

# Contract For Biomass-Fueled Generation

Presentation to the  
Gainesville City Commission  
May 7, 2009



# Presentation Outline

- Project History And Description
- Market Changes
- Adjustments To Original Proposal
- Economic Risk Assessment
  - Compare to market purchases
  - Long term generation plans
  - Short term effects on fuel adjustment
- Next Steps
- Recommendation

# Project History

<b><u>Date</u></b>	<b><u>City Commission Actions</u></b>
Jun 2005	Entered Climate Protection Agreement
Apr 2006	Selected Biomass for Next Generation
Jan 2007	Short Listed Biomass Proposals
May 2008	Selected Nacogdoches Biomass Proposal (Now Gainesville Renewable Energy Center LLC) <ul style="list-style-type: none"><li>- Authorized General Manager to negotiate and execute Power Purchase Agreement</li></ul>
2008-2009	Significant Market Changes
April 9, 2009	Forest Stewardship Plan Approved
April 29, 2009	Final Contract Signed by General Manager <ul style="list-style-type: none"><li>- Subject to Ratification by City Commission</li></ul>

# Gainesville Renewable Energy Center, LLC (GREC) Project Description

- Facility
  - 100 MW (net) power plant on Deerhaven site
  - Bubbling fluidized bed boiler and steam turbine
  - Particulate and NO<sub>x</sub> control
  - Zero water discharge
- Fuel
  - Clean wood from:
    - Timber harvest residuals
    - Urban forestry and land clearing
    - Mill residue
    - Storm/diseased biomass debris
  - Ash 100% recycled
- Contract
  - Pay for performance
  - 30 years, fixed pricing (except fuels & some O&M)

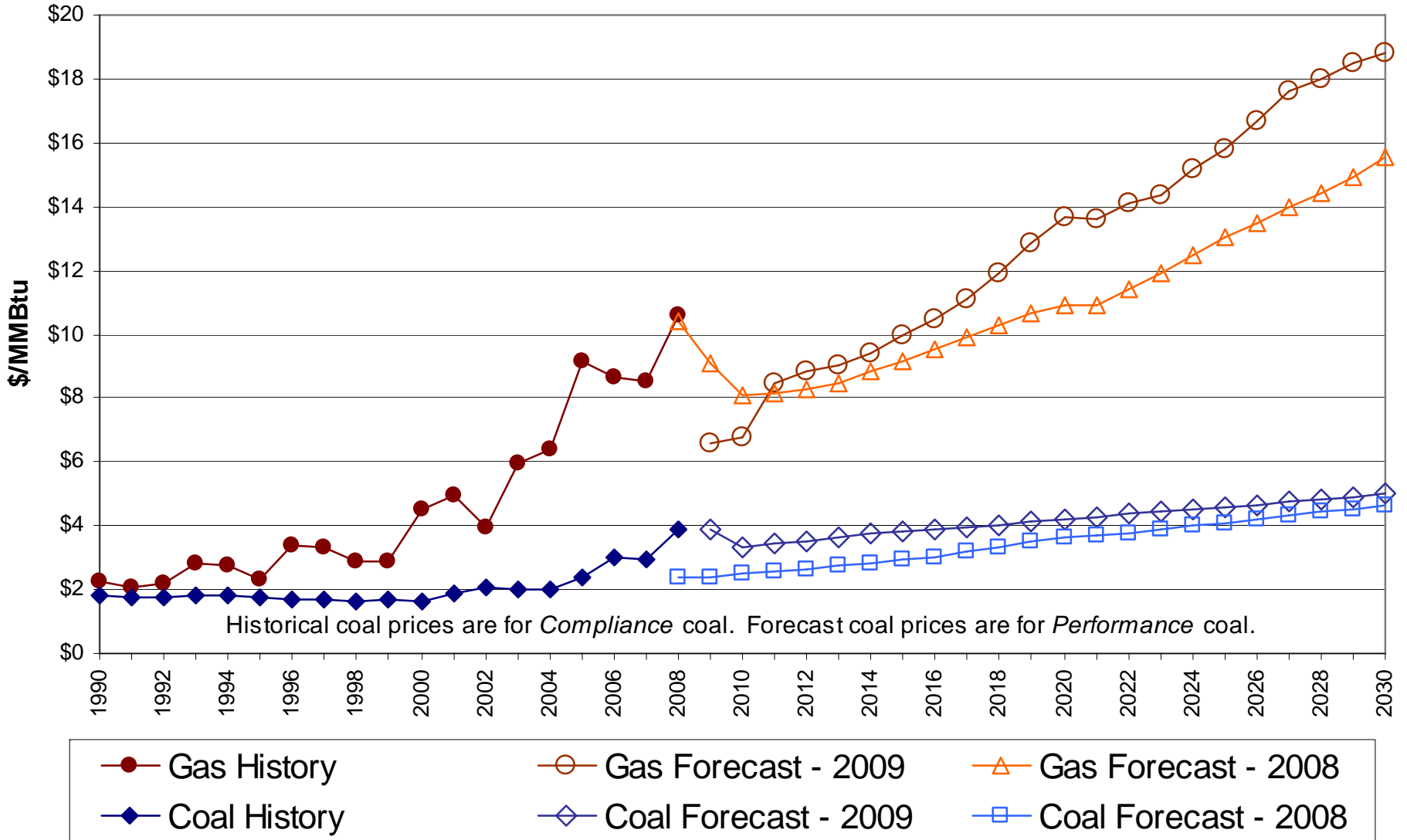
# Gainesville Renewable Energy Center, LLC (GREC) Project Description (Continued)

