6/18/07

CITY OF GAINESVILLE
every path starts with passion
FLORIDA

#070135

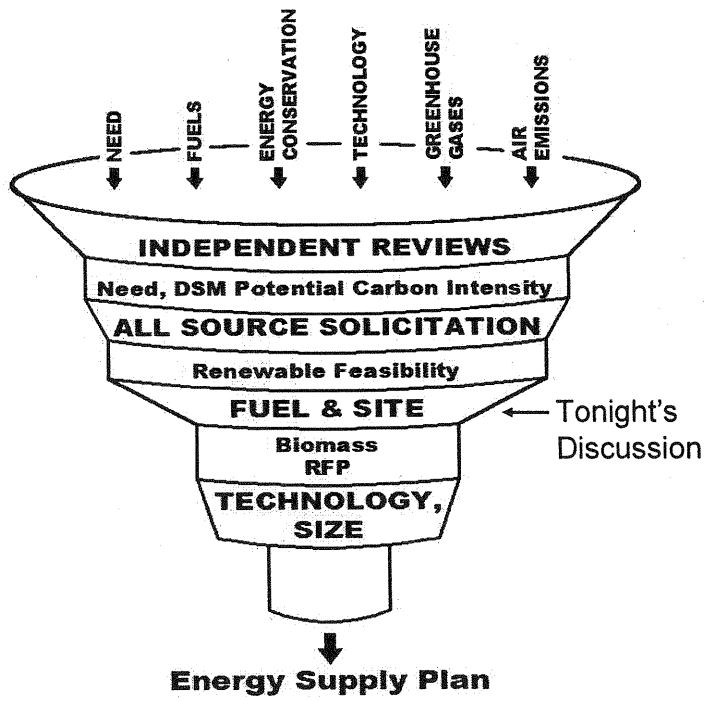
Submitted @ meeting

OPTIONS FOR A BIOMASS ENERGY SUPPLY REQUEST FOR PROPOSAL

Presentation to the
Gainesville City Commission
June 18, 2007

GRU
More than Energy™

Screening Through Our Options



Stage One: Staff Analysis

- Began in 2002
- Previously used Rate Impact Measure (RIM) test; focuses on peak reduction
- Generation discussion has never been about peaking capacity – it has always been about the need for base load capacity at an economical price
- Moved to public discussion process and had close to 50 meetings with various groups
  - 20 or so included the City Commission

Stage Two: Independent Reviews

- 2005-2006 City Commission requested two independent reviews of work done to date
- Conducted by ICF and GDS
- City Commission adopted the ICF plan whose recommendations included:
  - Use of the TRC rather than RIM
  - Affirmed need for additional generating capacity
  - Affirmed City Commission's preference for biomass or Integrated Gas Combined Cycle (IGCC) and suggested these be used as benchmarks

Stage Three: Maximum conservation and all source solicitation

- City Commission adopted the ICF Demand Side Management goals
  - Requires per capita reduction by 2015
  - NUMBER ONE in energy reduction in state (base load)
  - NUMBER TWO in demand reduction in state (peak)
  - GRU has the lowest per capita residential electric consumption
  - Source: 2007 Florida ten-year site plans filed with PSC
- Added 11 new energy efficiency programs
- Increased incentive budget fourfold to almost $2 million
- Working with other Florida municipal utilities to update knowledge about appliance surveys, load curves, climate and demographics
- Researching new metering technologies; load control pilot scheduled for next year

Comparison of 2015 Conservation Goals for Florida Utilities

Utility	Energy Efficiency / Retail Sales	Utility	Peak Reductions / Peak Demand
GRU	10.1%	Tallahassee	16.0%
Tallahassee	7.8%	GRU	14.5%
Gulf Power	6.0%	Progress	13.3%
Progress	3.9%	FPL	11.7%
Tampa	2.6%	Gulf Power	8.9%
FPL	1.0%	Tampa	3.5%
Seminole	0.0%	Seminole	0.0%
JEA	0.0%	JEA	0.0%
FMPA	0.0%	FMPA	0.0%
OUC	0.0%	OUC	0.0%
Lakeland	0.0%	Lakeland	0.0%

Data Source: Schedules 3.1.1 & 3.3.1 2007 Ten Year Site Plans

Stage Three: Maximum conservation and all source solicitation

- Implemented new billing system which opens door for time of use rates
- Staff also received and met or teleconferenced with 18 respondents to all source solicitation
- Kelly Combined Cycle is an intermediate generator
  - Online today
  - Over time three separate major failures totaling approximately $3.2 million since installation in 2001
  - Majority of costs either under warranty or covered by insurance
  - Insurer has informed GRU they will sue manufacturer
  - Has a higher capacity factor (percent of usage) than any units of its class owned by other members of Co-Electric

Stage Three: Maximum conservation and all source solicitation

- Society's understanding of climate change has deepened
- Marketplace is beginning to change
- Expect to see Renewable Portfolio Standards (RPS) in Florida legislature
- Currently five renewable proposal requests in Florida
- About half a dozen in SE
  - Working on 250 kW solar installation demonstration project
- Staff has a sense of urgency - not in our customers best interest to be trailing the market especially since renewable resources are limited in Florida

