREC facilities, and 0.96 acre of permanent offsite impacts will occur where the GRU-owned switchyard will be located. Some temporary impacts will also result from construction activities. These include approximately 4.53 acres of onsite impacts associated with construction worker parking and 8 acres of offsite impacts associated with the construction laydown area located within the DGS site. Refer to Figure 10 for a summary of temporary and permanent impacts by community type.

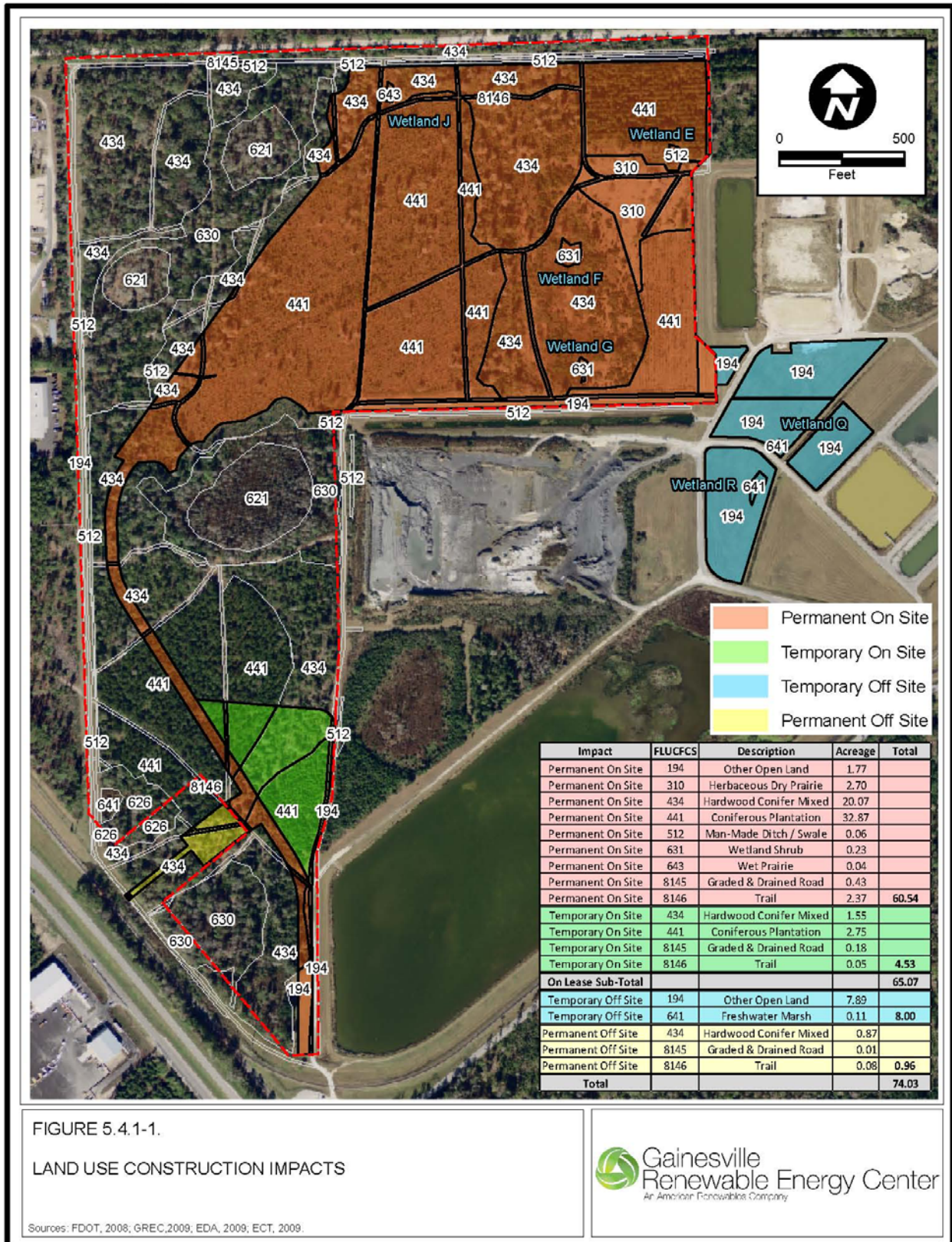


Figure 11. Summary of GREC Land Use Impacts (GREC SCA)

The Florida Fish and Wildlife Conservation Commission (FWC) conducted an independent assessment of threatened or endangered species and rare habitats potentially occurring on the GREC site and identified the following:

