

**Gainesville Regional Utilities RFP 2007-135,  
Biomass Fueled Generation Facility**

### **Section 1- Executive Summary:**

Timberland Harvesters Inc. (THI) proposes to supply 32.4 megawatts of firm renewable base load capacity through a 25 year Power Purchase Agreement (PPA) with Gainesville Regional Utilities. THI proposes to build, own and operate the Renewable Generation Facility (RGF) on approximately 25 acres of land at the Deerhaven Generating Station. THI will use 100% woody biomass material to fuel a bubbling fluidized bed boiler designed by Austrian Energy & Environment-Von Roll, Inc. using their proprietary "Ecofluid" boiler technology. As a worldwide supplier of fluidized bed combustion plants the reference list of AE&E comprises 82 steam generators with capacities from 20,000 to 880,000 lbs/hr of steam flow.

The main feature of the "Ecofluid" technology is the principle of staged combustion of the fuel. The oxygen level in the fluidized bed is limited and hence only part of the fuel is combusted, whereas the rest of the fuel is gasified. The applied staged combustion concept results in a homogenous temperature profile in the furnace and first pass of the boiler and thus low NOx emissions. You can visit AE&E's website at [www.aee.co.at/en/mindex.html](http://www.aee.co.at/en/mindex.html) for extensive information on their technology and past projects.

THI's primary fuel strategy is to be capable of supplying 100% of the biomass necessary to fuel the RGF from our own timberlands. THI currently operates throughout six southeastern states producing approximately 2.5 million tons of wood products annually in various forms such as pulpwood, chip-n-saw, saw logs, veneer logs, sawdust, bark and chips. In addition to our 58,000 acres of woodlands, we hold ownership positions in real estate partnerships, timber harvesting consortiums and other timber related activities. THI projects that we will need approximately 486,000 tons of green biomass annually for our proposed RGF. We will allocate approximately 73,000 acres of timberlands for supply to this site. That being said we will also look for opportunities to obtain biomass from local suppliers if the price and quality add value to our project. For example, the Florida Renewable Resource Conservation and Development Council (FLRRC&DC) has endorsed our proposal and have committed to being able to supply 500,000 tons of locally produced biomass to our RGF.

**Section 2- Financial Structure of the Proposal:**

THI is proposing to build, own and operate the RGF on approximately 25 acres at the Deerhaven site through either a Site Lease Agreement (SLA) or the outright purchase of the property. THI is receptive to the opportunity for GRU to have “during and end of term” purchase options. The 25 year “take or pay” PPA contains both Capacity and Energy payment components that are based on formulas tied to the Federal Bureau of Labor Statistics and Energy Information Administration indices.

### **Section 3- Technical Information:**

a) Description of technology and configuration: THI proposes to employ AE&E-Von Roll's proprietary "Ecofluid" bubbling fluidized bed boiler technology at the Deerhaven site. THI will use southern pine biomass as the primary fuel source with natural gas as the back up fuel. The main feature of the "Ecofluid" technology is the principle of staged combustion of the fuel. The applied staged combustion concept results in a homogenous temperature profile in the furnace and first pass of the boiler and thus produces low NO<sub>x</sub> emissions. Steam from the boiler will be piped to a condensing steam turbine generator that will produce 36 megawatts of electricity (gross). The plant will have an estimated parasitic load of 3.6 megawatts resulting in (net) capacity of 32.4 megawatts. The flue gas exiting the boiler will then pass through both a bag house and a SCR prior to exiting to the atmosphere.

The Timber Energy Complex II will have the ability to receive biomass via either truck or rail.

b) Major Equipment Manufacturers:

Boiler-Austrian Energy & Environment-Von Roll Inc.  
Steam Turbine Generator-Toshiba  
Fuel Handling Equipment: Rockwood Materials Handling, Inc.  
Substation Equipment: Siemens  
DCS Controls: Honeywell

c) Fuel supply and requirements including any backup fuels:

THI's primary fuel strategy is to be capable of supplying 100 % of the biomass necessary to fuel the RGF for our internal timber assets. We project that we will need approximately 48 trucks per day or 14 rail cars per day of green biomass (50% moisture content) to meet our daily plant fuel needs. THI will also look for opportunities to obtain biomass from local suppliers whenever the price and quality add value to our project. THI has developed a very good working relationship with the Florida Renewable Resource Conservation and Development Council in the last few months and they recently voted to endorse our proposal.

