

Protecting GRU's Customers With Fuel Diversity, Renewable Energy, And Power Purchase Contract Design

Presentation to the
Florida Public Service Commission

By the
Gainesville City Commission

December 9, 2009



Introduction And Biomass Project Overview

Mayor Pegeen Hanrahan

Issues Affecting Our Customers

- Concern about climate change
- Highly volatile natural gas and coal prices
- Pending legislation and regulations
 - Carbon emission constraints
 - Renewable energy portfolio standards
- Our need to replace generation capacity
- Sky rocketing costs for new capacity

Our Business Case

- Stabilize long term costs
- Buy sustainable fuel from local region
- Reduce carbon emissions
- Reduce air pollution in the region
- Be competitive in the market
- Positioned for new regulations

Biomass Power Plant Overview

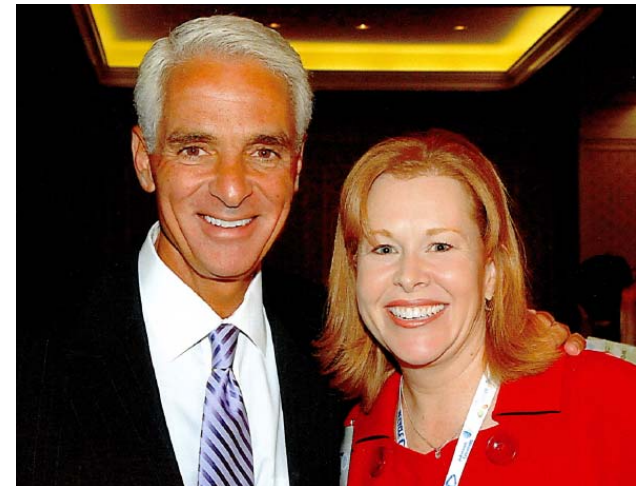
- 100 MW (net) power plant on Deerhaven site
 - Particulate, NO_x control, and zero surface water discharge
- Fuel
 - Clean woody material
 - Ash 100% recycled
- Contract
 - Pay for performance (to reduce risk)
 - 30 years fixed pricing (except fuels)
- American Renewables (www.amrenewables.com)
 - Will own and operate the facility
 - D/B/A Gainesville Renewable Energy Center LLC (GREC)
- GRU Opted for 100% of Output
 - More than needed initially
 - 50 MW to be resold to third party for 10 years

Climate Change

- Our resolution to meet the Kyoto Protocol reflects key local community values
 - Climate change is real
 - Man's activities contribute to it
 - We can make a difference
- Reducing carbon emissions is good business
 - Cost-effective demand side management programs
 - Spend money locally, not out of state
 - Create jobs and opportunities in Gainesville
- We accept a long term payback

We Are In Step With Florida's Climate Policy

- **Governor Christ's Executive Orders**
 - Directed FDEP to develop GHG limits on utilities
 - Called for a Renewable Portfolio Standard (RPS)
 - Created the Florida Climate Change Action Team
- **RPS Legislation^a**
 - FPSC to develop recommendation
- **Florida's Climate Action Team**
 - Energy from renewable sources
 - Biomass for electric production



a. RPS – Renewable Portfolio Standard

Biomass Power Reduces Greenhouse Gas Emissions

- Biomass would rot anyway, generating methane^a as well as CO₂
 - Methane is a green house gas 23 times more potent than CO₂
 - Carbon already part of the atmospheric cycle
- Biomass power avoids fossil fuels, reduces methane, and is domestically and internationally accepted as being carbon neutral or better
 - International Panel on Climate Change (IPCC)
 - United Nations Framework Convention on Climate Change
 - The U.S. Climate Registry
 - The U.S. Environmental Protection Agency (USEPA)
 - Regional Greenhouse Gas Initiative (RGGI)
- CO₂ from diesel fuel used for biomass collection is small
 - Biomass still carbon neutral or better

a. Source: Biomass Power and Conventional Fossil Systems – Comparing Energy Balance, Greenhouse Gas Emissions, and Economics. June, 2004 U.S. DOE National Renewable Energy Laboratory

Community Involvement Process

Commissioner John F. Donovan

Our Customers Were Involved In Making The Plan

- Our customers are our friends and neighbors
- Extensive public participation in formal Integrated Resource Planning Process
 - Started 2002
 - 37 televised City Commission Meetings
 - Dozens of well attended workshops and presentations
 - Numerous media stories
- Studies & presentations posted on our web site
- Notice of potential rate effects was mailed out to all 93,000 customers

Planning

GRU to Present Proposed Budget to City Commission

In July, Gainesville's City Commission will consider GRU's budget for fiscal year 2010. If approved, it will include proposed utility rates that will take effect in October.

