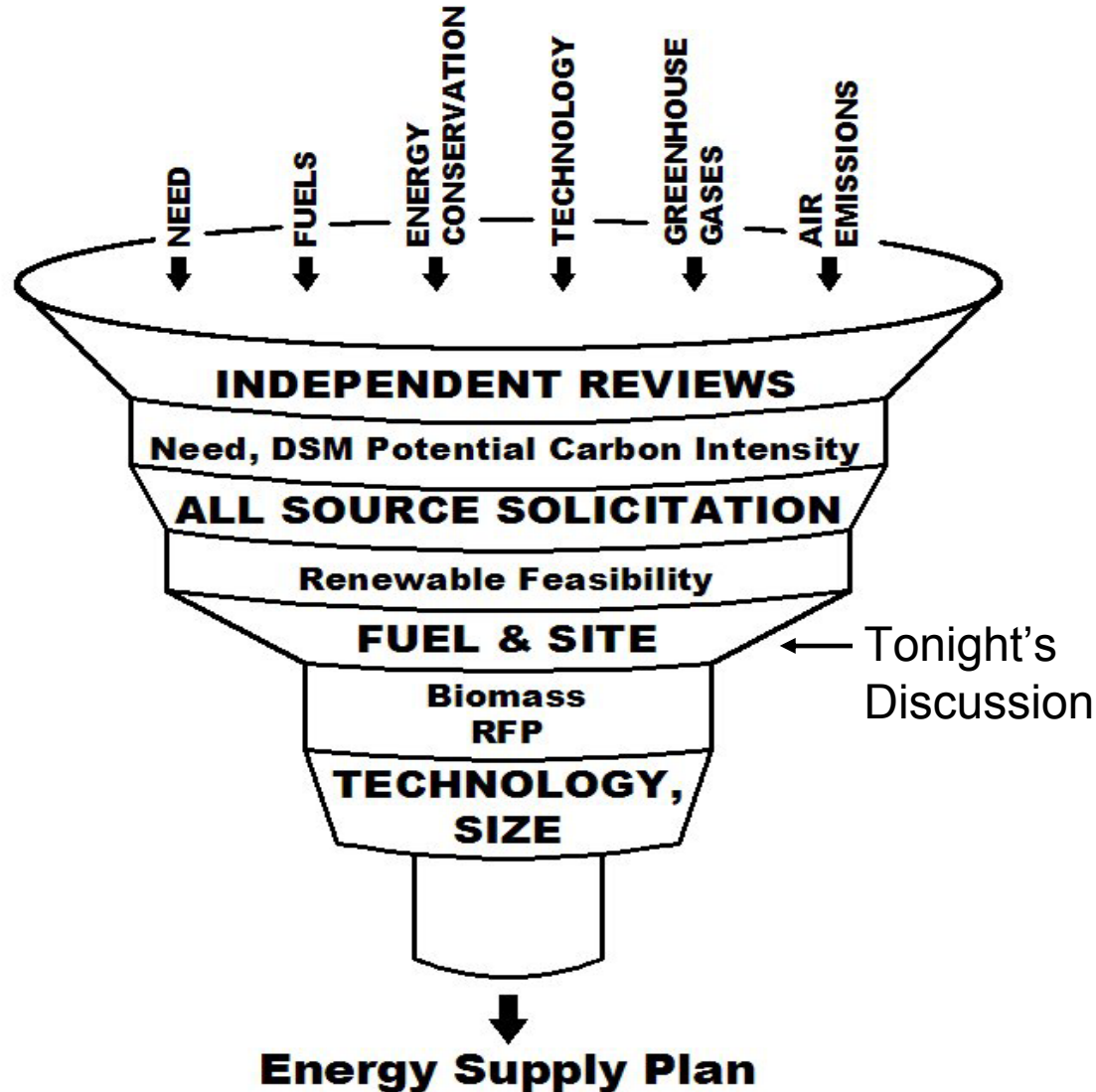


# OPTIONS FOR A BIOMASS ENERGY SUPPLY REQUEST FOR PROPOSAL

Presentation to the  
Gainesville City Commission  
June 18, 2007

# 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

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

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

	<b><u>% of Forest Area In Florida</u></b>
<b>Best Management Practices</b>	Approx. 89%
<b>Voluntary Certifications</b> <ul style="list-style-type: none"><li>- Sustainable Forest Initiative</li><li>- American Tree Farm System</li></ul>	Approx. 10%
<b>Purchased Certifications</b> <ul style="list-style-type: none"><li>- Smartwood</li><li>- Forest Stewardship Council</li></ul>	<1%

