

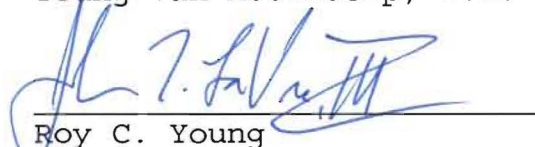
BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: JOINT PETITION TO DETERMINE NEED)
FOR GAINESVILLE RENEWABLE ENERGY CENTER) DOCKET NO. 090451-EM
IN ALACHUA COUNTY, BY GAINESVILLE)
REGIONAL UTILITIES AND GAINESVILLE) DATED: April 29, 2010
RENEWABLE ENERGY CENTER, LLC.)
_____)

NOTICE OF SERVICE OF
GAINESVILLE REGIONAL UTILITIES AND
GAINESVILLE RENEWABLE ENERGY CENTER, LLC'S
ERRATA TO THE SUPPLEMENTAL TESTIMONY OF EDWARD J. REGAN

Gainesville Regional Utilities and Gainesville Renewable Energy Center, LLC, by and through its undersigned counsel, hereby files revised pages 2, 4, 6, 7, 9, 10, 11, 12, 13, and 14, and to pre-filed Exhibits [EJR-4], [EJR-5], and [EJR-7] to the supplemental testimony of Edward J. Regan previously filed with the Commission on March 15, 2010, by hand-delivery and U.S. Mail on this 29th day of April, 2010.

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CERTIFICATE OF SERVICE


I hereby certify that a copy of the foregoing was served upon the following by United States Mail and electronic mail on this 29th day of April, 2010.

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1 electric system reliability and integrity while also mitigating the
2 cost of increasing fossil fuel prices and volatility;

3 • GREC's risk adjusted benefits exceed costs by more than 10 to 1
4 under a mid-range probabilistic cost analysis, and benefits exceed
5 costs by a ratio of more than 2 to 1 in an extremely biased worst
6 case probabilistic analysis;

7 • The power purchase agreement between GRU and GREC LLC
8 (PPA) is structured to provide as much as \$84 million (net
9 present value in 2009 dollars) of benefits for GRU's customers in
10 the form of protection from: construction cost over-runs;
11 financing interest rate increases; long term operation and
12 maintenance escalation; unexpected equipment failure and
13 damage; loss of unit efficiency; and failure to perform;

14 • GRU has a number of mechanisms to manage ongoing risks such
15 as the ability to: resell a portion of GREC's output at no less than
16 a fair market price; financially hedge against diesel and labor
17 costs in GREC's fuel contracts; and apply financial tools such as
18 prepayment contracts; and

19 • GREC meets the requirements for a Determination of Need
20 pursuant to Section 403.519, Florida Statutes.

21

22 **Q. Have you provided any exhibits to your supplemental testimony?**

23 A. Yes. My exhibits include the following:

1 A. There are no economic disadvantages to GREC if the benefits in terms of jobs
2 and the \$588 million (net present value in 2009 dollars) of increased regional
3 income as testified to by Mayor Hanrahan are included in the calculations. Even
4 if these benefits are excluded, the biggest risk for GRU ratepayers is to not
5 proceed with the project. GREC is not only the most cost-effective alternative
6 for GRU to obtain the renewable energy needed to meet the City's
7 environmental policy objectives, but it also provides substantial protection
8 against the following risk factors:

- 9 • Fuel supply, price volatility and cost;
- 10 • Reliability and production cost issues associated with an aging
11 generation fleet;
- 12 • Ownership cost over-runs associated with adding new capacity;
- 13 • Potential reductions in unit efficiency through time;
- 14 • Unplanned outages;
- 15 • Renewable portfolio standard (RPS) requirements; and
- 16 • Carbon regulation.