- 16 protected species (listed in the table below) potentially occur onsite or in the vicinity of the proposed site;
- The site is a historical wading bird rookery;
- Rare species habitat for the eastern indigo snake was identified within the site; and
- Potential habitat and priority wetlands for the Florida black bear and wading birds were identified within the site.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status*</u>
Gopher frog	<i>Rana capito</i>	SSC
Gopher tortoise	<i>Gopherus polyphemus</i>	ST
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	SSC
Eastern indigo snake	<i>Drymarchon corais couperi</i>	ST; FT
Tricolored heron	<i>Egretta tricolor</i>	SSC
Little blue heron	<i>Egretta caerulea</i>	SSC
Limpkin	<i>Aramus guarauna</i>	SSC
Snowy egret	<i>Egretta thula</i>	SSC
White ibis	<i>Eudocimus albus</i>	SSC
Bald eagle	<i>Haliaeetus leucocephalus</i>	P
Florida sandhill crane	<i>Grus canadensis pratensis</i>	ST
Southeastern American kestrel	<i>Falco sparverius paulus</i>	ST
Wood stork	<i>Mycteria americana</i>	SE; FE
Sherman's fox squirrel	<i>Sciurus niger shermani</i>	SSC
Florida black bear	<i>Ursus americanus floridanus</i>	ST

* SSC - Species of Special Concern; ST - State Threatened; SE - State Endangered; FT - Federally Threatened; FE - Federally Endangered; P - Protected under federal law and state management plan

To address preservation of these habitats and wildlife species, FWC recommended several specific requirements, which have been incorporated into the proposed COC (Appendix I).

3.8 Wetland Impacts

The GREC was designed to avoid and minimize impacts to wetlands. Permanent impacts will occur to approximately 0.44 acre of lower quality wetlands. To compensate for these unavoidable impacts, GREC LLC proposed a mitigation plan that includes placing 10.25 acres of higher quality wetlands on the site into a conservation easement as well as 12.33 acres of uplands

surrounding the wetlands to serve as a buffer. The DEP's Wetlands Section had no objections to the impacts and mitigation proposal. A condition requiring GREC LLC to execute all conservation easements prior to construction is included in the proposed COC (Appendix I).

3.9 Noise Impacts

The potential noise impacts associated with construction and operation of the GREC are expected to comply with local noise ordinances. In Chapter 15 of the City of Gainesville's Municipal Code, noise levels emanating from commercial property may not exceed 66 A-weighted decibels (dBA) during the day (8am to 10pm) and 60 dBA during the night (10pm to 8am) at a distance of 200 ft from the property line.

Based on information derived from Barnes et al., 1977, the Applicant estimated maximum noise levels during the construction phase of GREC to be between 60 and 64 dBA at the northern property line. For the operational phase, a noise analysis was conducted using Computer Aided Noise Abatement Version 3.7 software, which modeled noise levels using noise receivers that were placed at several locations along the property line and 200 ft beyond the property line. The maximum predicted noise level for a location 200 ft from the property line was 51 dBA for both day and night timeframes. This occurred at a noise receiver located beyond the northern property line. Refer to Figure 13 and Table 5 for the noise modeling analysis results.

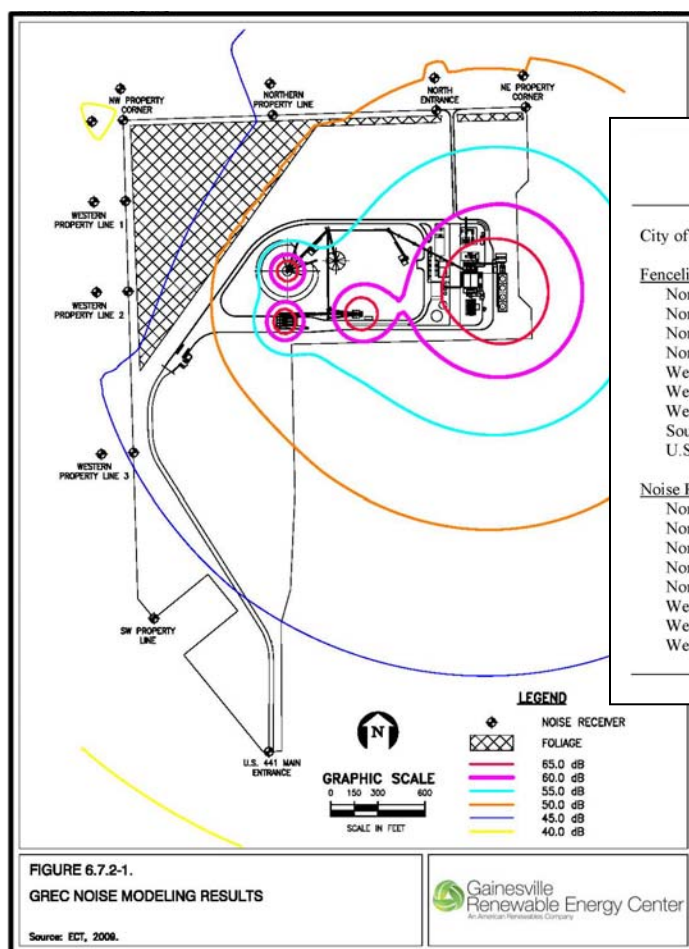


Table 4. Sound Levels (GREC SCA)