June 2009 Customer Bulletin

Renewable Biomass Energy Coming to Gainesville

Innovation

With the unanimous approval of the Gainesville City Commission, GRU has entered into a 30-year contract to provide biomass-fueled energy to Gainesville. The Gainesville Renewable Energy Center (GREC), an American Renewables project company, will build, own and operate the 100-megawatt plant on GRU's Deerhaven property. GRU will purchase and own 100 percent of the energy produced.



The Gainesville City Commission, representatives of American Renewables and involved citizens present at the approval of the contract.

The biomass plant will burn waste wood from north central Florida's enormous timber industry, as well as urban tree-trimmings. GRU and GREC have created



strict standards that suppliers must follow to protect the region's forests.

from anticipated increasing fossil-fuel prices.

Gainesville Mayor Pegeen Hanrahan said, "We are fighting climate change through the increased use of renewable energy sources, energy efficiency and the reduction of greenhouse gases. We have also strengthened our energy independence and are supporting hundreds of jobs in our region."

There will be no impact on customer bills until the plant comes online in 2013. Then customers will see a small increase in the fuel adjustment, but early in the contract the cost of producing biomass energy is expected to become less expensive than fossil-fuel alternatives.

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The project will create up to 350 construction jobs, 45 facility jobs and nearly 500 forestry-related jobs. For more information, visit www.gru.com.

significant savings. Each degree higher than 78 can decrease your bill 4 percent

Using ceiling

Key City Commission Decisions

- Kyoto Protocol Resolution
 - June 27, 2005
- Total Resource Cost Test for Conservation Programs
 - April 12, 2006
- Biomass and PPA for Future Energy Supply
 - June 18, 2007
- Competitive Solicitation
 - October 8, 2007
- Selection of American Renewables' Proposal
 - May 12, 2008
- Unanimous approval of contract
 - May 7, 2009

Our Energy Plan

- Reduce carbon emissions
 - Promote energy efficiency
 - Deploy renewable energy
- Develop available renewable energy resources
 - Solar thermal and photovoltaic
 - Biomass
- Capture financial incentives for renewable energy
 - Taxable third party power purchase agreements (PPA)
 - Solar feed in tariff
 - GREC contract
- Structure GREC PPA to hedge against the financial impacts of:
 - Greenhouse gas regulations
 - Renewable portfolio standards
 - Construction, operation and maintenance risks

Focus On Energy Efficiency

Commissioner William Thomas Hawkins

Wise Energy Use Is A Top Priority

- GRU customers have the lowest electrical use per customer of any generating utility in Florida
 - 831 kWh per month^a
- Our rebate programs embrace a wide range of retrofit technologies
 - Solar thermal
 - Solar photovoltaic
 - Natural gas for hot water, clothes drying, cooking, space heating
 - High efficiency HVAC, lighting, building envelopes
- Assistance for new construction as well

a. Source: Gainesville Regional Utilities 2009 Ten Year Site Plan

Our Residential Energy Conservation Programs

- 1 High Efficiency Central Air Conditioning (Rebates)**
- 2 High Efficiency Room Air Conditioning (Rebates)**
- 3 Central Air Conditioner Maintenance (Rebates)**
- 4 Solar Water Heating (Rebates)**
- 5 Solar PV (Rebates with Net Metering)**
- 6 Natural Gas Appliance (Rebates)**
- 7 Home Performance with the Federal Energy Star Program (Rebates)**
- 8 Energy Star Building Practices of the EPA (Incentives)**
- 9 Green Building Practices (Seminars)**
- 10 Heating/Cooling Duct Repair (Rebates)**
- 11 Variable Speed Pool Pumps (Rebates)**
- 12 Energy Efficiency for Low-Income Households (Grant)**
- 13 Attic and Raised-Floor Insulation (Rebates)**
- 14 Refrigerator Buy Back (Rebates)**
- 15 Compact Fluorescent Light Bulbs (Direct Install)**
- 16 Energy Efficiency Low-Interest Loans (Interest Buy Down)**