17
18 **Q. Has GRU performed an assessment to address risks?**

19 A. Yes. Two probabilistic risk analyses have been prepared in the form of
20 "Expected Value" analyses. I deliberately biased the first analysis presented
21 against the GREC project; this worst-case analysis indicates a benefit to cost
22 ratio of greater than 2 to 1. In fact, the model used for the risk analysis can be
23 exercised to demonstrate that all three of the following probabilities would have

1 “risk adjusted” value for each outcome as shown in Exhibit No. __ [EJR-5], and
2 Exhibit No. __ [EJR-7].

3

4 The fourth and final step was to sum the risk adjusted values to obtain the
5 overall Expected Value of the decision under analysis, in this case the decision
6 to construct GREC.

7

8 **Q. Why are the costs of meeting the City of Gainesville’s Kyoto Protocol**
9 **objectives as well as U.S. Environmental Protection Agency (EPA) Clean**
10 **Air Interstate Rule (CAIR) and Clean Air Mercury Rule (CAMR)**
11 **objectives included in Exhibit No. __ [EJR-4]?**

12 A. These costs are included in the table to illustrate how much more expensive it
13 would be to meet the City’s Kyoto Protocol policy objectives without GREC
14 and to demonstrate that regulatory changes and the risks associated with them
15 are a normal part of GRU’s business. They were not included in the Expected
16 Value analysis. Since biomass power is the lowest cost form of renewable
17 energy available to the City, failure to obtain a Determination of Need for
18 GREC would result in substantial additional costs to GRU’s customers if the
19 City is to meet its environmental policy goals.

20

21 **Q. What was the result of the biased Expected Value analysis performed?**

22 A. As shown in Exhibit No. __ [EJR-5], the biased analysis results in a benefit to
23 cost ratio of 2.2 to 1 for GREC with a risk adjusted benefit of \$69.3 million (net

1 present value in 2009 dollars), excluding any of the benefits from economic
2 development.

3

4 **Q. Please discuss the probabilities, biased against the GREC project, that were**
5 **assigned by GRU in the Expected Value analysis in Exhibit No. ___ [EJR-5].**

6 A. I have assigned a probability of 100 percent to not being able to resell power at
7 contract price and only being able to resell it at market prices as a concession to
8 facilitate discussion.

9

10 I have also assigned a very low probability (10 percent) that some form of
11 carbon regulation will be enacted. I viewed this as an unrealistically low
12 assessment given that the EPA has already made an endangerment finding and
13 has issued a notice of proposed rulemaking.

14

15 I have assigned a low (20 percent) probability to the enactment of an RPS. I
16 believe 20 percent is unrealistically low given that: (1) 35 states have already
17 adopted either a renewable portfolio standard (RPS) or renewable energy goals;
18 (2) legislation is currently proposed to this effect both nationally and for Florida;
19 (3) there is still an outstanding Executive Order for an RPS in Florida; and (4)
20 the most recent report from the Florida Department of Agriculture and
21 Consumer Affairs finds an RPS of 7 percent to be in fact beneficial to Florida's
22 economy as discussed by witness Schroeder (Exhibit No. ___RMS-9]).

23

- 1 • Carbon and RPS regulation (GRU owns all environmental
2 attributes produced by GREC).

3 The estimated benefits of the structure of the GREC LLC PPA are conservative
4 in that the analysis did not consider the heat rate guarantee, or liquidated
5 damages for failure to perform. Only reduced risks related to potential
6 construction, operating and maintenance (O&M), and financing cost over-runs
7 were included in the analysis. The probability I assigned to the sum of these
8 PPA benefits is half of what I otherwise would consider realistic.

9
10 **Q. What were the results of the Expected Value analysis performed using mid-
11 range probabilities?**

12 A. As shown in Exhibit No. ___ [EJR-7], the Expected Value analysis performed to
13 represent a mid-range estimate of probabilities resulted in a benefit to cost ratio
14 for GREC greater than 10 to 1, with an expected value of \$279 million (net
15 present value in 2009 dollars). This analysis excluded any of the benefits from
16 economic development.

