

***Economic Impact Analysis of
Gainesville Renewable Energy
Center (GREC) Proposed
Biomass Power Project in
Alachua County and
Surrounding Counties***

Prepared by:
Dr. Julie Harrington
President, Economic Research Enterprises
Tallahassee, FL 32312

March 2010

Table of Contents

Economic Impact of the Proposed Biomass Power Facility.....	2
Methodology.....	3
Local Impacts	4
Cost-Benefit Analysis	5
Conclusions.....	6
Appendix A	7
Appendix B.....	8
List of Tables	
Table 1. GREC Region Demographics	2
Table 2. The Construction/Temporary Economic Impact Estimates for Proposed GREC Project.....	4
Table 3. The Permanent Annual Economic Impact Estimates for GREC Proposed Project.....	5
Table 4. Data Including GREC Region-Specific Capital and Labor Investment and the Economic Impacts of an Alternative Investment in the GREC Region.....	5

Economic Impact Analysis of Proposed Biomass Power Project in Alachua County

The following economic analysis examines the economic impacts associated with the construction and operation of a proposed biomass power facility in Alachua and surrounding counties. Gainesville Renewable Energy Center, LLC (GREC, LLC) proposes to construct, own and operate a 100-megawatt (MW) net biomass-fired electric generating unit and associated facilities, including state-of-the-art emission control systems.¹ The Gainesville Renewable Energy Center (GREC) will be located on approximately 131 acres of property in northwest Gainesville that GREC will lease from Gainesville Regional Utilities ("GRU"), the municipally-owned utility serving the City of Gainesville. The leased property is currently an undeveloped site located at the existing GRU Deerhaven Generation Station (DGS). It will be located adjacent to an operational 440-MW coal, oil and natural gas-fired electrical power generating facility.

The project involves the construction and operation of a waste wood-fueled renewable energy power plant utilizing bubbling fluidized bed boiler (BFB) technology with a capacity factor of about 90%. The proposed project's target industry in the GREC Region is the electric utilities industry. The electric output of the project will be enough to power approximately 70,000 households and the Purchase Power Agreement (PPA) will be in place for thirty years. The planned GREC construction proposed start date is December 2010, with the initial operation planned for December 2013. The power plant will be fueled with clean waste wood² primarily sourced from local timber operations and other sources within a 75-mile radius of the project site. GREC estimates that approximately 44 jobs will be in plant operations, 160 jobs in forestry and wood fuel transportation, and about 415 construction jobs. In addition, considerable economic activity (direct, indirect, and induced) will be generated in Alachua County, and surrounding counties, as a result of the proposed GREC plant.

¹ <http://www.dep.state.fl.us/Air/emission/bioenergy/gainesville.htm>

² Biomass materials to include: Forestry residues, Wood processing residue, Urban wood residue, Other wood waste, and Agricultural residues (such as rice hulls).

See: <http://www.gru.com/OurCommunity/Environment/RenewableEnergy/biomassPlant.isp>

ECONOMIC IMPACT OF THE PROPOSED BIOMASS POWER FACILITY

The GREC Region is located in the Gainesville and surrounding (75 mile) area of Florida. In addition to Alachua County, the following counties comprise the GREC Region:

- Baker County
- Bradford County
- Citrus County
- Clay County
- Columbia County
- Duval County
- Dixie County
- Flagler County
- Gilchrist County
- Hamilton County
- Lafayette County
- Lake County
- Levy County
- Madison County
- Marion County
- Nassau County
- Putnam County
- Sumter County
- St. Johns County
- Suwannee County
- Taylor County
- Union County
- Volusia County

Table One presents the general demographics represented in the GREC 24 county area.

Table 1. GREC Region Demographics³

Population	3,357,799
Area (in sq miles)	17,051
Employment	1,595,649
Households	1,425,284
Number of Industries	391 ⁴
Total Value Added ⁵	\$109,415,500,000

³ IMPLAN 2007 data, including 24 Florida counties listed above.

⁴ Top ten industries in the GREC region include: government, restaurants, real estate, physician/dental offices, private hospitals, wholesale trade, construction and retail (food/beverage, and general merchandise)

⁵ Value Added includes: Employee compensation, Proprietor income, Other property type income and Indirect business tax.

