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Public Service Commission

July 14, 2008

All RPS Rulemaking Participants

Re: Renewable Portfolio Standard (RPS) Data Collection

Dear Participant:

As discussed during the July 11, 2008 workshop on the development of a renewable portfolio standard (RPS), Section 366.92(3) directs the Commission to evaluate the cost and technical potential of renewable energy generation methods in Florida through the year 2020. Enclosed are RPS Data Collection forms developed by the Commission staff to obtain this information for analysis. Instructions for completing the forms are also enclosed.

Regulated electric utility participants should complete and return all data forms (RPS Data Forms 1-6) on all technologies listed. Other participants may choose which technologies, if any, they wish to provide information on.

Please complete and return the forms to Karen Webb at kwebb@psc.state.fl.us by 5:00 p.m. July 21, 2008. Should you have any questions about how to complete the forms, please contact Kathy Lewis (850-413-6594) or Phillip Ellis (850-413-6626). Thank you for your assistance.

Sincerely,

A handwritten signature in cursive script that reads "Mark Futrell".

Mark Futrell
Public Utilities Supervisor

Enclosures

RPS Data Collection

During the 2008 Regular Session, the Florida Legislature directed the Florida Public Service Commission (FPSC), in consultation with the Department of Environmental Protection (DEP) and the Florida Energy and Climate Commission (FECC), to adopt rules for a Renewable Portfolio Standard (RPS) requiring each investor-owned electric utility to supply renewable energy to its customers directly, by procuring, or through renewable energy credits. In developing this RPS rule, section 366.92(3)(a), Florida Statutes, directs the FPSC to evaluate the current and forecasted installed capacity in kilowatts (KW) and the levelized cost in cents per kilowatt-hour (KWH) for each renewable energy generation method through 2020.

The attached Renewable Energy Resource Data forms are designed to provide the current and forecasted capacity and cost information for Florida renewable energy resources required by the statute.

Renewable Energy Resource Data

RPS Data Form 1: Renewable Generating Technologies

The purpose of this form is to provide a list of renewable energy resource technologies currently available in Florida or expected to become available by the year 2020 for which capacity and cost data will be developed. Section 366.92(2)(a), F.S., defines "Florida renewable energy resources" as electrical, mechanical, or thermal energy produced from a method that uses one or more of the following fuels or energy sources: hydrogen, biomass, solar energy, geothermal energy, wind energy, ocean energy, waste heat, or hydroelectric power. Section 366.92(2)(c), F.S., clarifies that:

- (1) hydrogen must be produced from sources other than fossil fuels;
- (2) biomass includes combustible residues or gases from forest products manufacturing, agricultural and orchard crops, waste products from livestock and poultry operations and food processing, urban wood waste, municipal solid waste, municipal liquid waste treatment operations, and landfill gas; and
- (3) renewable energy includes the alternative energy resource, waste heat, from sulfuric acid manufacturing operations.

Provided on this form is an initial list of renewable technologies. If any additional renewable technologies are applicable that are not present on the list, please add them. Utilities are expected to provide data on all technologies listed, but other participants can choose which, if any, to provide data for. Other participants should change the list to show only those technologies they have elected to provide data for. For each technology listed, please provide the data requested on RPS Data Forms 3 through 6.

RPS Data Form 2: Conventional Generating Technologies

The purpose of this form is to list conventional generating technologies typically considered for construction. If any additional conventional technologies are applicable that are not present on

the list, please add them. Utilities are expected to provide data on all technologies listed, but other participants can choose which, if any, to provide data for. Other participants should change the list to show only those technologies they have elected to provide data for. For each technology listed, please provide the data requested on RPS Data Forms 3 through 6.

RPS Data Form 3: Commercial Availability Data

The purpose of this form is to provide information on the commercial availability of a representative generating unit for each of the renewable technologies listed on RPS Data Form 1 and each of the conventional technologies listed on RPS Data Form 2. Please provide the generating unit capacity rating, earliest commercial in-service date, permitting and construction lead time, life of each technology, and fuel type on a per unit basis.