17
18 **Q. Please briefly discuss the conclusions that you've drawn from the Expected
19 Value analysis.**

20 A. In addition to being the least cost way for GRU to meet the City's environmental
21 objectives while improving system reliability, GREC has substantial hedge
22 value. The results of the Expected Value analysis that used probabilities very
23 biased against GREC, indicate that it is hedge with a benefit to cost ratio

1 exceeding 2 to 1 with an expected value of \$69.3 million (net present value in
2 2009 dollars). Using mid-range probabilities, GREC has a benefit to cost ratio
3 of greater than 10 to 1 with an expected value of \$279 million (net present value
4 in 2009 dollars). The value at risk (approximately \$56 million, on a net present
5 value basis discounted to 2009) is quite small when compared to: a) GRU's
6 alternatives to obtain renewable energy; b) the investment in environmental
7 quality already made by the City; and c) the dramatically greater potential
8 benefits of proceeding with GREC.

9
10 The substantial benefits of increased employment and investment in the local
11 community associated with GREC (over \$588 million net present value in 2009
12 dollars, as discussed in Exhibit No. __ [PH-2] of the supplemental testimony of
13 Mayor Hanrahan) have not been addressed in the Expected Value analysis and
14 add further weight to the City's conclusions that proceeding with GREC is in the
15 best interest of GRU and our customers, and that not proceeding with GREC is a
16 bad option.

17
18 **Q. Please explain why the estimate of \$100 million (net present value)**
19 **downside risk mentioned during the February 9, 2010 Agenda Conference**
20 **differs from the estimate of \$56 million (net present value) previously**
21 **discussed employed in the Expected Value analysis.**

22 A. Public Service Commission Staff had requested that GRU model a scenario
23 where the capacity, energy, and environmental attributes of GREC had zero

1 resale value. Notwithstanding GRU's and GREC's belief that such a scenario
2 was highly improbable, the study was performed as requested by PSC Staff, and
3 resulted in a cost of \$100 million (net present value, in 2009 dollars). GRU has
4 since modeled the scenario with more realistic assumptions that, at a minimum,
5 the capacity and energy of the unit had market resale value even if no additional
6 value was extracted from other GRU generating units. This corrected analysis
7 resulted in the \$56 million (net present value, in 2009 dollars) value employed in
8 the Expected Value analysis. The resale value of GREC's output was modeled
9 as the same terms and conditions as the existing firm baseload PPA between
10 GRU and Progress Energy Florida ("PEF") (which is similar to the PPA
11 between Seminole Electric Cooperative and PEF), with no premium for GREC's
12 environmental attributes. This contract has a demand charge and an energy cost
13 as the average of designated PEF baseload units, which is effectively a contract
14 sale indexed to a basket of fuel costs (45 percent natural gas, 35 percent coal, 20
15 percent nuclear).

16

17 Exhibit No. __ [EJR-9] and Exhibit No. __ [EJR-10] from the Florida Municipal
18 Power Agency and the Orlando Utilities Commission affirm their interest and
19 support for the GREC project.

20

21 **Q. Does the estimated cost of \$56 million (net present value in 2010 dollars)**
22 **capture all of the benefits of GREC in the Florida wholesale power market?**

1 A. No. The form of the analysis used to obtain this value does not include the
2 value to be extracted from GRU's generation capacity that GREC will make
3 available. Due to its low incremental cost, GREC will economically dispatch
4 before all of GRU's units except for the 11 MW share of nuclear generation.
5 Accordingly some of GRU's other generating units would become available for
6 off-system sales. The analysis used to develop the \$56 million (net present
7 value in 2009 dollars) cost did not include any consideration of this value. As a
8 result, this scenario greatly penalized GREC's potential economic benefits as
9 well.