Noise Receiver Location	Sound Pressure Level (dBA)	
	Daytime*	Nighttime*
City of Gainesville maximum sound level†	66	60
<u>Fenceline Noise Receivers</u>		
Northeast property corner	53	52
North entrance	52	52
Northern property line	46	46
Northwest property corner	41	40
Western property line 1	42	41
Western property line 2	43	42
Western property line 3	45	45
Southwest property line	43	43
U.S. 441 main entrance	42	42
<u>Noise Receivers Located 200 feet Beyond Fenceline</u>		
Northeast property corner	50	50
North entrance	51	51
Northern property line	47	47
Northwest property corner—north	41	41
Northwest property corner—west	40	40
Western property line 1	41	40
Western property line 2	42	42
Western property line 3	45	44

Figure 12. GREC Noise Analysis (GREC SCA)

As demonstrated in the SCA, maximum noise levels during construction and operation will occur in the northeastern portion of the site where the main GREC facilities will be located. The property beyond the northern boundary is undeveloped land owned by the City of Gainesville. According to the Applicant, the nearest residences and businesses are located far enough from the main GREC facilities to mitigate audible noise levels.

In addition to complying with local ordinances, the thick growth of trees and vegetation located between the proposed GREC plant facilities and site boundaries will be maintained to further buffer any potential noise impacts. To assure that GREC will comply with local noise ordinances, a condition has been included in the proposed COC (Appendix I) requiring compliance with all applicable City of Gainesville ordinances.

3.10 Transportation Impacts

A traffic impact analysis from construction and operation of the GREC was provided in the SCA. During the 34 month construction period, the peak daily trips projected to enter and exit the GREC site from U.S. 441 was 1,028 (736 from the northwest and 292 from the southeast). Once the plant is in operation, an average of 378 annual daily trips (251 from the northwest and 127 from the southeast) is projected to enter/exit the site from U.S. 441. Refer to Figures 11 and 12 for maps of the projected trips/routes generated during peak construction and operation of GREC.

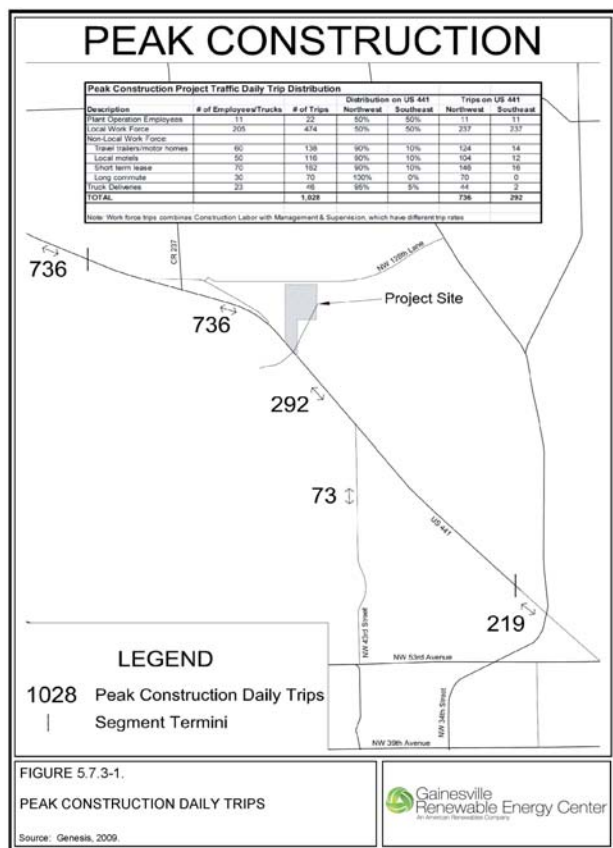


Figure 13. Peak Construction (GREC SCA)