# Operational Considerations

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

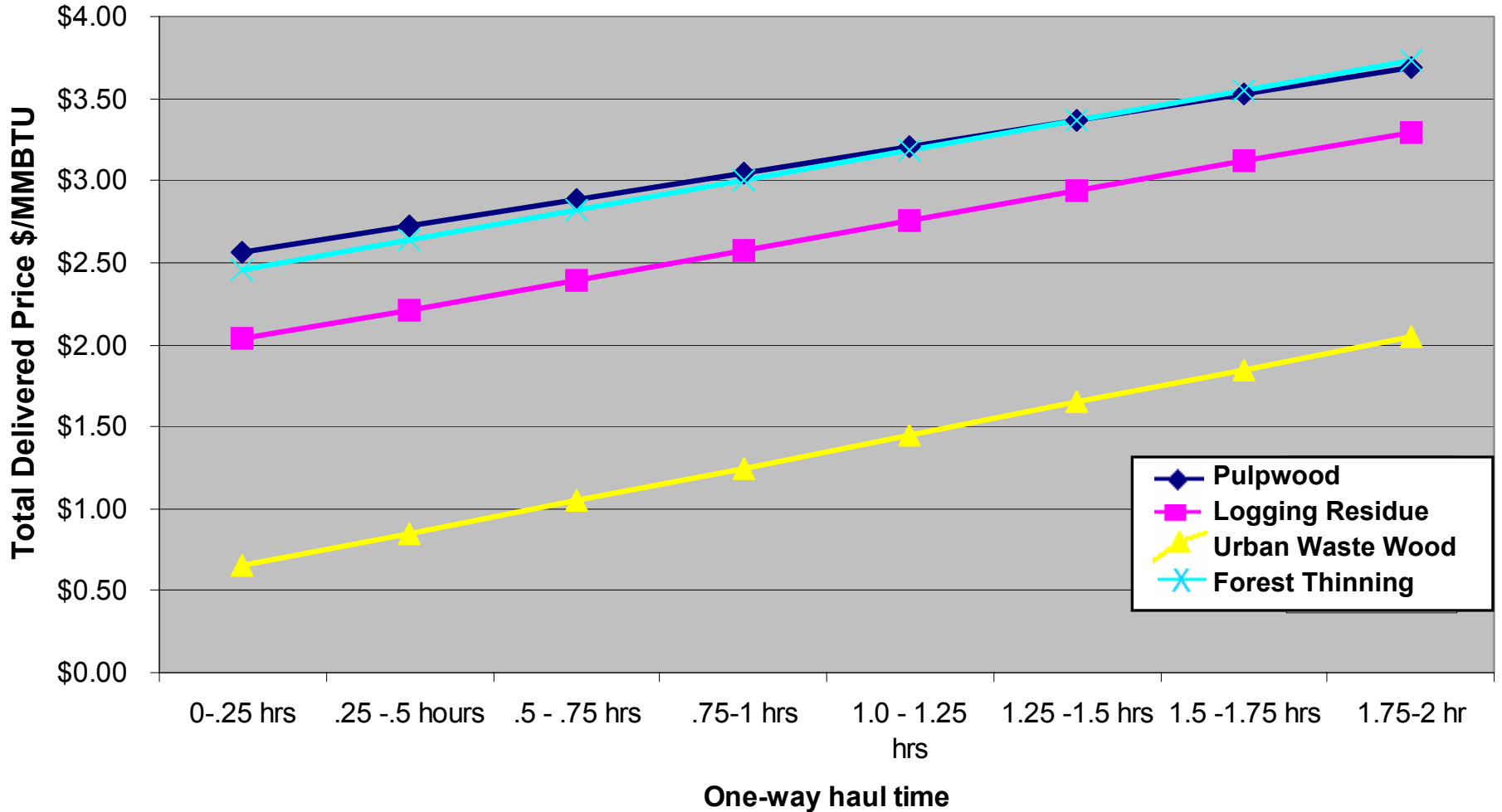
# Environmental Comparisons of Fuel Sources

	<u>Forest Products</u>	<u>Municipal Solid Waste</u>	<u>Coal or Pet Coke</u>
Particulates	Yes	Yes	Yes
NO <sub>x</sub>	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