10
11 The supplemental testimony of witness Bachmeier includes the results of a
12 power market study performed by The Energy Authority (TEA) (Exhibit No. ___
13 [RDB-5]) that specifically addresses the value that GREC could add to GRU
14 from off-system sales. As testified by witness Bachmeier, TEA's modeling
15 resulted in a net benefit to GRU of \$168 million (net present value in 2009
16 dollars) from off-system sales made possible by adding 100 MW of biomass to
17 GRU's fleet. Applying one half of these results instead of the market proxy
18 modeled as PEF's contract structure reduces the cost of \$56 million (net present
19 value in 2009 dollars) discussed above by \$12 million (net present value in 2009
20 dollars) to a lower value of \$44 million (net present value in 2009 dollars).

21
22 The modeling performed by TEA involves large quantities of data processed by
23 a proprietary software system and the results are only presented here as evidence

1 that the cost of \$56 million (net present value in 2009 dollars) is potentially
 2 overestimated.

3

4 **Cost-Effectiveness Considerations for Municipal Utilities**

5 **Q. During the February 9, 2010 Agenda Conference, Commissioner Edgar**
 6 **asked how cost-effectiveness considerations might be different for a**
 7 **municipal utility than for an investor-owned utility. [TR P13, L19] Are**
 8 **there differences that should be considered?**

9 A. Yes. The differences, summarized below, are significant enough to lead to
 10 different conclusions based on the same data.

11

12 Cost – Effectiveness Differences Between
 13 Investor-Owned Utilities and GRU
 14

Perspective/Interest	Investor-Owned Utility	GRU
Fiduciary responsibility	Shareholders & banks	Customers & bond holders
Environmental externalities	No valuation	Value expressed by public
Public welfare	Electrical safety and reliability	Electrical safety and reliability, as well as public health, safety, and welfare
Consumer protection	External agency required	Elected board of directors

15

16 **Q. How can different conclusions based on the same data be drawn?**

17 A. As an example, consider that the tangible property taxes that will be paid by
 18 GREC to the City of Gainesville and Alachua County over the next 30 years are
 19 estimated to be \$7.2 million per year with a net present value of approximately
 20 \$99 million (2009 dollars). Although these are revenues extracted from GRU's
 21 customers, they are returned to the community to pay for schools, libraries,
 22 police, fire protection, emergency medical transportation, roads, and other

1 municipal and county services. Without this revenue, local taxes would have to
2 be raised to provide the level of service thus afforded. In the Public Service
3 Commission’s evaluation of GREC, this \$99 million (net present value) is
4 treated as a cost. From the perspective of the taxpayers of Alachua County, this
5 is seen as a “wash,” since without these taxes from GREC, other tax revenues
6 would have to be increased to provide the same level of service. If this \$99
7 million (net present value) were treated in a similar manner by the Public
8 Service Commission, there would not be a single scenario with a negative
9 outcome that would outweigh this benefit.

10

11 **Q. Commissioner Skop expressed his concern that the project has open risks**
12 **that have not been fully mitigated. [TR P37, L10-12] Does GRU have any**
13 **additional policies or resources to mitigate risks that you have not yet**
14 **discussed?**

15 A. Yes. GRU staff has developed a number of policies and has identified
16 techniques to mitigate risks that I have not addressed yet. These are summarized
17 as follows:

- 18 • The amount of the electric system general fund transfer has been
19 decoupled from GRU’s operating revenue requirements, which
20 include GREC payments.
- 21 • GRU has reviewed the project in detail with Moody’s Investment
22 Services and Standard and Poor’s bond rating agencies, who have
23 concurred that the GREC LLC PPA does not constitute a capital

Revised Supplemental Exhibit ___ EJR-4 of Edward J. Regan

Exhibit 4 Revised

Financial Costs Associated With Policy Objectives, Environmental Regulations,
Fuel Price Volatility and Adding new Generation Capacity

(\$2009 net present value)