- American Renewables ([www.amrenewables.com](http://www.amrenewables.com)):
  - Energy Management Inc. 25.5% share
  - BayCorp Holdings Ltd. 25.5% share
  - Tyr Energy 49.0% share
    - Subsidiary of ITOCHU Corporation
  - Will own and operate the Gainesville Renewable Energy Center LLC
- GRU Opted for 100% of Output
  - More than needed initially
  - Third party participant for 50 MW, 10 years

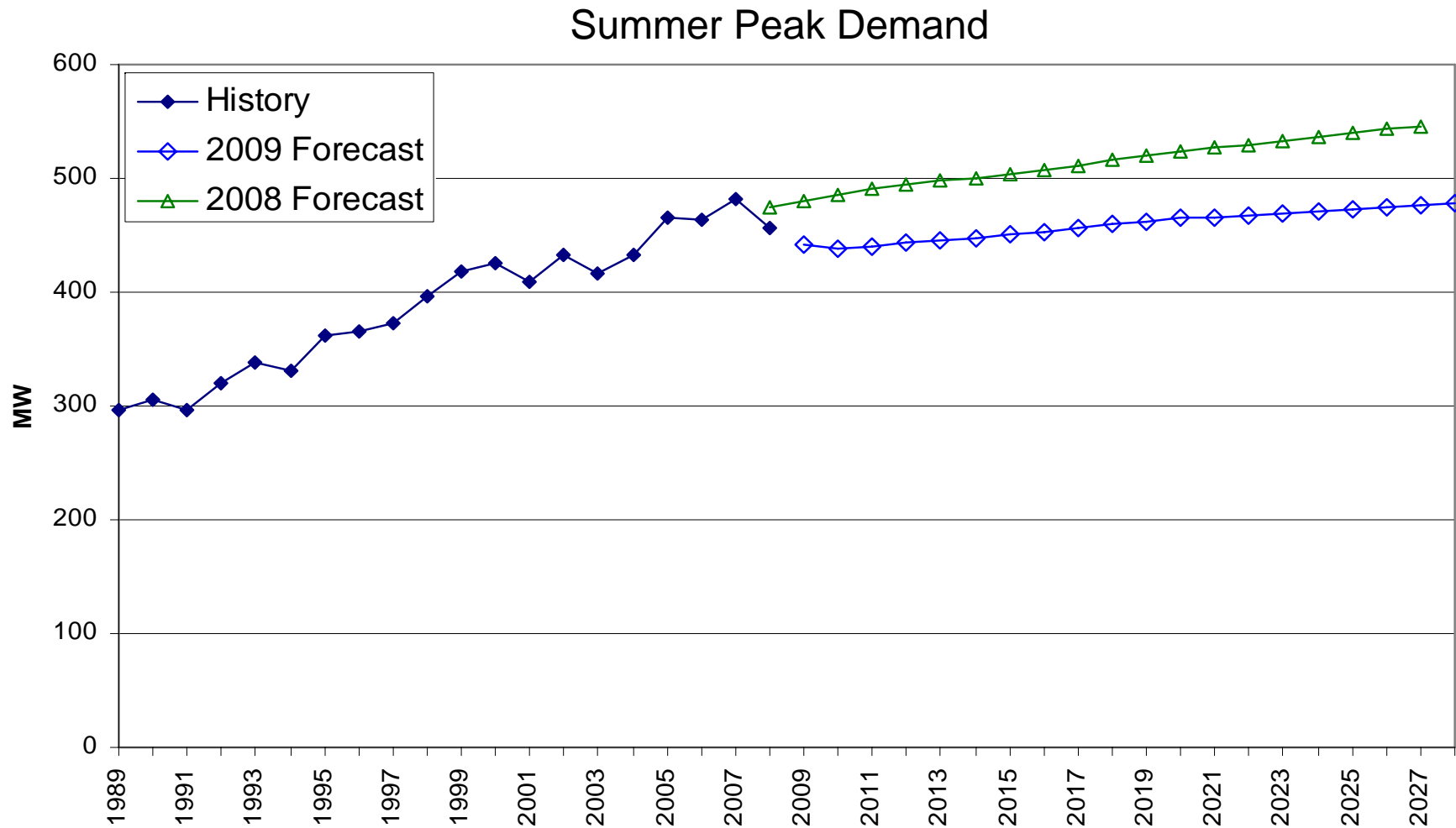
# Market Changes

- Fuel Prices
- Load And Energy Forecasts
- Construction Costs

# Changes In Fuel Markets

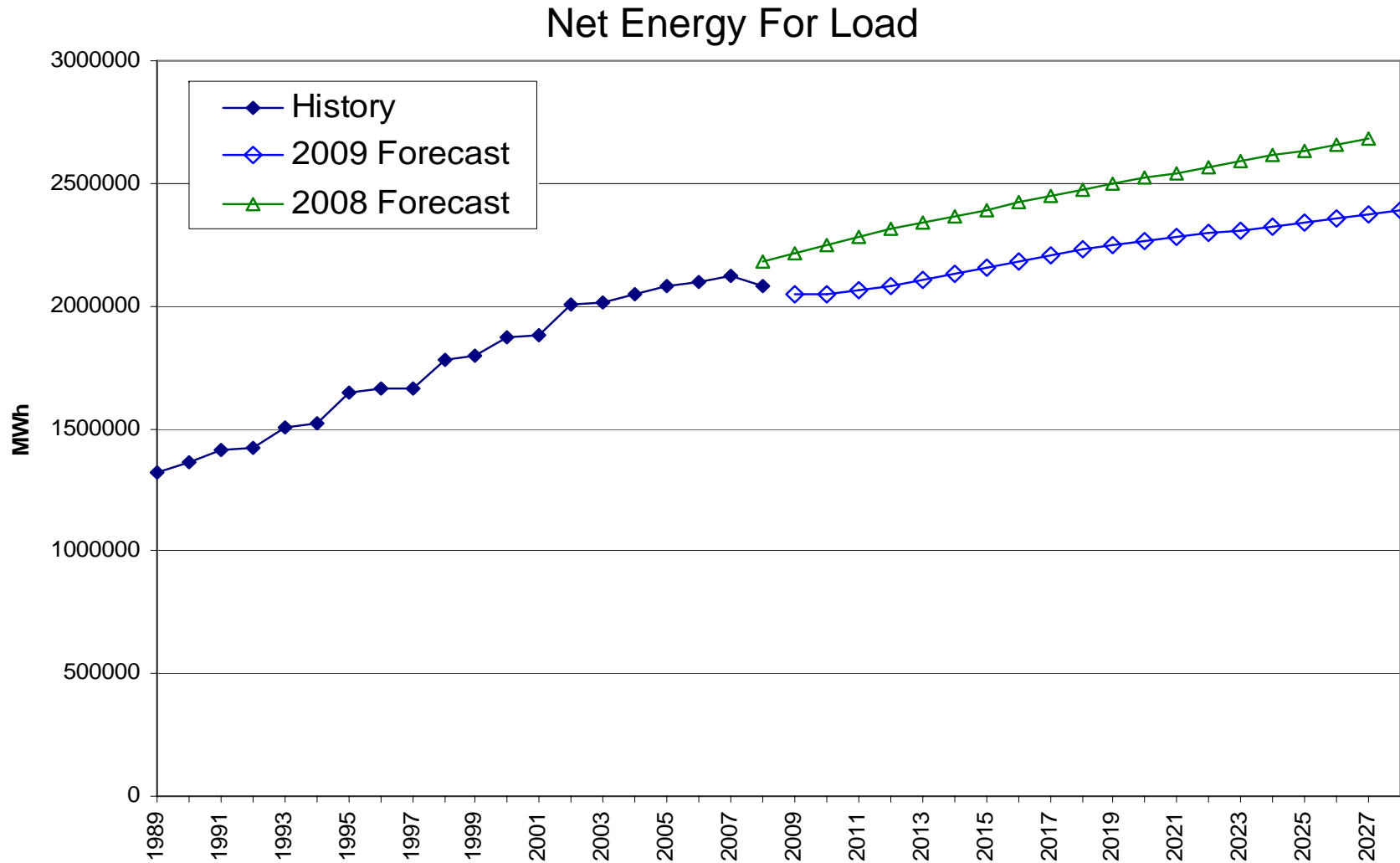


# Changes in Load & Energy Forecasts



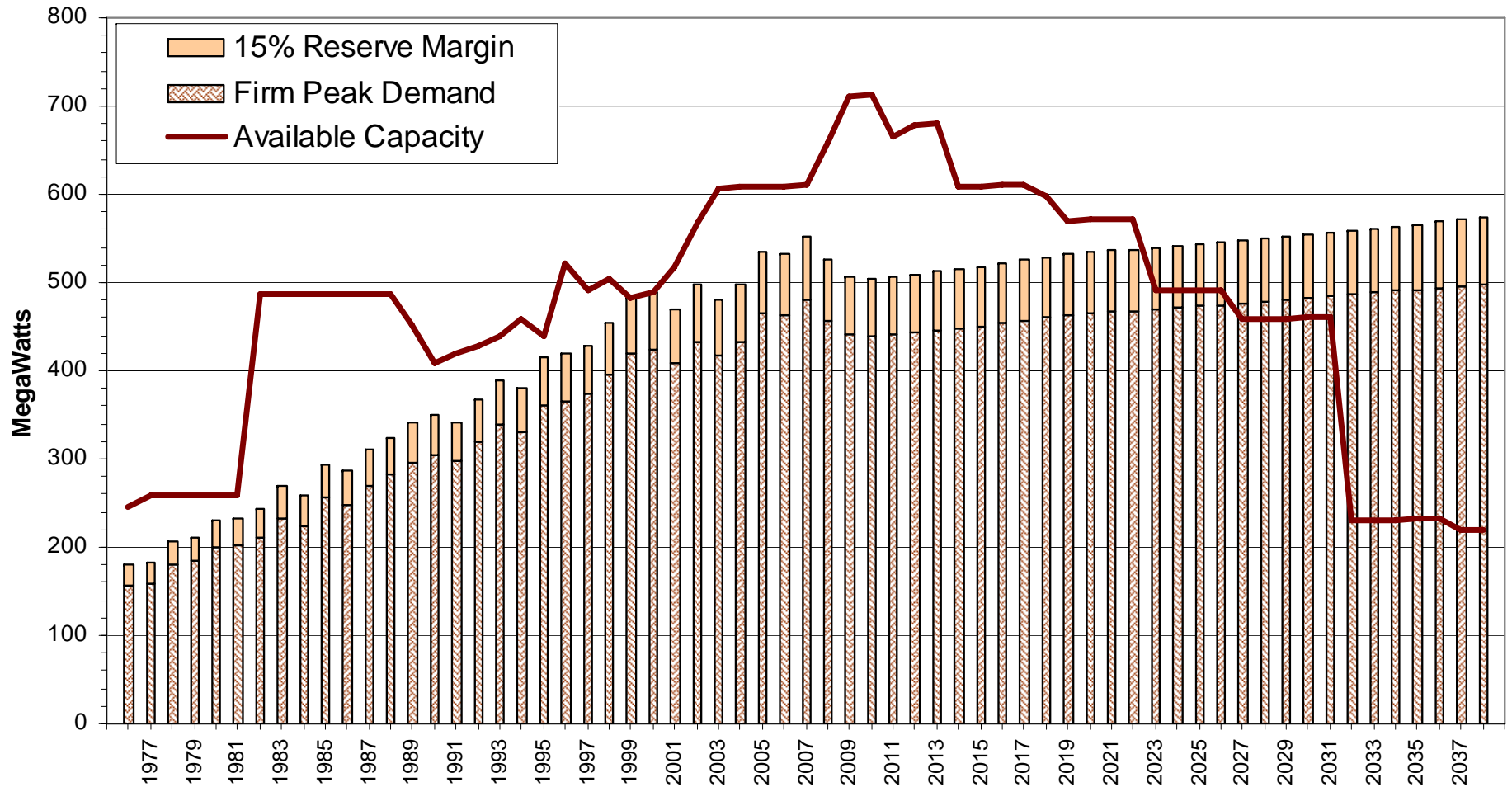


# Changes in Load & Energy



# Need For New Generation Delayed

Summer Peak Demand  
and Resources without Biomass Plant



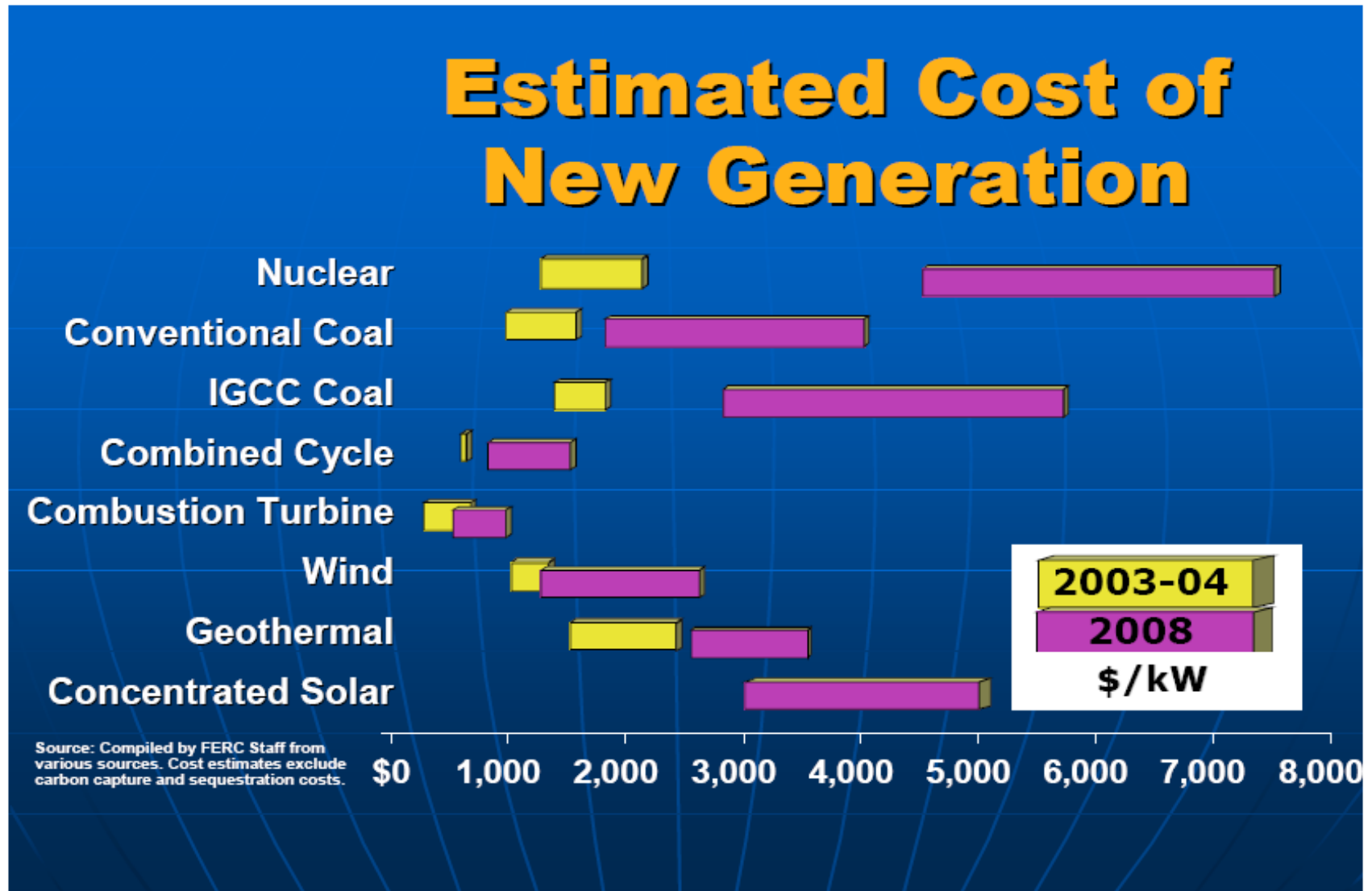