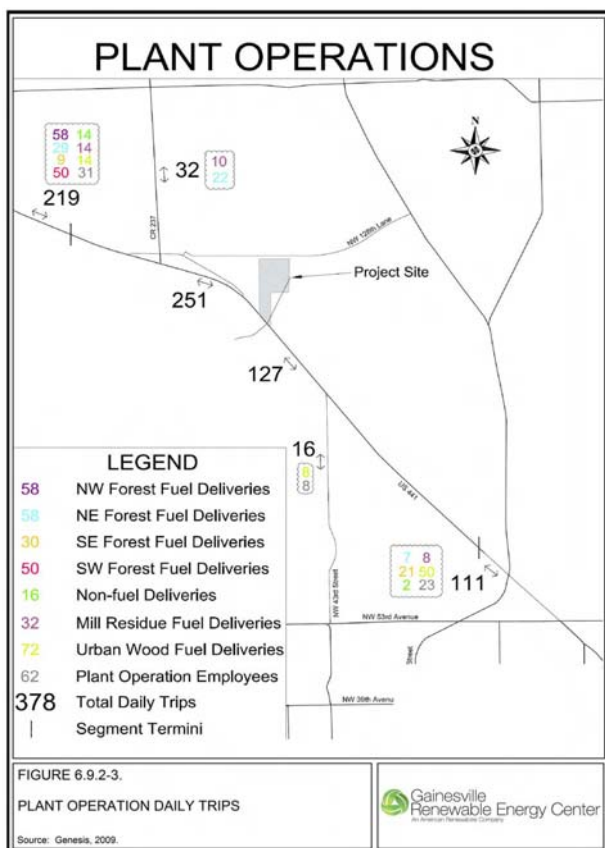


Figure 14. GREC Operations (GREC SCA)

U.S. 441 is a four lane arterial road with existing turning lanes at the proposed GREC main entrance road. Improvements will be made to the turning lanes per FDOT regulations as addressed in the proposed COC (Appendix I) to accommodate increased traffic associated with GREC. The segment of U.S. 441 that will service the trips associated with GREC has an adopted level of service (LOS) standard of D.¹² However, based on FDOT's 2008 average daily traffic counts, this segment is operating at a LOS standard of B and has a daily available capacity of 16,300 trips.¹³

Roadway	To	From	Adopted LOS Standard	Maximum Service Volume	2008 FDOT ADT	Percent of Capacity	Available Service Volume	LOS
U.S. 441	Northwest 23 rd Street	GMA boundary	D	35,700	19,400	54	16,300	B

Table 5. Level of Service Summary for Affected Segment of U.S. 441 (GREC SCA)

According to the Applicant, neither FDOT nor the Cities of Gainesville and Alachua currently have any planned roadway projects that would increase capacity on U.S. 441. Therefore, the current LOS standards and capacities are expected to remain constant during the construction period of the GREC. In the final agency report submitted to the SCO on June 7, 2010, the North Central Florida Regional Planning Council (NCFRPC) indicated that significant adverse impacts to the Regional Road Network were not anticipated as a result of the GREC project.

3.11 Impacts to Regional Forests

To meet its generation capacity, GREC will require approximately 1 million green tons of biomass per year. During initial discussions on whether to pursue biomass, GRU commissioned several biomass resource studies to determine if biomass fuel would be economically available from the region surrounding Gainesville.¹⁴ The Applicant also consulted with BioResource Management, Inc. (BRM) on an independent assessment within the region to identify potential fuel types and suppliers, and examine the costs associated with the various procurement options. Based on these investigations, the Applicant concluded that an adequate and economical supply of fuel exists within the 75-mile GREC procurement area without adversely affecting other biomass users.

According to the assessment conducted by BRM the estimated amount of biomass sources within the procurement area that could potentially be used at GREC totaled 5.85 million green tons per year – over 5 times more than GREC's annual demand.¹⁵ Table 5 below summarizes the annual sustainable generation rates for four general biomass sources within the GREC procurement

¹² NCFRPC, 2009. Metropolitan Transportation Planning Organization Multimodal Level of Service Report for the Gainesville Metro Area. Available at: <http://www.ncfrpc.org/mtpo/publications/LOS/MLOSRO8.pdf>

¹³ FDOT, 2008. Annual Average Daily Traffic Data. Available at: <http://www.dot.state.fl.us/planning/statistics/gis/trafficdata.shtml>

¹⁴ Reports associated with referenced studies are available on GRU's website at: <http://www.gru.com/AboutGRU/PublicDiscussion/FuturePower/biomassAvailabilitySupply.jsp>

¹⁵ BioResource Management, 2010. Summary Presentation of GREC Biomass Assessment. Available at: <http://www.gru.com/Pdf/futurePower/TestimonialsExhibits/Schroeder/RMS-10%20Summary%20Pres-GREC%20Biomass%20Assessment%20Schroeder%203-2010.pdf>

area. BRM also reported that given GREC's procurement strategy and relative location to other forestry related industries, their supply demands will not conflict with existing or potential biomass demands in the region.

Material	Generated in supply area (green tons/yr)	Target procurement volume for GREC (green tons/yr)
Urban wood waste	410,000	250,000-300,000
Forest-derived biomass		
First thinnings	540,000	150,000-200,000
Logging residue	1,600,000	400,000-500,000
Mill residue	3,300,000	75,000-100,000
Total	5,850,000	1,000,000

Table 6. Annual Supply of Biomass Sources within GREC Procurement Area (BRM Summary Presentation of GREC Biomass Assessment)

To promote long-term availability of biomass for GREC operations and general sustainability of regional forests, the City of Gainesville required GREC LLC to adopt a set of minimum sustainability standards for forest biomass for all their fuel suppliers to contractually follow. These standards, which are stipulated in the power purchase agreement¹⁶ (PPA) between GREC LLC and GRU, include:

- acquiring material from timber operations performed according to the Florida Division of Forestry best management practices;
- not using stumps (which would promote soil erosion);
- not using material derived from the conversion of natural forest to a plantation forest;
- not using fuel derived from nonnative species unless harvested as part of a forest restoration project;
- requiring source certification and accountability by truckload; and
- requiring suppliers to attend an annual sustainability and best practices seminar organized by the GREC procurement staff.