Ongoing Renewable Energy Power Supply Projects & Solicitations

- City of Tallahassee
- Florida Power And Light
- JEA
- New Smyrna Beach
- Seminole Electric Cooperative
- Others Throughout The Southeast

Stage Four: Today

- City Commission was correct a year ago; we should pursue the possibility of building or partnering a small biomass plant
- Driven by both our need for base load capacity and our expectation that there will be an RPS in the near future

May 10, 2007
Special Commission Meeting Action

1. Prepare an RFP for biomass-fueled capacity:
   - Perhaps jointly with other utilities
   - Possibly located at Deerhaven
   - Possibly multi-fuel including MSW or coal
   - Possibly incrementally constructed
   - <100 Megawatts
2. Negotiate a Purchased Power Agreement(s) to cover the upcoming period of biomass plant construction, projected fleet retirements and ongoing implementation of DSM programs:
   - Economic need for baseload capacity now
   - Reliability and price issues vs. the "opportunity energy" we purchase hourly now
   - Fuel sources for the energy
   - How much and for how long?
3. Continue research and due diligence work on new integrated "eco-industry" possibilities that are designed for carbon capture.

Stage Four: Today

- Need two decisions:
  1. Affirm that we are open to building a biomass plant at Deerhaven or at another location
  2. Talk about acceptable fuels for a biomass plant.
     - This discussion is not about coal as a primary fuel source
     - This discussion is whether or not we use coal or municipal solid waste as a back up to biomass for reasons of reliability, flexibility, and efficiency

Stage Five: Future

- Will decide on a technology or size in the future - allow the market to help as we evaluate the responses
- Decide about wholesale sales in the future when we know the economics of the decision in front of us, partners, etc.

Stage Five: Future

- We are making money on our wholesale contracts.
  - Staff has done exhaustive studies on the marginal costs;
  - We were making money even during times of peak gas prices and performing even better in the current market
  - Staff has spent many, many hours reviewing the work of citizens who say otherwise - their studies have included wrong data sets such as the hours when units are starting up the need to provide spinning reserves
  - Also did not take into account other cost factors – serving a wholesale load doesn't include costs such as distribution systems, meters, and customer service

Stage Five: Future

- Had some good discussions with Dr. Dickinson about forest certification practices
- Premature to make any decisions about that.
- Size, location, and ownership will be critical factors in the supply needs…don't have those answers now.
- Is this where the City Commission thinks we are in the process?

Site Considerations

1. Delay
2. Cost
3. Efficiency
4. Reliability

Fuel Types

Biomass	✓Forest Thinning ✓Logging Residue ✓Municipal Solid Waste (MSW) ✓Pulpwood ✓Urban Waste Wood
Fossil Fuels	Coal Methane Petroleum Coke

Factors For Comparing Fuel Types

- Emission Controls
- Environmental Sustainability
- Fuel Cost
- Reliability
- Traffic Effects

Florida Forest Management

	% of Forest Area In Florida
Best Management Practices	Approx. 89%
Voluntary Certifications - Sustainable Forest Initiative - American Tree Farm System	Approx. 10%
Purchased Certifications - Smartwood - Forest Stewardship Council	<1%

Operational Considerations

- Fuel Quality
- Fuel Blending
- Ash Management
- Fuel Flexibility
- Transportation Logistics

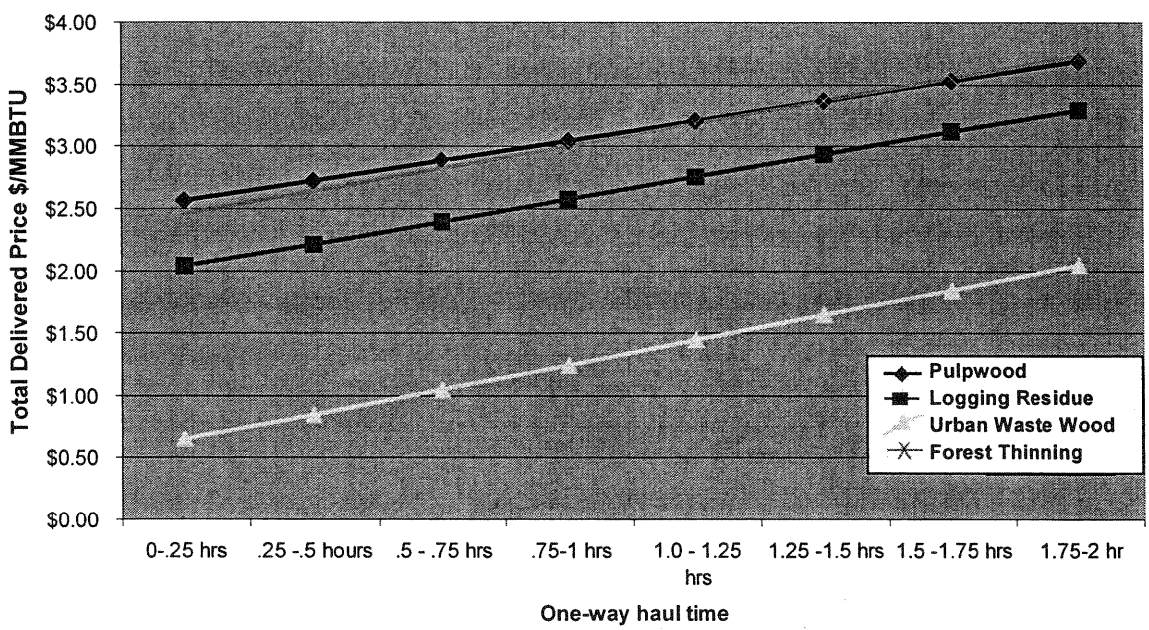
Environmental Comparisons of Fuel Sources