# Unprecedented Events in the Power Industry In 2008

- Construction Material Prices Skyrocketed
- Global Demand For Power Generation Equipment Increased
- Equipment And Construction Cost Rose
- Credit Crisis
- Dollar Continued To Fall Against Foreign Currencies

# Steel Prices

- Steel Prices Increased 37% From January 2008 To June 2008
- More Than 75% Of The Price Increase Occurred From March To June
- Construction Companies Have Reported Increases Of 30% - 100% For Steel Products

# All Types of Generation Increased in Cost



# Adjustments To The Original Proposal From American Renewables

- Pricing
  - 2014 Cost Per MWh Increased
    - 17.9% with ITC Grant
    - 25.8% without ITC Grant
    - Indexed from execution to construction commencement
    - Fixed at that time
- Term
  - Increased contract length from 20 to 30 years
  - Fixed pricing
  - Fuel risk share
  - Variable O&M indexed to CPI

# Adjustments To The Original Proposal From American Renewables

(Continued)

- Restructured To Minimize Financial Liabilities
  - Met with bond rating agencies
  - Only pay for energy produced
  - Designed for 3<sup>rd</sup> party prepayment contract
- Right Of First Offer And Buy Out Option
- Capacity Guarantee Enhanced
  - 95% available summer
  - 90% annual average

# Economic Risk Assessment

- Project Costs And Benefits
- Risk Factors
- Comparison To Natural Gas Combined Cycle
- Long Term Generation Optimization Studies
- Short Term Effects On Fuel Adjustment



# Project Costs And Benefits

- Project Costs
  - Capital, labor, facility maintenance, renewal and replacement
    - Fixed 30 years
  - Variable Costs (i.e. chemicals, auxiliary power)
    - Indexed to CPI
    - Wholesale Power Contract for auxiliary power
  - Fuels
    - Long term contracts
    - Some exposure to diesel and labor costs
    - Shared price risk

# Project Costs And Benefits

(Continued)

- Tangible Property Taxes
  - Pass through
  - Prorated based on performance
- Pay For Performance
  - Satisfies rating agencies
- Avoids More Expensive Fuels
  - Best to grow into capacity
- Meets All Anticipated Renewable Portfolio Standard Requirements
  - 20% Renewable by 2014 @ 50% of output

# Project Costs And Benefits

(Continued)

- Offsets Potential Cost of Carbon Taxes or Cap and Trade Programs
  - Worth \$11 to \$15 per MWh (Waxman-Markey Bill)
  - Has not happened yet
- Creates Over 500 New Jobs In The Region
- Adds Over \$5,500,000/year to Local Tax Base in Tangible Property Taxes
  - Excluding City of Gainesville tax revenues
  - Initially half from out of county participants