Commercial And Supply Side Conservation Programs

- 1 Solar Water Heating (Rebates)**
- 2 Solar PV (Net Metering)**
- 3 Natural Gas for Water Heating and Space Heating (Rebates)**
- 4 Vending Machine Motion Sensors (Giveaways)**
- 5 Custom Business Energy Efficiency Retrofits Rebates**
 - Rebates of 50% of costs up to \$100,000 for:
 - HVAC
 - Motors
 - Lighting
 - Refrigeration
 - Any other energy saving measure
- 6 Integrated Energy Systems**
 - South Energy Center
 - Electricity
 - Steam
 - Chilled Water
- 7 Supply Side Efficiency**
 - Transformers
 - Generation heat rate
 - Reconductoring

GRU Is A Conservation Leader

(Will Reduce Load Growth 60%)

Year	Energy Reduction (MWh/Yr)	Summer Peak Demand Reduction (MW)
2008 (actual)	151,000	30
2014	230,000	59
2019	292,000	82

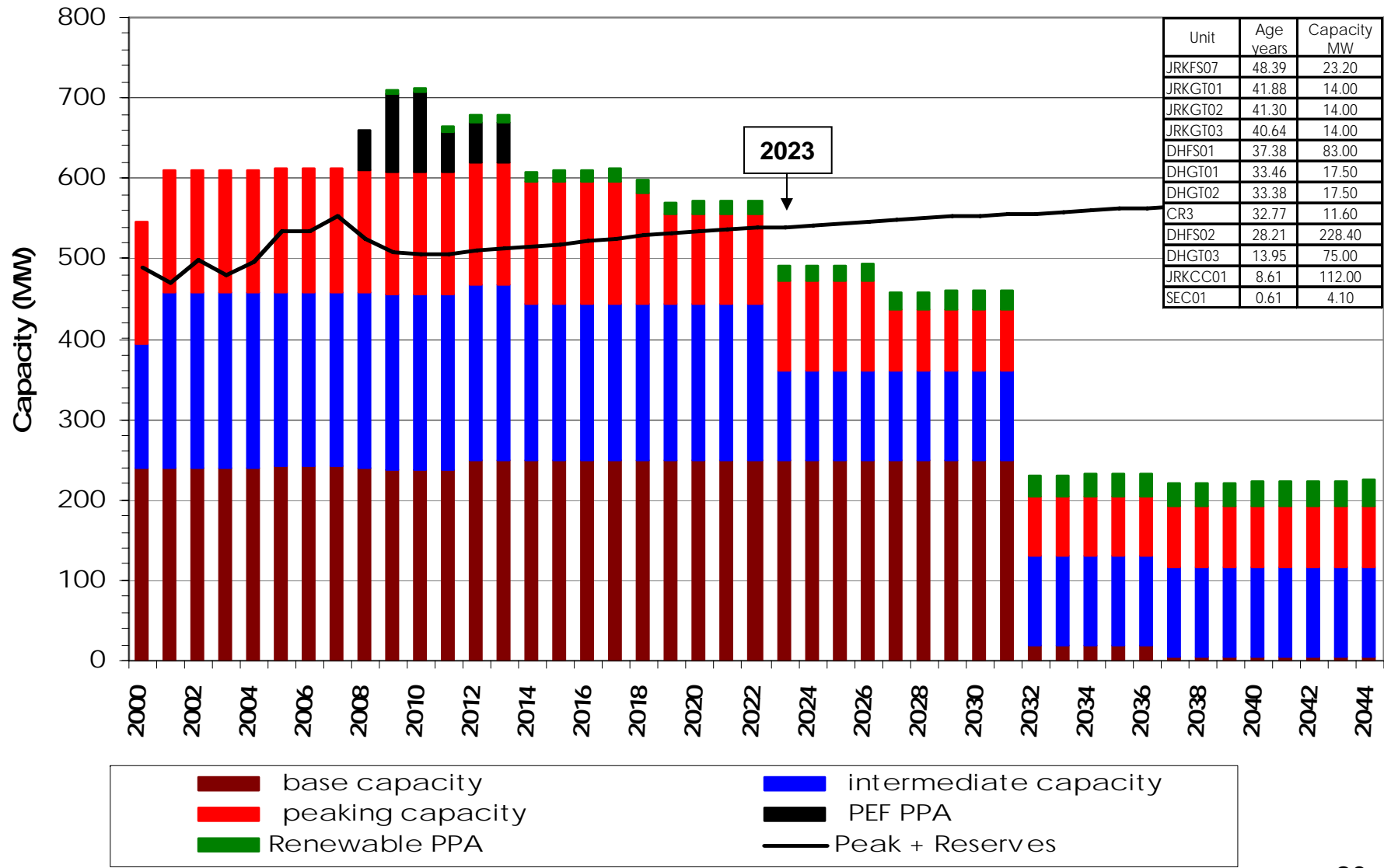
- a. Ongoing third party measurement and verification program
- b. Set based on analysis of cost-effectiveness using Total Resource Cost economic criterion.