	Forest Products	Municipal Solid Waste	Coal or Pet Coke
Particulates	Yes	Yes	Yes
NO_X	Yes	Yes	Yes
Toxic Organic Emissions	N/A	Technology Dependent	N/A
Metals	N/A	Technology/ Scrubber	Scubber
Ash Disposal/Reuse	Fertilizer	Land Fill	Cement
Greenhouse Gases	Carbon Neutral	Low Carbon	High Carbon

(Yes = Control Needed)

Preliminary Biomass Costs

Total Delivered Price for Four Forest Resources



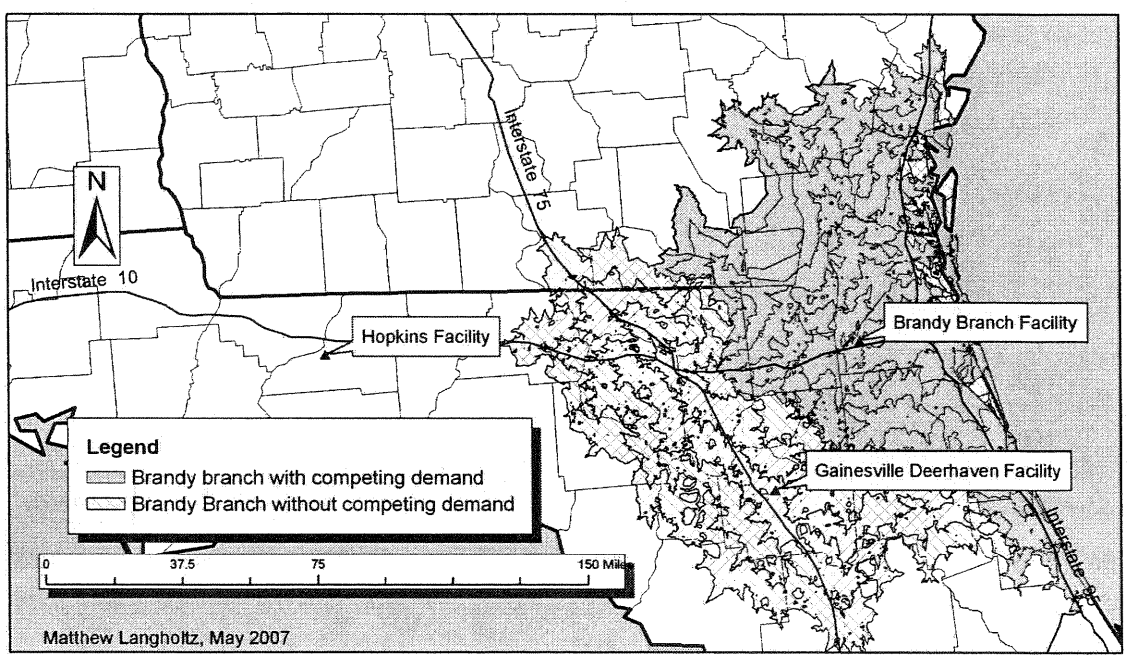
Preliminary Comparison Of Fuel Costs And Supply

	Approx. $/MMBTU	Supply
Municipal Solid Waste	Low	Stable
Urban Wood Waste[a]	1.60	Seasonal
Petroleum Coke	2.00	Price of 0il
Logging Residue[a]	2.90	Market Conditions[b]
Coal	3.00	Stable
Forest Thinning[a]	3.40	Market Conditions[b]
Pulp Wood[a]	3.40	Market Conditions[b]
Natural Gas	8.00	Volatile Price

a. Within 1.25-1.5 hours collect time

b. Market Conditions=Value of pulp, competition with mills.

Biomass Catchment Area: JEA & GRU Results



Preliminary Traffic Impacts From Truck Delivery

(40 MW Plant)

	Trucks/Day	Roadway Traffic Impact
US 441 From North	72	0.37%
US 44 From South	111	0.58%
Total	183	0.50%

Note: 300 delivery days per year

Conclusion

Provide policy guidance on:

1. The acceptable range of fuels to include in the RFD; and
2. Making the Deerhaven Site an option.

Thank you

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