# Project Costs And Benefits

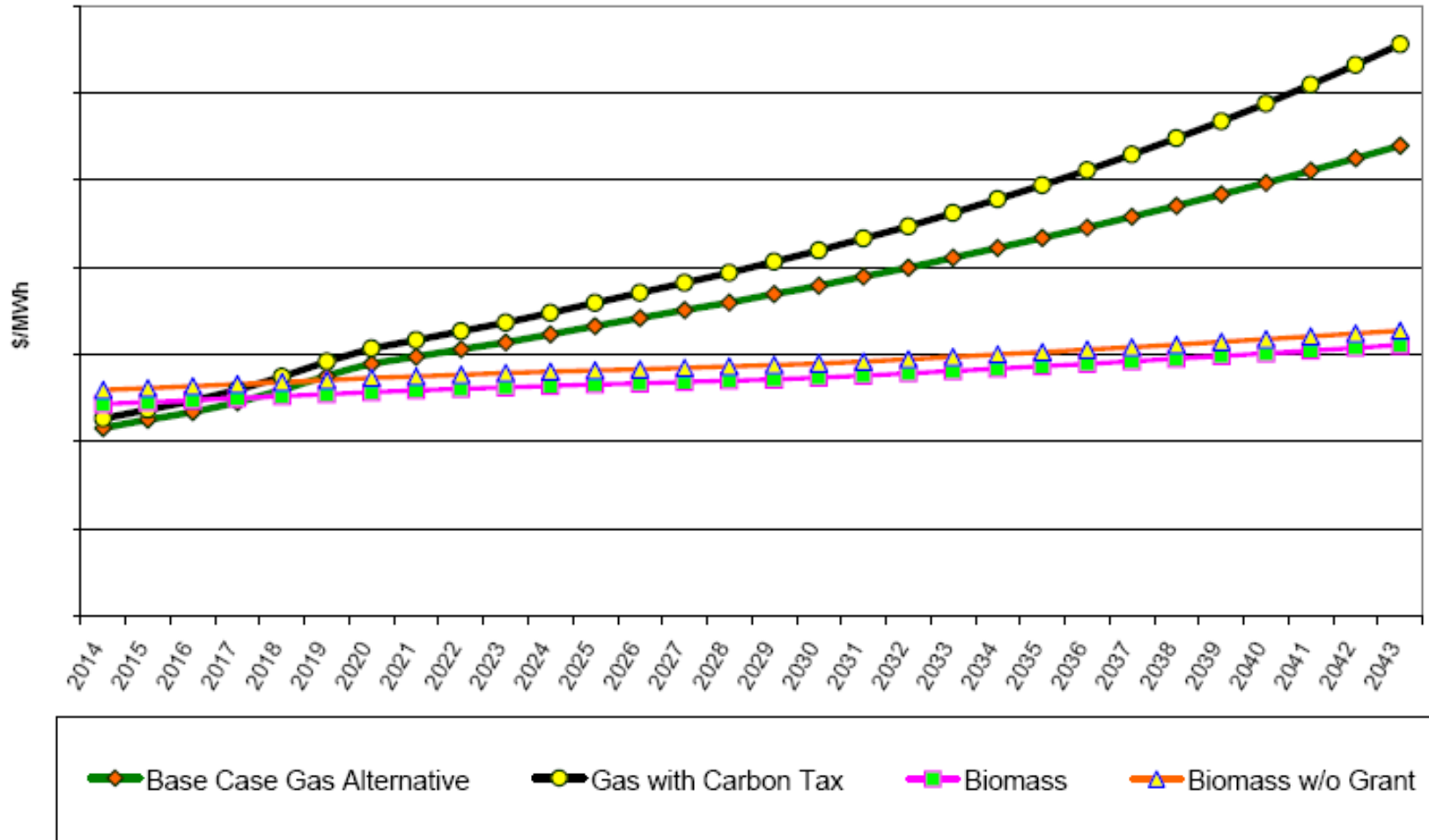
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- Substantially Reduces Open-Burning Of Waste Biomass – Cleaner Air In Region
- 100% Recycling Of Wood Ash
- Zero Surface Water Discharge
- Reduces Landfill Requirements
- Promotes Ecosystem Restoration, Fire Fuel Hazard Reduction, And Supports Silviculture
- Takes Advantage Of New Stimulus Bill Grant Opportunity
  - January 1, 2014 deadline
- Replaces Capacity Lost From Retirement Of Older Fossil Fuel Units