Source: GREC Need Determination Application, pg 13-3 9/18/09

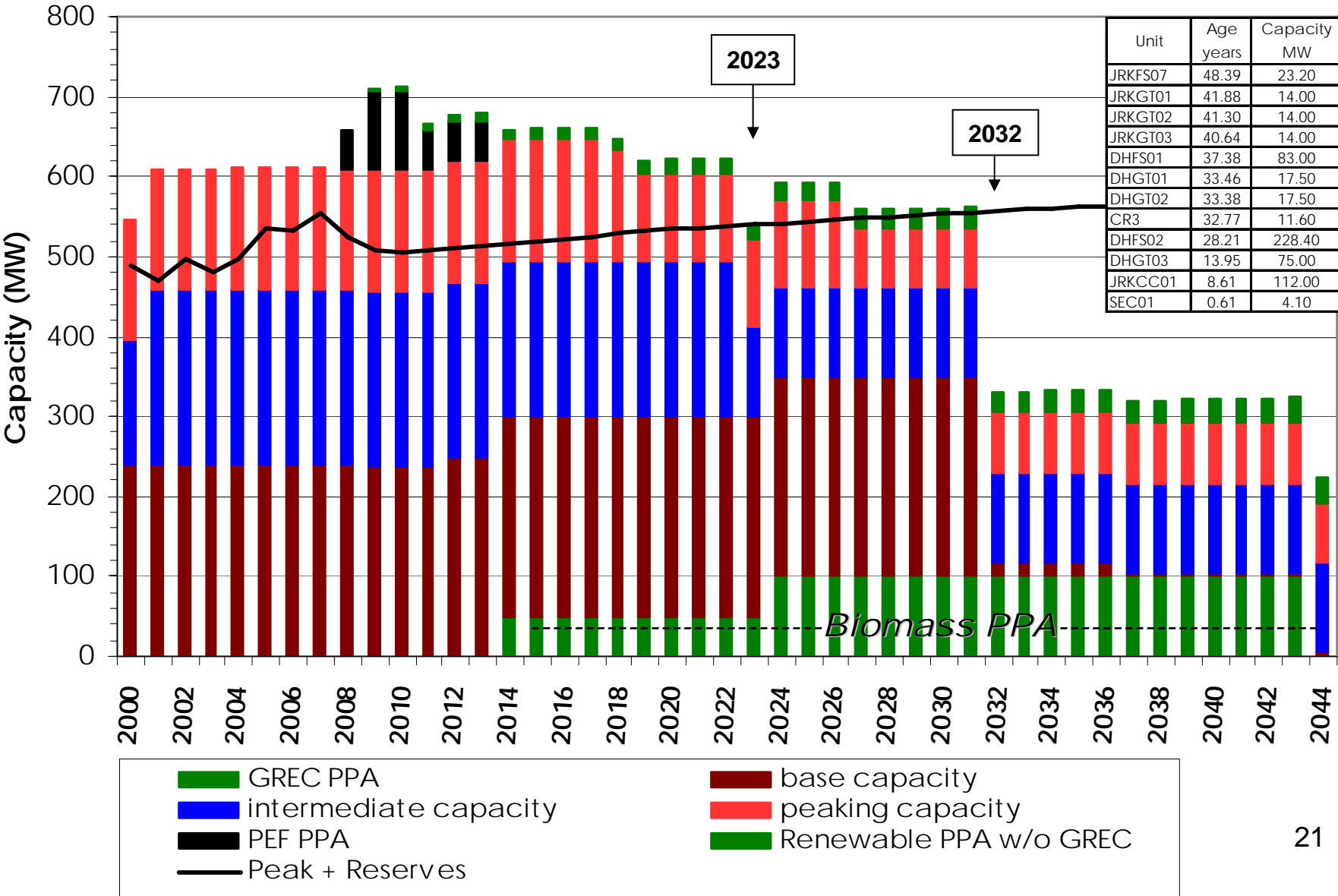
We Will Need The Capacity

Mayor Pro-Tem and Commissioner
Scherwin Henry

We Have An Aging Generation Fleet