Methodology

The economic impact analysis for the proposed biomass power project was performed using the state of Florida Impact Analysis for Planning, or IMPLAN, model, a widely accepted and used integrated input-output model. IMPLAN is used extensively by state and local government agencies to measure proposed legislative and other program and policy economic impacts across the private and public sectors. In addition, it is the tool of choice to measure these impacts by a number of universities and private research groups that evaluate economic impacts across the state and nation.

There are several advantages to using IMPLAN:

- It is calibrated to local conditions using a relatively large amount of local county level and state of Florida specific data;
- It is based on a strong theoretical foundation; and
- It uses a well-researched and accepted applied economics impact assessment methodology supported by many years of use across all regions of the U.S.

The IMPLAN model used for this analysis was specifically developed for GREC Region, Florida, and includes 440 sectors, and latest dataset – year 2007 data. IMPLAN's principal advantage is that it may be used to forecast direct, indirect and induced economic effects for an initial economic stimulus, in this case spending for the proposed biomass power project.

Key Assumptions Used for the GREC Region Economic Impact Model

- Power plant operations employment (44 jobs)
- Initial forestry and wood fuel transportation (trucking) employment of 160, associated with the harvesting, processing and transportation of the wood fuel supply for the plant.
- For the thirty-four month construction timeframe, GREC will provide a local capital/labor investment of approximately \$46 million.

Local Impacts

Key Assumptions Used for the GREC Region Economic Impact Model

Initial Construction and Employment Impact

- For the thirty-four month construction timeframe, a localized capital/labor investment of \$46 million.
- In Year Two, 20 plant operations employees will be working at the plant.
- In Year Three, 44 plant employees will be working at the plant. Also, about 80 forestry and trucking jobs will commence operations in month 6.

Permanent Employment Impact

- Power plant operations employment (44 jobs)
- Forestry and wood fuel transportation (trucking) employment of 160, associated with the harvesting, processing and transportation of the wood fuel supply for the plant.

Economic Impact Results of the IMPLAN Analysis

The initial construction and employment activity during the first 34 months of the project will result in greater than \$184 million in total output⁶⁷. This represents the value of final goods and services produced across the GREC Region economy as a result of the initial spending (i.e., the localized capital and labor investment). The biomass power project can be assumed to generate a total of 1,114 jobs (or 547 direct jobs) that are directly and indirectly stimulated by the spending over the first thirty-four months of the project. Payroll, or labor income, can be expected to generate a total of \$54 million.

Table 2. The Construction/Temporary Economic Impact Estimates for Proposed GREC Project

Economic Impact of Project GREC in March 2010			
	Output*	Employment	Income*
Project GREC	\$184,771,982	1,114	\$54,171,627

* in January 2010 \$

⁶ All economic impact estimates are in 2010 dollars.

⁷ Economic impacts include: direct, indirect and induced impacts. Direct impacts measure the immediate effects as a result of the biomass plant; i.e., in employment and income. Indirect impacts are those that include changes to production, employment, income, etc., that occur as a result of the direct effects. Induced impacts are those further impacts of spending derived from direct and indirect activities – i.e., household purchases of consumer goods and services.

The output of the permanent or steady state operations of the proposed biomass power project is estimated to exceed \$132 million on an annual basis. The annual value of income generated by the power project spending is over \$31 million. Finally, the permanent jobs associated with the GREC proposed biopower plant will total 733 (204 direct, 376 indirect and 154 induced) employees.

Table 3. The Permanent Annual Economic Impact Estimates for GREC Proposed Project

Economic Impact of Project GREC in March 2010			
	Output*	Employment	Income*
Project GREC	\$132,490,237	733	\$31,114,216

* in January 2010 \$

Alternative Investment Results

Table 4 summarizes the economic impact of a generic company investing in a generic wholesale trade business in the GREC Region. The top row of Table 4 summarizes the *average* annual economic impact of the capital and labor investment (GREC funds of \$46 million, spent locally) if those funds were spent in another industry in the GREC Region, such as wholesale trade. This is referred to as the "alternatives analysis." The investment of \$46 million input into IMPLAN would generate \$79 million (in \$2010) in economic output and \$29 million in income (in \$2010) while generating 537 jobs.