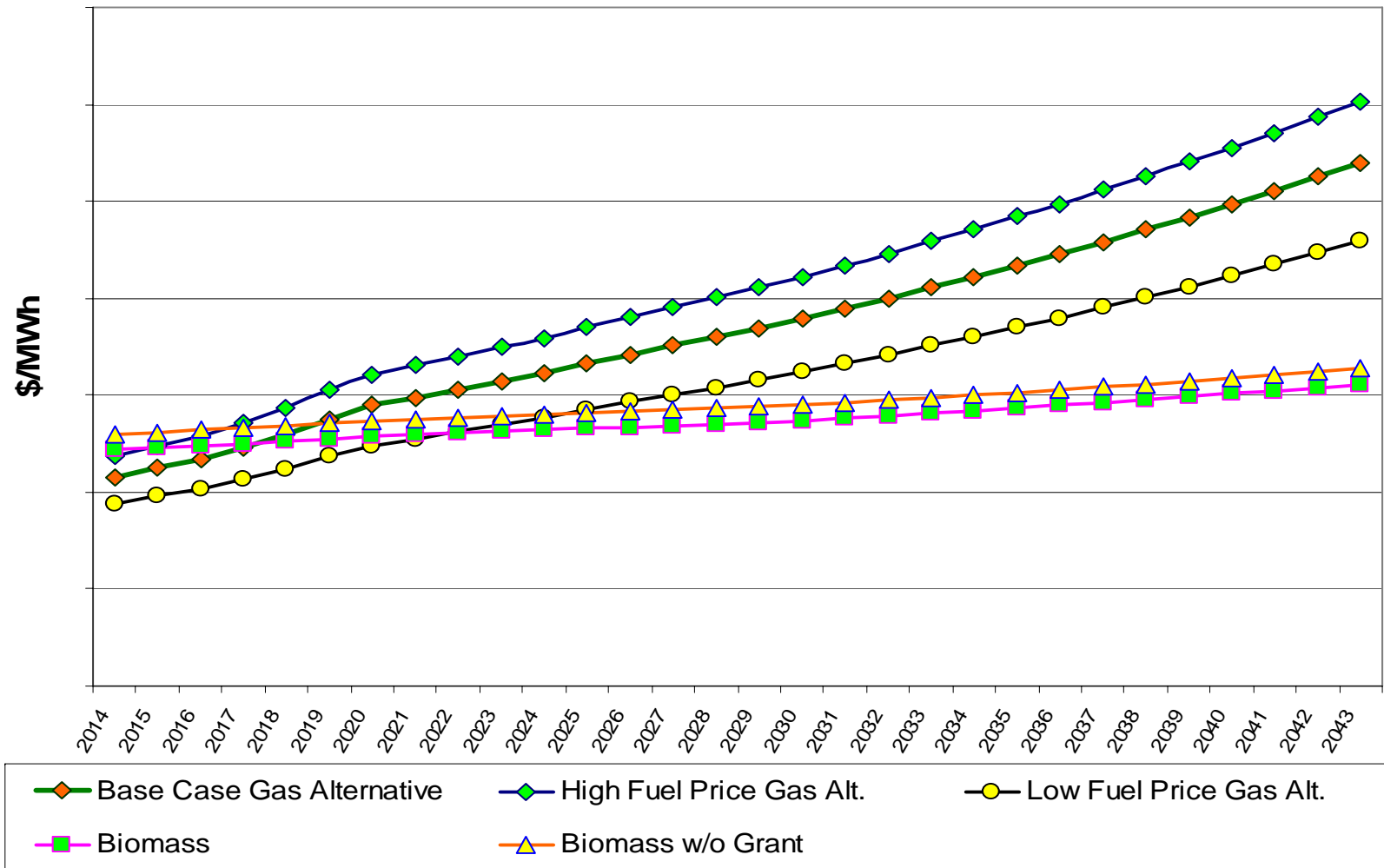
# Risk Factors

- Need Third Party Participant For Early Years
  - Several interested utilities
- Carbon Legislation Has Not Been Enacted Yet
- The Value Of Avoided Fossil Fuel Is Fluctuating
- Missing The Deadline For ITC Grants Or Production Tax Credits (PTC)
  - PTC very likely to be extended

# Comparison Of Biomass vs. Gas Fueled Market Purchase



# Biomass vs. Gas Alternative: High and Low Gas Price Forecasts



# Long Term Generation Optimization

- 30 Year Optimization Studies Using EGEAS Modeling System
- Carbon Taxes As Low As \$5.00 Per MWh Result In The Biomass Plant In 2014 Being The Best Option
- The Proposed Unit Might Increase Fuel Adjustment Charges In The Early Years But Result In Savings Over It's Life



# Factors Affecting Short Term Fuel Adjustment And Community Values

- **Direct Utility Bill Effects**
  - Avoided fuel costs
  - Prepayment arrangements
  - Avoided REC and CO<sub>2</sub> regulation costs and/or revenue from selling excess
- **Indirect Utility Bill Effects**
  - The value of avoided capacity
  - Improved reliability and price stability
- **Other Community Benefits**
  - Tangible property tax
  - Job creation
  - Cleaner air