GREC Will Provide Capacity Through 2032



Fuels And Risk Management

General Manager Robert E. Hunzinger

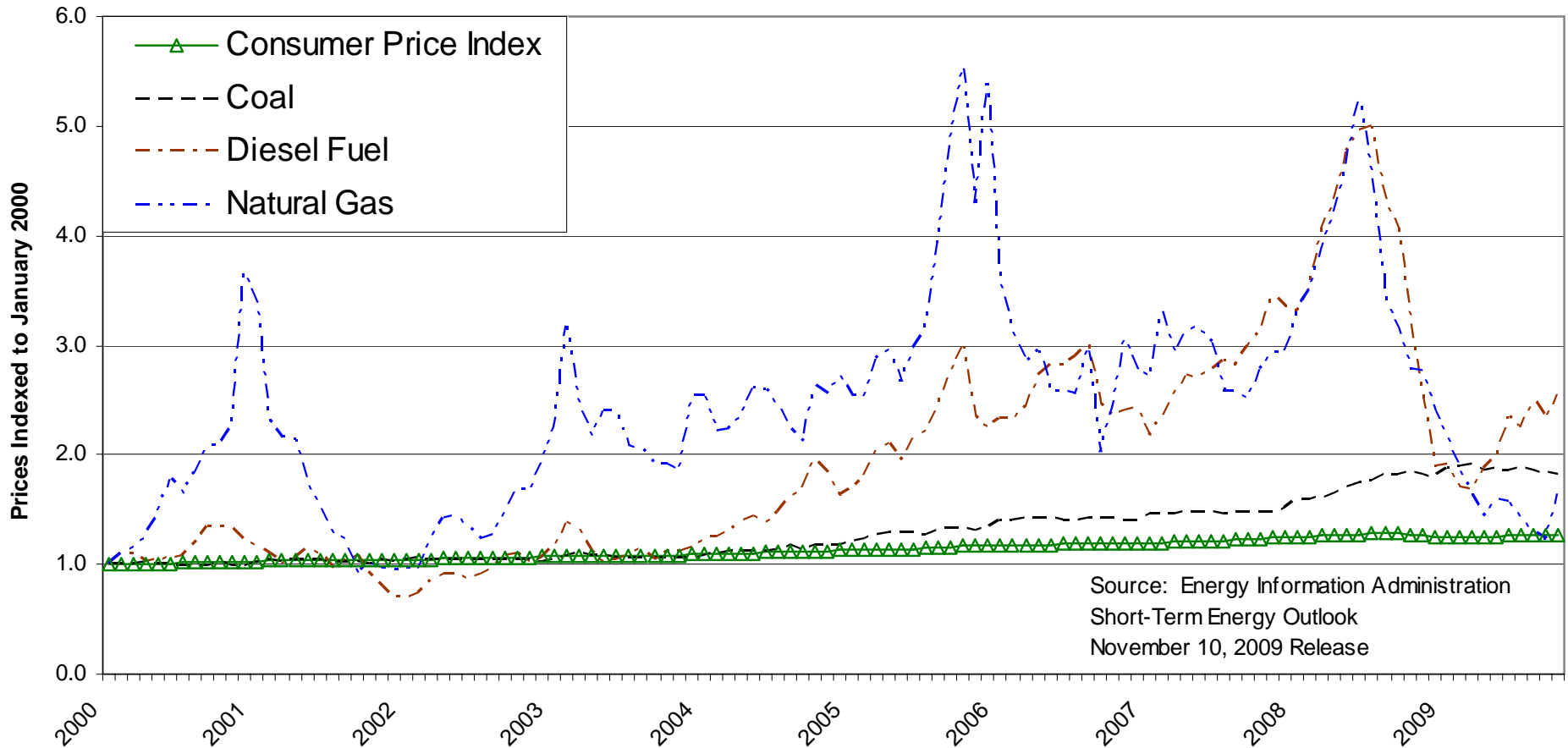
Power Purchase Contract Structured To Manage Risk