The PPA also includes the following requirements from GREC LLC:

- GREC LLC shall hire an independent forestry consultant to conduct annual audits of its compliance with the minimum sustainability standards for forest produced biomass. The independent forestry consultant shall conduct inspections and visits to a randomly selected sample of harvesting sites no less than twice per calendar year.
- GREC LLC shall institute a documentation policy to ensure its suppliers comply with biomass fuel supply contract terms.
- Supply contracts for forest-produced biomass fuel shall incorporate the minimum sustainability standards for forest-produced biomass, and the suppliers shall agree to compliance with these standards.

¹⁶ Power Purchase Agreement between the City of Gainesville (d/b/a GRU) and GREC LLC, 2009. Sustainability Standards, Appendix VIII. Available at: <http://www.gru.com/Pdf/futurePower/090451.ExhB.Redacted.PPA.Filed.1-14-10.pdf>

- Each supply contract for forest-produced biomass must be signed by a professional forester representing the supplier certifying that the professional forester has been engaged by the supplier to ensure compliance with the minimum sustainability standards for forest-produced biomass and confirming the professional forester's understanding of and commitment to fulfill this responsibility.
- Each delivered load of biomass fuel must be labeled by a unique identification number corresponding to the supplier identification number, contract identification number, tract identification number, crew, transport, date, and time and be accompanied by a manifest signed by the harvesting foreman and driver listing such information. If possible, GREC LLC shall seek to use electronic media to increase the accuracy of the information.
- GREC LLC shall record the delivery identification information.
- GREC LLC shall inspect at least 10 percent of all delivered loads to assure compliance with the minimum sustainability standards for forest-produced biomass.
- Suppliers shall keep on file harvesting contracts, cutting agreements, and other related documents for each harvested area, and these files shall be available for inspection by GREC LLC for a period of 3 years following harvest.
- GREC LLC shall conduct semiannual inspections of all suppliers to verify compliance with its recordkeeping procedures and harvesting practices.
- GREC LLC shall reject noncomplying deliveries of biomass fuel.
- GREC LLC shall suspend deliveries from a biomass fuel supplier for a period of no less than 1 year if the supplier is found to be in noncompliance in three separate instances within any 1-year period.

In addition to the minimum sustainability standards that all GREC's fuel suppliers must follow, GRU will be sponsoring a Forest Stewardship Incentive Plan¹⁷ that will provide supplemental payments to fuel suppliers who are operating under an approved independent forest certification program. The plan currently recognizes two programs (The Florida Division of Forestry Stewardship (DOFS) Program and Forest Stewardship Council (FSC) Program) that are eligible for supplemental payments. Fuel suppliers operating under the FCS Program, which is considered to have more stringent sustainability criteria, will earn an additional \$1.00 per ton of biomass while suppliers operating under the DOFS Program will earn an additional \$0.50 per ton. The Applicant expects that the incentive plan along with the minimum sustainability standards will encourage superior silviculture practices from potential GREC fuel suppliers, resulting in improved forest health and sustainability within the GREC procurement area.

The concerns of economics and sustainability were also raised during the PSC need determination proceedings. According to the March 15, 2010 testimony of Richard Schroeder, founder of BRM, the overall findings of studies relating to biomass energy production and forest sustainability in Florida are consistent with the conclusion that sufficient biomass exists on a long-term sustainable basis within an economically feasible distance of GREC.¹⁸ He further

¹⁷ City of Gainesville (d/b/a GRU) and The Ad Hoc Sustainable Biomass Procurement Committee, 2009. Stewardship Incentive Plan for Biomass Fuel Procurement. Available at: <http://www.gru.com/Pdf/futurePower/ADOPTED%20April%202%202009%20Forest-Produced%20Biomass%20Fuel%20Plan.pdf>

¹⁸ Supplemental Testimony of Richard M. Schroeder on Behalf of GRU and GREC LLC, PCS Docket No. 090451-EM, March 15, 2010. Available at: <http://www.psc.state.fl.us/library/filings/10/01760-10/01760-10.pdf>

suggested that in general biomass plants such as GREC can also promote forest health and sustainability through economic incentives. By creating a market for low value biomass material such as forest residues and pre-commercial thinnings, biomass plants encourage landowners to maintain healthy forests and provide a disincentive to develop forestry land. In conclusion of the recent biomass study distributed by the Florida Department of Agricultural and Consumer Services (DOACS), Charles Bronson, Commissioner of DOACS, announced that biomass energy production would be beneficial to Florida's economy and to the sustainability of statewide forests.¹⁹