Table 4. Data Including GREC Region-Specific Capital and Labor Investment and the Economic Impacts of an Alternative Investment in the GREC Region

Economic Impact Estimates			
	Output*	Employment	Income*
Generic Business Alternative Investment	\$78,644,087	537	\$29,035,472
GREC Biopower Investment	\$184,771,982	1,114	\$54,171,627
Benefit to Cost Ratio	2.35	2.07	1.87

* In January 2010\$

Cost-Benefit Analysis

The benefits to GREC Region are defined as the economic impact resulting from the initial proposed biomass investment. The opportunity cost is the initial investment of \$46 million

redistributed to a wholesale trade business spending in GREC Region. As described above, the IMPLAN model estimated the following:

- Economic impact of proposed biopower plant (benefit) = \$184.7 million
- Economic impact of an alternative investment in wholesale trade business (opportunity cost, or alternatives investment, of \$46 million) = \$78.6 million
- Final benefit to cost ratio: 2.35

This B/C ratio implies that for each dollar that is invested in the biopower project in the GREC Region will realize a return of \$2.35.

CONCLUSIONS

Key Findings

- The GREC investment over the thirty-four month time period of the project will generate about \$129 million in direct output (value of goods and services produced), and \$26 million, and \$30 million, of indirect and induced output, respectively⁸.
- There will be \$33 million in direct income, and \$11 and \$10 million of indirect and induced income, respectively. In addition, 547 direct, 299 indirect, and 268 induced jobs, or a total of 1,114 jobs, are generated across the GREC Region economy.
- The projected annual impact for the permanent (or steady state) jobs (44 utility and 160 forestry/trucking transportation) are estimated to be greater than \$132 million in total output, 733 total jobs, and \$31 million in total labor income.
- The indirect jobs that will be generated from the permanent, or steady state, employment will primarily stem from the support activities for agriculture and forestry, and service(s) sectors.

⁸ Economic impacts include: direct, indirect and induced impacts. Direct impacts measure the immediate effects as a result of the biomass plant; i.e., in employment and income. Indirect impacts are those that include changes to production, employment, income, etc., that occur as a result of the direct effects. Induced impacts are those further impacts of spending derived from direct and indirect activities – i.e., household purchases of consumer goods and services.

APPENDIX A

The Economic Impact Analysis of the Proposed Biopower Facility in GREC Region⁹

Economic Impact of Project GREC in 2010				
	Direct	Indirect	Induced	Total*
Output	\$128,664,853	\$25,681,640	\$30,425,489	\$184,771,982
Jobs	547	299	268	1,114
Income	\$32,876,042	\$11,355,613	\$9,939,972	\$54,171,627

* In Jan 2010 \$

Recurring Jobs (or Permanent Jobs) Annual Impact in GREC Region

Economic Impact of Project GREC in 2010				
	Direct	Indirect	Induced	Total*
Output	\$95,666,029	\$19,348,162	\$17,476,046	\$132,490,237
Jobs	204	376	154	733
Income	\$14,258,151	\$11,146,660	\$5,709,405	\$31,114,216

* In Jan 2010 \$

⁹ Including \$46 million in local capital investment over 3 years, 20 utility jobs in Year 2 and 44 utility jobs in Year 3, and 80 forestry and trucking operations in Year 3, in GREC Region.

Docket No. 090451-EI
 GREC Economic Impacts Study
 Exhibit _____ PH-5
 (Page 10 of 10)

APPENDIX B

GREC Region Tax Rates

Sales	6.75% total 6.25% County sales tax rate 0.5% discretionary sales surtax
Personal Income	0.0%
Alachua County Property Tax Millage Rate	25.0245
City of Gainesville Share of Property Tax	4.3963
City of Gainesville Property Tax Millage Rate	23.9208
County Millage	8.2995
Library	1.3771
School Board Discretionary (DISC)	3.2480 + .642 (Debt)
School Board Required Local Effort (RLE)	5.5180
School Board Total	9.4080
Suwanee Water Management District	0.4399
St. Johns Water Management District	0.4158
Ad Valorem	4% discount if paid in November 3% discount if paid in December 2% discount if paid in January 1% if paid in February Full amount if paid in March Delinquent after April 1 st .
Tangible Personal Property	Same as Ad Valorem

Source: GREC Region Tax Collectors Office and Website (for 2009)

See: <http://www.actcfl.org>