- Capture Financial Incentives Not Available to Municipal Utilities
 - Tax exempt vs. taxable interest spreads less than past years
 - 30% ITC/renewable energy grant or production tax credits
 - Tax liability value of depreciation
- 30 year fixed price (except fuel)
- Structured to off load risk
 - No payment until GREC is operational
 - No construction cost over-run risks
 - Only pay for power made available
 - No liability for extraordinary repairs

Power Purchase Contract Structured To Manage Risk (continued)

- **Assured Sustainable Fuel Supply**
 - Strict fuel procurement standards to protect soil and forests
 - Forest Certification incentive payments to promote forest management practices even more environmentally sensitive than current best management practices
- **Fuel Price Risk**
 - Portfolio of long term put and call contracts
 - Advantageous opportunity fuels
 - Stable pricing
 - Indexed 85-90% CPI
 - Very favorable compared to volatile natural gas and fuel oil prices
 - Gain/loss sharing formula

Biomass Fuel Supply Pricing Will Be Driven By CPI Indexed Contracts



Potential Biomass Fuel Sources

- **Forestry Residues**
 - Slash and cull trees
 - Pre-commercial thinning
- **Wood Processing Residue**
 - Round-offs, end cuts
 - Sawdust, shavings
 - Reject lumber
- **Other Waste Materials**
 - Discarded pallets and packaging wood
- **Urban Wood Residue**
 - Wood and brush from clearing, tree trimming & landscaping
- **Opportunity Fuels**
 - Storm debris
 - Agricultural waste

Fuel Procurement Areas

- Typical procurement areas within a 75-mile radius around the site
- Allows for about a maximum 100-mile haul distance which is the practical limit for hauling logging residues and chips
- Traffic studies^a show that the estimated 130 to 150 trucks per day plus employee cars will not effect the level of service of roadway networks.

a. From [Gainesville Renewable Energy Center Application for Site Certification](#), filed 11/30/09 with the FDEP.



Risk We Keep

- **Regulatory Changes**
 - Environmental standards
- **Regulatory Delays**
 - Not getting approvals in time for ITC/renewable energy grant
- **Price Received For 50 MW Resale**
 - Firm baseload capacity is very valuable
 - Four municipal utilities have indicated serious interest