3.12 Socioeconomic Impacts

According to the Applicant, the GREC project should result in positive economic benefits for the City of Gainesville, City of Alachua, Alachua County, and surrounding areas through employment opportunities, increased revenue from direct local property tax payments and sales tax from the purchase of goods and services for the construction and operation of the GREC. The Applicant anticipates the creation of an average of 168 and a peak of 426 jobs during the construction period of the GREC as well 44 fulltime jobs at the facility once it's in operation. Furthermore, it is estimated that 450 to 500 additional jobs will be created in the surrounding areas to support biomass fuel supply activities.

4.0 ARCHAEOLOGICAL AND HISTORIC SITES

According to a cultural resource survey of the GREC site conducted by Archaeological Consultants, Inc. (ACI) in January 2010, no archaeological sites or historic structures that are listed, determined eligible, or considered potentially eligible for listing in the National Register of Historic Places were identified. As a result, ACI concluded that no adverse impacts to significant historical resources are expected from the development of the GREC. The Florida Department of State's Division of Historical Resources reviewed the survey and considered it to be satisfactory.

5.0 PUBLIC LANDS

The GREC project will not displace any human populations. As indicated in the SCA, the project and its associated construction activities will be contained within the existing DGS site and will not result in changes to the accessibility or use of nearby landmarks or sensitive areas.

The closest public lands and/or significant landmarks to the GREC site are the San Felasco Hammock State Preserve located approximately 3 miles to the southwest of the site and Devil's Millhopper State Geological Site located approximately 3.2 miles to the south of the site.

6.0 LEASES AND EASEMENTS

GREC LLC executed a lease agreement on September 28, 2009 with the City of Gainesville (d/b/a GRU) for the 131-acre site for a term of 47 years. Pursuant to the lease agreement, GRU will convey to GREC LLC any necessary easements and/or land rights associated with the linear

¹⁹ Florida Department of Agricultural and Consumer Services. Cover Letter to Governor from Charles Bronson Regarding Woody Biomass Economic Study. Available at: http://www.fl-dof.com/forest_management/fm_pdfs/Cover%20Letter%20to%20Governor%20Senate%20President%20and%20House%20Speaker.pdf

facilities that cross DGS property outside the leased boundary. GRU will also be responsible for amending their license agreement with CSX for the existing rail crossing, and executing any other easements that may be necessary for GREC's associated linear facilities.

7.0 PUBLIC NOTICE

GREC LLC has met all of the public notice requirements set forth in the PPSA statutes and rules. GREC LLC directly notified 3,817 local landowners and residences located within three miles of the site by mail of the proposed GREC. Notices for the receipt of the application, and notices of the scheduled hearing before the administrative law judge were timely published in both the Florida Administrative Weekly and in The Gainesville Sun. No public informational meetings were requested to be held.

8.0 REVIEWING AGENCY REPORTS

Although the DEP is designated as the agency to coordinate the review process, many of the concerns that are to be addressed in the SCA impact assessment are within the jurisdiction of other agencies. Consequently, the PPSA requires several other state agencies to participate in the review process. Each agency is directed to review SCAs with regard to compliance with the statutory and administrative requirements within their jurisdiction. These agencies are further directed to prepare a written report to the DEP on matters within their regulatory capacity that are affected by proposed PPSA projects, and provide a recommendation of approval or denial of the project and any restrictions or requirements that should be included in the conditions of certification.

The following are summaries of the submitted agency reports. Agency reports in their entirety have been included in Appendix II. The descriptions herein do not necessarily reflect the DEP's views or positions. The actual recommendations of the DEP are described in a later section.

8.1 Public Service Commission

Chapter 80-65, Laws of Florida (1980) requires a formal "Determination of Need" be made by the Florida Public Service Commission (PSC) prior to certification of an electric power generating facility subject to the "Power Plant Siting Act" (sections 403.501-519, Florida Statutes).

Refer to the following language from 403.519(3), F.S.: *"In making its determination, the PSC shall take into account the need for electric system reliability and integrity, the need for adequate electricity at a reasonable cost, the need for fuel diversity and supply reliability, whether the proposed plant is the most cost-effective alternative available, and whether renewable energy sources and technologies, as well as conservation measures, are utilized to the extent reasonably available. The PSC shall also expressly consider the conservation measures taken by or reasonably available to the Applicant or its members which might mitigate the need for the proposed plant and other matters within its jurisdiction which it deems relevant. The PSC's determination of need for an electrical power plant shall create a presumption of public need and necessity and shall serve as the PSC's report required by Section 403.507(4), F.S. An order entered pursuant to this section constitutes final agency action."*

Pursuant to 403.519(4)(d), F.S., once a determination has been made by the PSC that a facility is needed, these specific issues (including cost effectiveness and reliability, and whether renewable

energy sources or conservation measures can be employed in lieu of building and operating the plant) shall not be “re-considered” as part of this approval process.