THI will use natural gas as our start up and back up fuel.

d) Net Capacity Rating: 32.4 Megawatts

e) Indicative Net Heat Rate: 15,890 Btu's/kW

**Section 3- Technical Information (continued):**

f) Site requirements and layout: THI is proposing to lease or purchase 25 acres at the Deerhaven Generating Station in order to build the RGF. THI expects GRU to provide access to onsite roads, rail, water, sewer, transmission and landfills. A site layout drawing is included with our proposal.

g) Projected permitting and construction schedule and in-service date:

Power Purchase Agreement Executed	June 14, 2008
Lease/Purchase on Site Property Executed	August 1, 2008
Certification Application filed with DEP	August 15, 2008
Petition filed for PSC Need Determination	August 15, 2008
Interconnection Service Request Filed	Sept. 15, 2008
Interconnection Approved	March 15, 2009
Granted DEP Certification	May 15, 2009
Granted Siting Board Certification	August 15, 2009
Third Party Financing Executed	Sept. 15, 2009
Purchase of Site Property Executed	Sept. 22, 2009
Irrevocable Order Placed for All Major Equip.	Sept. 29, 2009
Construction Contractor Mobilized	Sept. 29, 2009
Delivery of All Major Equipment Complete	July 29, 2009
Performance Testing Begins	Sept. 29, 2011
Performance Testing Complete	Oct. 12, 2011
Environmental Compliance Testing Complete	Oct. 19, 2011
Scheduled Capacity Delivery Date	Oct. 26, 2011

h) Dispatchability of the project, including facility limitations that may constrain operation or dispatch:

THI is open to discussions concerning the dispatchability of our proposed RGF. Our facility will have the capability to ramp down to a minimum level of load during off-peak hours and ramp up to maximum load during peak hours. THI does not desire to take the unit off line during off-peak hours.

**Section 3-Technical Information (continued):**

i) Environmental characteristics and emission rates:

THI engaged Al Linero, Program Administrator with Florida DEP, to gain his perspective on the permitability of various technologies available for producing power from biomass. Al was very impressed with the AE&E-Von Roll technology and recommended that we consider their technology for our proposed RGF. He also recommended that we use the Okeelanta Cogeneration Plant in Palm Beach County as a baseline for emission limits for our proposed RGF.

The Power Plant Siting Act (PPSA), ss 403.501-.518, F.S. is the State's process for the licensing of large power plants. While our proposed RGF is not considered a "large" facility the flowchart for this process provides an excellent road map for the siting of our facility.

Our facility is subject to the applicable environmental laws of Section 403 of the Florida Statutes. The Florida Statutes authorize DEP to establish rules and regulations regarding air quality as part of the Florida Administrative Code. Our project will be subject to the applicable rules and regulations of the following chapters,

<u>Chapter</u>	<u>Description</u>
62-4	Permitting Requirements
62-204	Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference
62-210	Required Permits, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions and Forms
62-211	Preconstruction Review, PSD Requirements, and BACT Determinations 62-212.300-General Preconstruction Review Requirements 62-212.400-Prevention of Significant Deterioration of Air Quality
62-213	Operation Permits for Major Sources of Air Pollution (Title V)
62-296	State Emission Limiting Standards 62-296.405 New Fossil Fuel Steam Generators with > 250 MMBtu's/hr Heat Input 62-296.410 Carbonaceous Fuel Burning Equipment 62-296.500 Reasonably Available Control Technology Requirements for VOC and NOx 62-296.570 Reasonably Available Control Technology Requirements for Major VOC and NOx Sources
62-297	Test Methods and Procedures, Continuous Monitoring Specifications, Alternate Sampling Procedures

**Section 3- Technical Information (continued):**

THI's RGF will also be subject to the following applicable federal provisions regarding air quality established in the Code of Federal Regulations (CFR) and adopted by reference in Chapter 62-204, F.A.C.

<u>Title 40, CFR</u>	<u>Description</u>
Part 60	Subpart A- General Provisions for NSPS Sources Subpart Da- NSPS for Electric Utility Steam Generating Units, Constructed After September 18, 1978 Subpart Ea-NSPS for Municipal Waste Combustors, Applicability and Exemption Requirements

Projected Air Emissions:	SO2	0.03 lb/MMBtu
	NOx	0.12 lb/MMBtu
	CO	0.15 lb/MMBtu
	HCl	0.02 lb/MMBtu
	PM10	0.05 lb/MMBtu

j) Ash and other by-products: 452 lbs/hr of ash (off-site disposal)

k) Water use: 630.2 gallons per minute (with cooling tower)

\*THI recognizes the requirement to be a zero discharge facility. An air cooled condenser will be evaluated as an option to reduce water usage.