Source of Risk	Potential Cost to GRU Customers	Note	Comment
Policy Goal to Meet Kyoto Targets	100% Solar- net of avoided fuel	\$1,396,584,223	a Rejected
	Solar @4 MW per year (net)	-\$105,358,630	b Adopted
	GREC- with CO2 reg.	\$384,898,000	c GREC in 2014
	GREC- No CO2 reg.	\$40,970,000	d GREC in 2014
	GREC-market price resale	-\$56,104,000	d GREC in 2014
Carbon Cap And Trade	No GREC	-\$1,068,020,000	e
	GREC- contract price resale	-\$683,122,000	
	Benefit	\$384,898,000	c GREC in 2014
Renewable Portfolio Standard	Solar Only	-\$45,060,262	f Natural gas additions
	Solar and GREC	\$0	With GREC in 2014
	Benefit	\$45,060,262	
Fossil Fuel 10% Higher	No GREC	-\$277,750,000	g
	GREC - market sale	-\$194,053,000	g GREC in 2014
	Benefit	\$83,697,000	
CAIR and CAMR	Market Purchases	very volatile	h rejected
	Control Equipment	-\$246,640,089	i Control equipment
Reliability of Existing Units	Outages	-\$115,954,317	j Do Nothing Until 2023
		-\$92,704,732	GREC in 2014
	Benefit	\$23,249,585	
Natural Gas Volatility	Hedging Pgm @.35 \$/mmBtu	-\$44,098,779	k Do Nothing
		-\$27,422,010	l GREC in 2014
	Benefit	\$16,676,768	
GREC Ownership Risks	Construction @10%	\$35,925,000	m Structure of PPA
	O&M @ 10%	\$25,345,954	m Structure of PPA
	Financing @ 50 BP	\$22,628,320	m Structure of PPA
	Benefits from PPA	\$83,899,274	Structure of PPA

a. 788,000 MWh/yr @\$230/MWh

b. Existing FIT Program

c. Scenario from Interrogatory 104 - benefit from avoided carbon costs

d. Scenario from Interrogatory 104

e. HB 2425 CO2 midrange impact

f. HB 2425 RPS impacts without GREC, 7% RPS @\$25/REC

g. Interrogatory 104 scenarios with adjusted fuel prices

h. Evaluation performed based on Nox and SO2 Market in 2005

i. Air emission control capital cost plus ongoing O&M

j. 21 days of DH 2 @ \$70/MWh replacement power thru 2032

k. Hedging target of .35\$/mmBtu, 190,000 mmBtu/day

l. Hedging target of .35\$/mmBtu, 95,000 mmBtu/day

m. Based on estimated taxable value of \$375,000,000

Exhibit 5 Revised
Biased Expected Value Risk Analysis for GREC
(2009 \$million net present value)

Risk	Cost or Benefit	Mid-Range Probabilities	Risk Adj. Cost or Benefit
Worst Case Market Resale	-\$56.1	100%	-\$56.1
Carbon Regulation	\$384.9	10%	\$38.5
Renewable Portfolio Standard	\$45.1	20%	\$9.0
Fossil Fuel Price Increase	\$83.7	33%	\$27.6
Gas Hedging Program	\$16.7	50%	\$8.4
Ownership Risk	\$83.9	50%	\$42.0
	Benefit to Cost Ratio		2.24
	Expected value		\$69.3

Exhibit 7 Revised
Mid-Range Expected Value Risk Analysis for GREC
(2009 \$million net present value)

Risk	Cost or Benefit	Mid-Range Probabilities	Risk Adj. Cost or Benefit
Worst Case Market Resale	-\$56.1	50%	-\$28.1
Carbon Regulation	\$384.9	50%	\$192.5
Renewable Portfolio Standard	\$45.1	50%	\$22.6
Fossil Fuel Price Increase	\$83.7	50%	\$41.9
Gas Hedging Program	\$16.7	50%	\$8.4
Ownership Risk	\$83.9	50%	\$42.0
	Benefit to Cost Ratio		10.95
	Expected value		\$279.1