The need determination issued by the PSC serves as the report required as part of the power plant site certification proceedings. The DEP must balance the determination of need with the social and environmental impacts when preparing overall recommendations for final approval or denial of a SCA.

On June 28, 2010, the PSC issued their Final Order Granting Petition for Determination of Need for the proposed GREC. The following summary is an excerpt from the PSC’s Final Order:

“The selection of a renewable resource corresponds to the intent of the Legislature, as set forth in Section 366.92(1), F.S., to promote renewable development in the State of Florida. The GREC Project will enhance the overall reliability of the GRU system by providing an additional source of baseload generation. The GREC Project satisfies a need for GRU to improve its fuel diversity and supply reliability. The GREC Project also represents a significant investment in the development of renewable energy in Florida. Meaningful economic benefits to GRU and its ratepayers could also accrue if pending legislation regarding carbon emissions is enacted. GRU has enacted several contract provisions to minimize the cost of this renewable resource to the utility and its ratepayers. As a municipal utility, GRU is not rate-regulated by this Commission. Therefore, the Gainesville City Commission is ultimately responsible for the rate impact of the GREC Project and any potential efforts to mitigate the risks associated with that impact. For all of the reasons identified herein and based on our review of the record evidence, we approve of the determination of need for the GREC Project.”

The PSC’s report is attached and incorporated as Appendix II-1.

8.2 Suwannee River Water Management District

SRWMD reviewed the SCA to determine if the proposed water uses associated with the GREC project would comply with applicable rules in 40B, F.A.C. On June 14, 2010, the DEP received a final agency report from the SRWMD regarding their evaluation of the project. SRWMD stated that the Applicant provided reasonable assurances that the proposed water withdrawals would not adversely impact the surrounding natural features. However, SRWMD provided conditions of certification requiring GRU to reduce its permitted groundwater withdrawals for DGS by 1.4 MGD prior to commercial operation of the GREC, and requiring GREC LLC to develop a 5 year implementation plan to access as much reclaimed water as feasible from surrounding sources for cooling tower water makeup needs.

The SRWMD’s agency report is attached and incorporated as Appendix II-2.

8.3 Florida Fish and Wildlife Conservation Commission

The DEP received a final agency report from the Florida Fish and Wildlife Conservation Commission (FWC) regarding certification of the GREC on June 14, 2010. In its report, FWC identified the threatened or endangered species and rare habitats potentially occurring on the GREC site and provided several conditions of certification to address preservation of these habitats and wildlife species.

The FWC’s agency report is attached and incorporated as Appendix II-3.

8.4 North Central Florida Regional Planning Council

The DEP received an agency report from the North Central Florida Regional Planning Council (NCFRPC) on June 14, 2010. The purpose of NCFRPC's report is to address the impacts of the proposed power plant based on the degree to which the project is consistent with the applicable provisions of the Strategic Regional Policy Plan adopted pursuant to Chapter 186, F.S., and other matters within its jurisdiction.

In their report, NCFRPC stated that the project should not have any significant adverse impacts to water quality of surrounding systems or to the Regional Road Network. NCFRPC determined that the GREC project is not in conflict or inconsistent with the goals, strategies, and policies contained in the Strategic Regional Policy Plan, provided that the project is constructed and operated in compliance with the COC.

The NCFRPC's agency report is attached as Appendix II-4.

8.5 Department of Transportation

The DEP received an agency report from the DOT on June 14, 2010. The DOT recommends approval of the GREC project contingent upon the Applicant's compliance with its recommended conditions. These conditions are included in the proposed conditions of certification.

The DOT's agency report is attached as Appendix II-5.

8.6 Department of Community Affairs

The Department of Community Affairs (DCA) reviewed the SCA in accordance with Section 403.507(2)(a)(1), F.S., to determine consistency with the state comprehensive plan, applicable emergency management provisions of Chapter 252, Part I, F.S., and other jurisdictional matters. In their letter submitted to the DEP on June 14, 2010, DCA recommended approval of the project provided that the project is constructed and operated according to the SCA specifications and COC.

The DCA's letter is attached as Appendix II-6.

8.7 Department of State, Division of Historical Resources

The Division of Historical Resources (DHR) reviewed the cultural resource survey conducted for the GREC site to ensure that no historical or cultural resources would be impacted from the development of the GREC. In their letter submitted to the DEP on June 9, 2010, DHR recommended approval of the project as there are no expected impacts to historical or cultural resources.