Blowdown Water 3.2 gallons/minute (on-site disposal)

l) Electrical Interconnection Requirements:

THI has forecasted cost to tie-in to the 138 kV transmission system at Deerhaven.

m) Readiness of the proposed technology:

Austrian Energy & Environment-Von Roll's "Ecofluid" technology is commercially proven and reliable with over 82 units in operation. AE&E-Von Roll is a major supplier of biomass power generation facilities for the pulp and paper industry. The competitive nature of the pulp and paper industry demands a reliable, proven capital investment. AE&E-Von Roll's most recent biomass fired "Ecofluid" installation in North America is the 2007 start up of a 242,000 lbs/hr (steam) unit for Kruger in Quebec, Canada.

**Section 3- Technical Information (continued):**

n) Reliability of the proposed technology:

THI spoke with several owners of AE&E's "Ecofluid" bubbling fluidized bed boilers and found all users to be very pleased with the reliability of their units. Our due diligence found the availability of all the reference units to be at or above 85%.

o) Performance guarantees, warranties and risk mitigation:

THI will guarantee the Availability of our RGF to be at or above 91%. The use of natural gas as a back up fuel will provide redundancy and help mitigate some supply risk. THI is open to the negotiation of performance security language that will provide the Buyer with lower Capacity payments for a period of time if the Seller fails to meet the 91% Availability performance guarantee.

p) Backup systems and fuels:

THI will use natural gas as a back up fuel and will use redundancy in critical component areas to help reduce operational risks.

q) Estimated truck traffic: THI estimates 48 truck loads or 14 rail cars of biomass to be delivered to the site each day.

r) Describe how fuel procurement practices are consistent with GRU's commitment to Sustainable Resource Forest Management:

THI will allocate 73,000 acres of timber to the facility in keeping with sustainable forestry management practices. We estimate that each acre is capable of producing approximately 40 tons of woody biomass in 6 years of growth. We will harvest timber from about 12,000 acres each year to fuel the RGF. This quantity of timberland will allow us to continuously grow all the material necessary to fuel the facility.

**Section 4- Economic Information:**

a) Capacity offered and all relevant pricing information:

**Capacity Payment:** The Capacity Payment includes payment for fixed costs, costs that do not change as a function of hourly plant operations, and variable costs that are subject to escalation such as labor, insurance and taxes. To provide coverage for escalation of the variable costs the capacity payment will increase in accordance with an escalation formula.

The Guaranteed Capacity price for 2011 will be **\$ 28,204,151 per year or \$72.54/kw-month.**

**Annual Capacity Escalation Formula:** The Guaranteed Capacity Price for 2011 will be \$72.54/kw-month for all months in 2011. The fixed component of the Guaranteed Capacity Price will be \$36.27 and shall remain fixed through the term of the contract.

On January 1, 2012 and on January 1 of each year thereafter the variable component of the Guaranteed Capacity Price in effect for the previous year is multiplied times an escalation factor. The escalation factor shall be determined using the annual CPI, local region: Tampa-St. Petersburg-Clearwater, FL, published by the United States Department of Labor. The calculation shall be as follows:

Multiply the current variable component of the Guaranteed Capacity Price by a fraction of which the numerator is the CPI (preliminary) for the year prior to the current year and the denominator is the CPI (final) for the second year prior to the current year. Add this number to the fixed component of the Guaranteed Capacity Price (\$36.27/kw-month) to obtain the new Guaranteed Capacity price for the given year.

When the CPI is published, recalculate the current Guaranteed Capacity Price by using the fraction of which the numerator is the CPI (final) for the calendar year prior to the current year and denominator is the CPI (final) for the second calendar year prior to the current year. The Guaranteed Capacity Price payment for the months in which the CPI (preliminary) was used shall be recalculated and the appropriate adjustment shall be made during the next billing period.