Biomass Plant: Economical Over Long Term^a

- Short term effect on typical residential bill

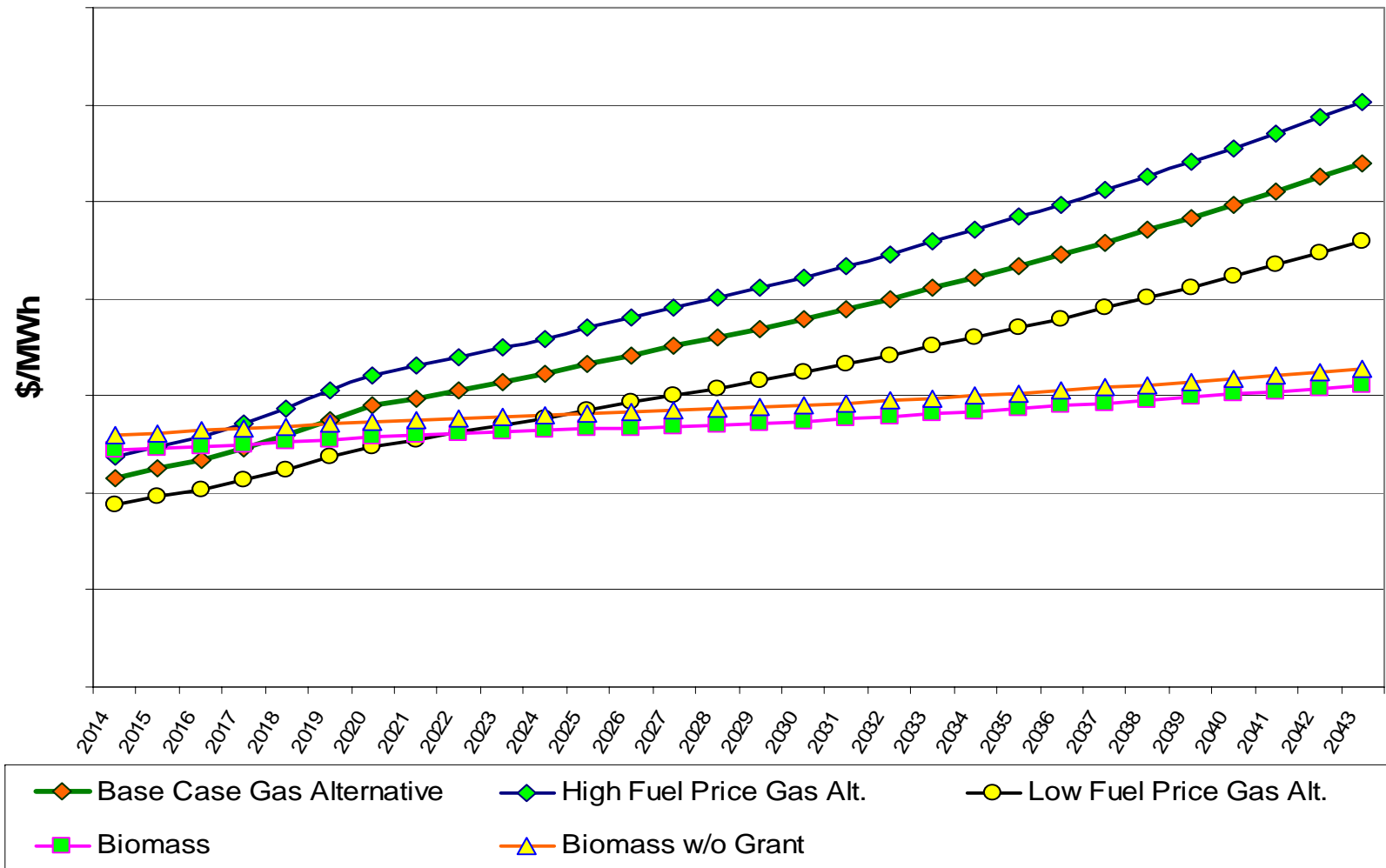
	<u>2014</u>	<u>2019</u>
High Fuel Prices	2.7%	-1.6%
Base Case	4.3%	0.5%
Low Fuel Prices	5.8%	2.5%

(negative value indicates bill reduction)

- Long term – reduced bills
 - Avoided Capacity Benefit
 - Increasing Fossil Fuel Prices
- Does not include benefits if carbon legislation passes

a. From City Commission meeting May 7, 2009. Based on 1,000 kWh monthly bill

Biomass - A Long Term Savings^a



a. From City Commission meeting May 7, 2009

Effective Hedge Against New Regulations

Estimated Carbon Cost Effects of HB 2454 1000 kWh Monthly Bill (\$/Month)

Scenario ^a	2014	2019
No Biomass Plant	\$32.78	\$52.52
Net Cost/Savings With Biomass Plant	\$3.58	-\$1.39

- a. Data taken from GRU's response to FPSC Interrogatory question 60. Uses AEO 2009 "basic" estimates of carbon offset values as provided on page 11-3 of GRU's Need Determination Application, 9/18/09.

Conclusion

Commissioner Lauren Poe

Project Benefits

- 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
- Offsets potential cost of carbon taxes or cap and trade programs
- Offsets potential RPS compliance cost

Project Benefits

(Continued)

- **Direct utility bill effects**
 - Avoided fuel costs
 - Avoided capacity costs
- **Indirect utility bill effects**
 - Improved reliability
 - Price stability
- **Community benefits**
 - Cleaner air from less open burning
 - Contributes to local economy, energy independence, sustainability, and reduced CO₂



Project Benefits

(Continued)

- 100% recyclable wood ash
- Reduced landfill requirements
- Promotes ecosystem restoration, fire fuel hazard reduction, and supports silviculture
- Achieves our carbon reduction goals

Summary

- **Policy direction**
 - Diversify supply
- **Public input**
 - Lengthy and transparent process
- **Renewables / environmental goals**
 - Kyoto targets
- **Sustainable supply with local benefits**
- **Fixed pricing**
 - Life cycle economically beneficial
 - Low marginal dispatch cost

Thank You