The DHR's letter is attached as Appendix II-7

8.8 City of Gainesville

The DEP received an agency report from the City of Gainesville on June 14, 2010. Pursuant to Sections 403.50665(2)(a) and 403.5175(3), F.S., a land use and zoning determination is not required for an application under the PPSA if the applicant does not propose to expand the boundaries of the existing site or to add additional offsite facilities. Because GREC LLC is not proposing to expand the existing DGS site, a land use and zoning determination is not required

for this project. The City of Gainesville is in full support of the project and had no additional requirements other than compliance with applicable local ordinances.

The City of Gainesville's agency report is attached and incorporated as Appendix II-8.

8.9 Department of Agriculture and Consumer Services, Division of Forestry

The Division of Forestry had no objections to the project. On March 1, 2010, the Department of Agriculture and Consumer Services, Division of Forestry (DOF) presented the Final Woody Biomass Economic Study to the Governor, President of the Senate, and Speaker of the House²⁰. The DEP has considered this report in its final recommendation.

9.0 AGENCY COMMENTS (OTHER THAN AFFECTED AGENCIES) AND COMMENTS FROM THE PUBLIC

9.1 Other Municipalities

The DEP received no written comments from the County of Alachua or adjacent municipalities regarding the GREC project.

9.2 Comments from the Public

The DEP also received no written comments from the public regarding the GREC project.

10.0 VARIANCES

No variances from any applicable standards of any state, regional or local government agencies are being requested as part of this application.

11.0 CONCLUSIONS AND RECOMMENDATIONS

11.1 Construction Impacts

Construction of the proposed facilities necessary to implement the GREC would have the following impacts:

- Permanent land impacts will occur to approximately 60.5 acres of the 131-acre site from construction of GREC facilities, and 0.96 acre of permanent offsite impacts will occur where the GRU-owned switchyard will be located. Temporary impacts from construction activities include approximately 4.53 acres of onsite impacts associated with construction worker parking and 8 acres of offsite impacts associated with the construction laydown area located within the DGS site. Unavoidable impacts to wetlands due to construction related activities will be offset through mitigation.
- According to the Applicant, the GREC project should result in positive economic benefits for the City of Gainesville, City of Alachua, Alachua County, and surrounding areas through employment opportunities, increased revenue from direct local property tax payments and sales tax from the purchase of goods and services for the construction and operation of the GREC.

²⁰ Florida Department of Agriculture and Consumer Services, Division of Forestry, Woody Biomass Economic Study, available at: http://www.fl-dof.com/forest_management/woody_biomass.html

- Current LOS standards and capacities on U.S. 441 are expected to remain constant during the construction period of the GREC

11.2 Operational Impacts

- Completion of the GREC project will fulfill a determined need for electricity.
- The proposed GREC project will comply with all applicable state and federal air pollution regulations as conditioned by the draft PSD permit.
- No industrial wastewater will be discharged from the GREC site. GREC will be equipped with a ZLD system, which will allow for the treatment and reuse of industrial wastewater.
- GREC water use will be offset by a comparable reduction of GRU's permitted groundwater withdrawal limits for DGS.

11.3 Agency Conclusions

The following table includes the recommendations of approval or denial from each of the affected agencies.

Table 7. Agency Recommendations

AGENCY	APPROVAL	DENIAL
PSC	√	
SRWMD	√	
FWC	√	
NCFRPC	√	
DOT	√	
DCA	√	
City of Gainesville	√	
DEP	√	

- 1) The PSC determined that the proposed GREC satisfies a need for GRU to improve its fuel diversity and supply reliability, and recommends approval of the project.
- 2) The SRWMD recommends approval of the GREC contingent upon the Applicants compliance with SRWMD's specific COC regarding operation and expedited water reuse measures.
- 3) The FWC recommends approval of the GREC contingent upon the Applicants compliance with FWC's specific COC.
- 4) The NCFRPC recommends approval of the GREC.
- 5) The DOT recommends approval of the GREC contingent upon the Applicant's compliance with DOT's specific COC.

- 6) The DCA has no outstanding issues regarding the GREC project and recommends approval of the project.
- 7) The City of Gainesville is in full support of the project and recommends approval.
- 8) Based on the application and subsequent submittals, the DEP recommends approval of GREC subject to the proposed COC.

11.4 Overall Recommendation

The DEP's recommendation includes consideration of the information provided in the agencies' reports required by 403.507(2)(a), F.S. Neither the failure of any agency to submit a report nor the inadequacy of a report is grounds to deny or condition certification. (403.507(6), F.S.)

If GREC LLC, as the Applicant, agrees to abide by the Conditions of Certification, attached and incorporated herein as Appendix I., the DEP recommends certification of the GREC.

DONE AND ISSUED this 12th day of July 2010, at Tallahassee



Michael P. Halpin, P.E.

Siting Program Manager