# Biomass Plant Risk Assessment

Measured as Equivalent Effect on  
1000 KWH Residential Bill  
\$/Month

Scenario: Base Load and Energy Price Forecast

Parameter	2014		2019	
	Item	Cumulative Effect on Bill	Item	Cumulative Effect on Bill
Direct Utility Bill Cash Flows				
Net Effect After Fuel Savings	\$10.56	\$10.56	\$5.12	\$5.12
Effect of Prepayment Restructure	-\$2.25	\$8.31	-\$2.27	\$2.85
CO <sub>2</sub> Regulation savings @ \$12/MWH	-\$2.22	\$6.10	-\$2.10	\$0.75
Indirect Utility Bill Benefits				
Avoided capacity in 2023	-\$4.73	\$1.37	-\$4.49	-\$3.75
Other Community Benefits From Off-System Sales				
Prop Tax Revenue for County, Schools, Library	-\$1.35	\$0.02	-\$1.28	-\$5.03
Other Regulatory Risk From Delay				
Missing ITC Grant Deadline 1/1/2014	\$1.48	\$1.50	\$1.40	-\$3.62
PTC Not Extended	\$3.14	\$4.63	\$3.29	-\$0.34

# Biomass Plant Risk Assessment

Measured as Equivalent Effect on  
1000 KWH Residential Bill  
\$/Month

Scenario: 20% Lower Energy Price Forecast

Parameter	2014		2019	
	Item	Cumulative Effect on Bill	Item	Cumulative Effect on Bill
Direct Utility Bill Cash Flows				
Net Effect After Fuel Savings	\$12.78	\$12.78	\$8.50	\$8.50
Effect of Prepayment Restructure	-\$2.25	\$10.53	-\$2.27	\$6.22
CO <sub>2</sub> Regulation savings @ \$12/MWH	-\$2.22	\$8.32	-\$2.10	\$4.12
Indirect Utility Bill Benefits				
Avoided capacity in 2023	-\$4.73	\$3.59	-\$4.49	-\$0.37
Other Community Benefits From Off-System Sales				
Prop Tax Revenue for County, Schools, Library	-\$1.35	\$2.24	-\$1.28	-\$1.65
Other Regulatory Risk From Delay				
Missing ITC Grant Deadline 1/1/2014	\$1.48	\$3.72	\$1.40	-\$0.25
PTC Not Extended	\$3.14	\$6.85	\$3.29	\$3.04

# Biomass Plant Risk Assessment

Measured as Equivalent Effect on  
1000 KWH Residential Bill  
\$/Month

Scenario: 20% Higher Energy Price Forecast

Parameter	2014		2019	
	Item	Cumulative Effect on Bill	Item	Cumulative Effect on Bill
Direct Utility Bill Cash Flows				
Net Effect After Fuel Savings	\$8.34	\$8.34	\$1.75	\$1.75
Effect of Prepayment Restructure	-\$2.25	\$6.10	-\$2.27	-\$0.53
CO <sub>2</sub> Regulation savings @ \$12/MWH	-\$2.22	\$3.88	-\$2.10	-\$2.63
Indirect Utility Bill Benefits				
Avoided capacity in 2023	-\$4.73	-\$0.85	-\$4.49	-\$7.12
Other Community Benefits From Off-System Sales				
Prop Tax Revenue for County, Schools, Library	-\$1.35	-\$2.20	-\$1.28	-\$8.40
Other Regulatory Risk From Delay				
Missing ITC Grant Deadline 1/1/2014	\$1.48	-\$0.72	\$1.40	-\$7.00
PTC Not Extended	\$3.14	\$2.41	\$3.29	-\$3.71

# Biomass Plant: Economical Over Long Term

- Short Term Effect on Typical Residential Bill

	<u>2014</u>	<u>2019</u>
High Fuel Prices	2.7%	-1.6%
Base Case	4.3%	0.5%
Low Fuel Prices	5.8%	2.5%

(negative value indicates bill reduction)

- Long Term – Reduced Bills
  - Avoided Capacity Benefit
  - Increasing Fossil Fuel Prices

# Next Steps

- Establish Zoning For Current Deerhaven Site
  - Include Solar
  - Allow industrial symbiosis
- Need Certification From The FPSC
  - GRU's lead responsibility
- Obtain Site Certification
  - GREC's responsibility
  - Transportation
  - Air
  - Water
- GREC Obtains Financing
  - Requires firm fuel contracts
- Commence Construction
- Capacity And Operational Testing

# Recommendation

The City Commission:

- 1) approve the Power Purchase Agreement (PPA) between the City and Gainesville Renewable Energy Center, LLC for power generated by the nominal 100MW biomass generating plant; and
- 2) authorize the General Manager or his designee to execute such documents and take all steps as may be necessary to implement the terms of the PPA, including but not limited to filing of all required applications with jurisdictional governmental bodies and agencies; and, the lease of and easements over portions of the Deerhaven Generating Station site necessary for the construction and operation of the biomass generating plant.



# Questions