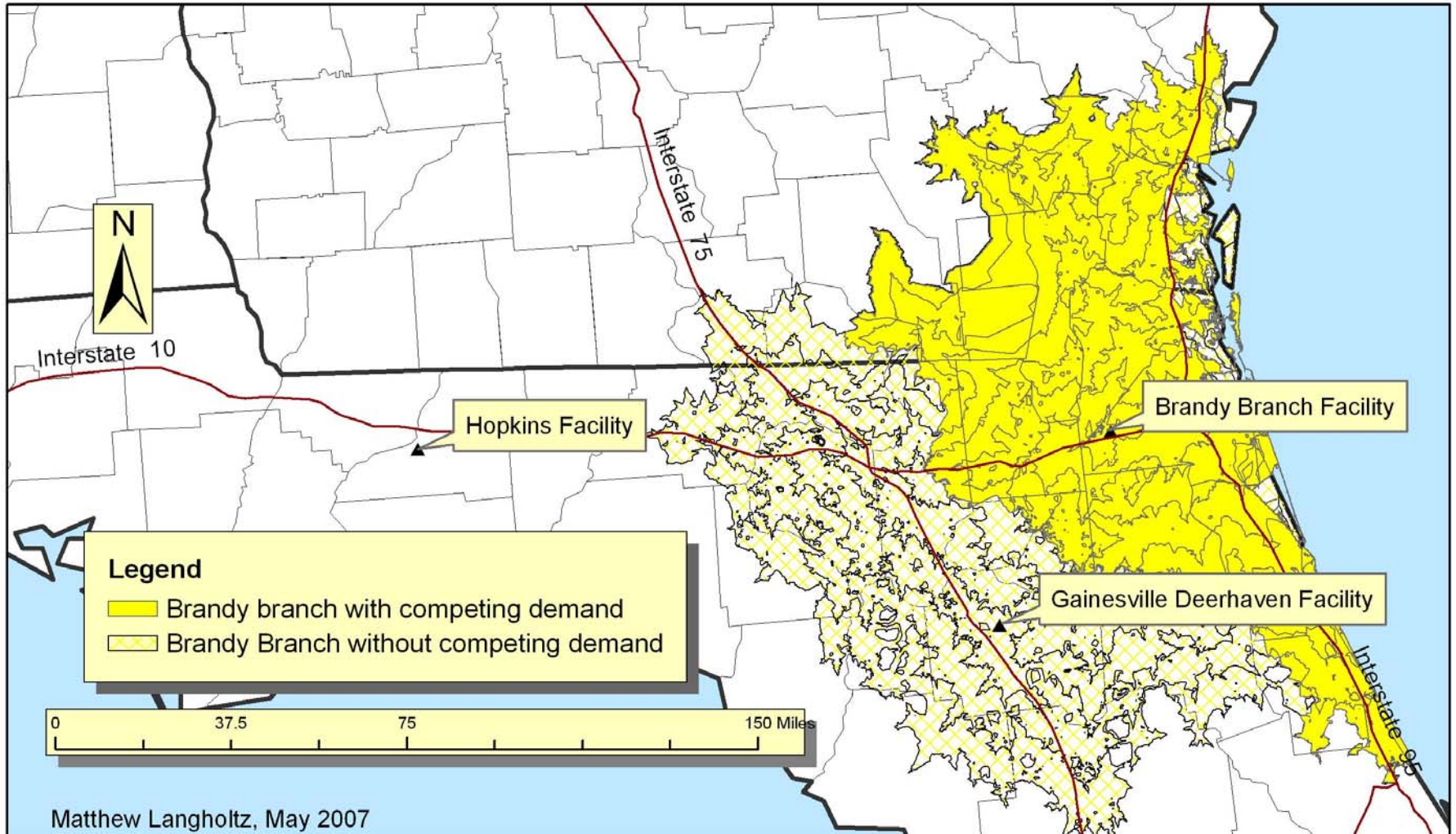
# Preliminary Comparison Of Fuel Costs And Supply

	<b>Approx. \$/MMBTU</b>	<b>Supply</b>
Municipal Solid Waste	Low	Stable
Urban Wood Waste <sup>a</sup>	1.60	Seasonal
Petroleum Coke	2.00	Price of Oil
Logging Residue <sup>a</sup>	2.90	Market Conditions <sup>b</sup>
Coal	3.00	Stable
Forest Thinning <sup>a</sup>	3.40	Market Conditions <sup>b</sup>
Pulp Wood <sup>a</sup>	3.40	Market Conditions <sup>b</sup>
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



Matthew Langholtz, May 2007



# Preliminary Traffic Impacts From Truck Delivery (40 MW Plant)

	<u>Trucks/Day</u>	<u>Roadway Traffic Impact</u>
US 441 From North	72	0.37%
US 44 From South	<u>111</u>	<u>0.58%</u>
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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