**Section 4- Economic Information (continued):**

**Energy Payment:** The Energy Payment is predominately composed of variable cost items, costs that change based on plant utilization. Biomass fuel is a major component of the Energy Payment and is subject to rapid escalation in freight and timber harvesting equipment charges. Labor is another less volatile component of the Energy Payment. The Energy Payment also covers compensation to Timberland Harvesters for the transfer of “Renewable Energy Credits” to GRU. To provide coverage for escalation of the different components of the variable cost the Energy Payment will increase in accordance with an escalation formula.

The Guaranteed Energy Price for 2011 will be **\$12,087,504 per year or \$46.80/MWH.**

**Annual Energy Escalation Formula:** The Guaranteed Energy Price for 2011 will be \$46.80/MWH and will be in effect for all months in 2011. The less volatile component of the Guaranteed Energy Price will be \$23.40/MWH and shall escalate annually with the local CPI index through the term of the contract. The highly volatile component of the Guaranteed Energy Price will escalate with EIA’s Composite Crude Cost.

On January 1, 2012 and January 1 of each year thereafter the highly volatile component of the Guaranteed Energy Price in effect for the previous year is multiplied times an escalation factor. The escalation factor shall be determined using the United States Energy Information Administration Composite Refiner Acquisition Cost of Crude Oil (EIA Composite Crude Cost). The calculation shall be as follows:

Multiply the current highly volatile component of the Guaranteed Energy Price by a fraction of which the numerator is the EIA Composite Crude Cost (preliminary) for the year prior to the current year and the denominator is the EIA Composite Crude Cost (final) for the second year prior to the current year. Add this number to the less volatile component of the Guaranteed Energy Price to obtain the new Guaranteed Energy Price for the given year.

When both the CPI and EIA publish their final prices, recalculate the current Guaranteed Energy Price by using the fraction of which the numerator is the CPI and/or EIA Composite Crude Cost (final) for the calendar year prior to the current year and the denominator is the CPI and/or EIA Composite Crude Cost (final) for the second year prior to the current year.

The Guaranteed Energy Price payment for the months in which the CPI and/or EIA Composite Crude Cost (preliminary) was used shall be recalculated and the appropriate adjustment shall be made during the next billing period.

**Section 4- Economic Information (continued):**

- b) Fuel cost assumptions: THI used the current value of \$3.25 per MMBtu for biomass.
- c) REC and Environmental Allowance Management: All REC's will transfer to GRU and the cost will be covered in the Energy Payment.
- d) Treatment of tax credits and other financial incentives: THI has not reflected the possible positive economic impact of future federal or state tax credits in the pricing of our proposal. THI consulted with financing experts, tax attorneys and those familiar with the sale and trading of green attributes in regards to this issue. They all were in agreement that the political uncertainty in Washington coupled with the short existing life of the current financial benefits derived from existing tax credit legislation does not provide us with a sound business case for the inclusion of these benefits in our proforma.

The current Senate energy bill does not extend the Section 45 tax credits beyond January 1, 2008. The House energy bill does extend the Section 45 tax credit for five years but it limit's the total amount of money that a given project can claim to 35 % of the total project value.

If the current language in Section 45 is extended our fuel supply plan will enable THI to take maximum advantage of the credits through the production of closed loop biomass. The current tax credit for closed loop biomass is 2 cents per kWh.

Prior to the execution of a Power Purchase Agreement THI recommends that we negotiate a partnering agreement that encourages and rewards both parties for reducing costs over the life of the contract. This agreement would drive down the cost of renewable power over the life of the contract by taking advantage of such things as tax credits, receipt of tipping fees for disposal of yard waste or waste treatment sludge and the sale of low pressure waste steam to a local business.

- e) Liquidated damages: THI is open to the discussion of certain types of liquidated damages during negotiation of the PPA.
- f) Limitations on damages and remedies: THI is open to the discussion of these issues during negotiation of the PPA.
- g) Replacement power or capacity: THI is open to discussions regarding replacement power in the event of a catastrophic unscheduled outage.

**Section 4- Economic Information (continued):**

- h) Other forms of risk mitigation: THI is open to discussions concerning GRU playing a role in the supply of some percentage of the fuel or “during and end of term” buyout options. The buyout option will be more attractive to GRU upon expiration of the Section 45 tax credits.
- i) Land purchases or lease assumptions: THI proposes to lease or purchase 25 acres at the Deerhaven Generating Station.
- j) Number of employees on-site under normal operations: THI proposes to employ 25 full time employees during normal operations.

**Section 5- Production Cost Information:**

Table 2: Illustrative All-in Production Costs (\$/MWh)  
 Average Delivered Fuel Cost (\$/mmBtu) or Index Value (% of base)

Unit Capacity Factor					
	\$2.25, 70 %	\$2.75, 85%	\$3.25, 100%	\$3.75, 115%	\$4.25, 130%
90%	\$97.5	\$103.35	\$109.20	\$115	\$120.8
85%	\$101.80	\$107.25	\$112.70	\$118.60	\$124.50
80%	\$105.60	\$112.05	\$118.50	\$123.65	\$128.80
75%	\$117.60	\$123.80	\$130	\$135.40	\$140.80
65%	\$124	\$130	\$136	\$141.6	\$147.1
Off line (Daily Payment)	\$69,317	\$69,317	\$69,317	\$69,317	\$69,317

**Section 5- Production Cost Information:**

Table 3: Illustrative Variable Costs for Economic Dispatch (\$/MWh)  
 Average Delivered Fuel Cost (\$/mmBtu) or Index Value (% of base)

Unit Capacity Factor	\$2.25, 70%	\$2.75, 85%	\$3.25, 100%	\$3.75, 115%	\$4.25,130%
90%	\$42	\$44.40	\$46.80	\$49.40	\$52
85%	\$43.80	\$45.90	\$48	\$50.65	\$53.30
80%	\$46.30	\$48.15	\$50	\$53.15	\$56.30
70%	\$50.40	\$52.45	\$54.50	\$57.40	\$60.30
65%	\$54.40	\$56.45	\$58.50	\$60.90	\$63.30
Off line (Daily Payment)	0	0	0	0	0

**Section 6- Respondent Information:**

- a) Respondent qualifications and experience in the provision of energy supply:

Timberland Harvesters, Inc. operated and maintained the Biomass Power Generating Facility in Madison, FL for SunTrust Bank in the late 1980's for approximately two years. The facility produced and sold 7.5 megawatts of electricity to Florida Power. The facility was later sold by SunTrust and the O&M contract ended.

The project director for this project served as the Engineering & Maintenance Manager for the 145 MW Scott Paper Co-generation complex in Mobile, AL for six years. The facility had two biomass fired boilers with the combined capability to produce 80 MW's of electricity. He was also involved with the development, start-up and operation of several new combined cycle combustion turbine power plants while working for Southern Company and Progress Energy. He later managed the power utilities complex (200 MW) for one of the world's largest oil refineries, Hovensa, in the US Virgin Islands.

- b) Respondent's qualifications and experience with the technology being proposed including references:

Our project director was part of the operational excellence & maintenance team for a bubbling fluidized bed boiler in Chester, PA for Scott Paper Company. He has also spoken with Kruger officials on multiple occasions about the performance of their AE&E bubbling fluidized boiler in Quebec. References will be supplied if we make the short list.

- c) Respondent's financial capability:

Financial/Credit Reference Contact: Brian Heslop  
Company: Regions Bank  
Position: Commercial Loan Officer  
Phone Number: 205-583-4207  
Email Address: [brian.heslop@regions.com](mailto:brian.heslop@regions.com)  
Federal Tax ID Number: 58-1531074  
Corporate Business Structure: Corporation  
State in Which Proposer is incorporated: Georgia

**Section 6- Respondent Information (continued):**

Respondent's financial capability (continued):

Dunn & Bradstreet Identification Number: Not Applicable

Corporate Bond Ratings: Not Applicable

Commercial Paper Ratings: Not Applicable

Dunn & Bradstreet Credit Appraisal Rating: Not Applicable

THI has consulted with Thomas Suffield of Cedars Capital, LLC in Houston, TX in regards to renewable projects in the north Florida. Thomas led the financing activities of the Snowflake biomass project in Arizona last year. THI will set up a Single Purpose Entity (SPE) corporation to own the facility once we enter the financing stage of the project. THI will look to provide approximately 20% of the Total Project Capitalization through Equity and 60-75% will be supplied via Senior Debt instruments and the balance coming from Mezzanine Debt tools. THI has a 12% hurdle rate for capital projects and our proposal meets that requirement.

**Corporate Execution Document:**

Company Name: Timberland Harvesters Inc.

Business Address: 619 Beams Drive, Eufaula, AL

Title or Position: President and CEO

Name: Lanier J. Edwards

We acknowledge receipt of all addenda.

Signature:

Date:

Name of certifying official (hand written):

State of Business Incorporation: Georgia