RPS Data Form 4: Performance Characteristics Data

The purpose of this form is to provide information on the performance characteristics of a representative unit for each of the renewable technologies listed on RPS Data Form 1 and for each of the conventional technologies listed on RPS Data Form 2. Please provide each representative unit's contribution to summer and winter peak demand, average annual heat rate, equivalent availability factor, average annual generation, and resulting capacity factor.

RPS Data Form 5: Environmental Characteristics Data

The purpose of this form is to provide information on the environmental attributes of a representative generating unit for each of the renewable technologies listed on RPS Data Form 1 and each of the conventional technologies listed on RPS Data Form 2. Please provide information on the net emissions of carbon dioxide, sulfur dioxide, nitrogen oxide, mercury, and the quantity of water required for operation of the unit. It is understood that some of these values may be negative. For comparison purposes, this data should be provided on a unit/KWH basis.

RPS Data Form 6: Estimated Cost Data

The purpose of this form is to provide economic data for a representative generating unit for each of the renewable technologies listed on RPS Data Form 1 and each of the conventional technologies listed on RPS Data Form 2. Provide also the first year that the unit will be in commercial operation. Cost estimates should be levelized cost in cents per KWH, for the earliest commercial in-service date for the technology. If future maturation of a technology is expected to impact the costs associated with the generating unit, please provide a separate Form 6 to reflect these costs over time for each maturation period, using the first year of commercial operation of the matured technology.

RPS Data Form 1: Renewable Generating Technologies

Company Name: Decker Energy International

Applicable Utility Service Area: None

Renewable Technologies	
Solar	Photovoltaic (PV)
	Photoelectrochemical (H2)
	Thermal Electric Plant
Wind	Inland
	Coastal
	Offshore
Hydroelectric	Dam (Incremental)
	Diversion (Run of the River)
	Pumped Storage
Geothermal	Dry Steam
	Flash
	Binary
Ocean Energy	Wave Action
	Tidal Change
	Thermal Gradients (OTEC)
	Ocean Currents
Biomass - Direct Combustion	Plant Matter
	Animal Waste
	Vegetable Oil
Biomass - Conversion to Liquid	Biodiesel / Renewable Diesel
	Ethanol - Cellulosic
	Ethanol - Non-Cellulosic
	Pyrolysis
Biomass - Conversion to Gas	Anaerobic Digester
	Gasification
	Renewable Natural Gas
Landfill Gas	Methane Combustion
Municipal Solid Waste	Biogenic
	Non-Biogenic
Hydrogen, renewable	Fuel Cells
	Combustion
Waste Heat	Sulfuric Acid Manufacturing
Other	Other

RPS Data Form 2: Conventional Generating Technologies

Company Name: Decker Energy International

Applicable Utility Service Area: None

Conventional Technologies	
Natural Gas	Combustion Turbine
	Combined Cycle
Coal	Integrated Gasified Combined Cycle
	Supercritical Pulverized Coal
Nuclear	Steam Generation
Other	Other

RPS Data Form 3: Commercial Availability Data

Company Name: Decker Energy International

Energy Resource: Biomass Direct Combustion

Typical Unit Annual Capacity Rating (MW)	50 MW
Earliest Commercial In-Service Date (Year)	2011
Typical Construction & Permitting Time (Years)	3-4 years
Useful Life of Unit (Years)	40-50 years
Fuel Type	Wood waste

RPS Data Form 4: Performance Characteristics Data

Company Name: Decker Energy International**Energy Resource:** Biomass Direct Combustion

Contribution to Summer Peak Demand (MW)	50 MW
Contribution to Winter Peak Demand (MW)	50 MW
Average Annual Heat Rate (BTU/kWh)	12,000-14,000 BTU/kWh 13,500 BTU/kWh expected
Equivalent Availability Factor (%)	98% to 99% 98.5% expected
Average Annual Generation (MWh)	400,000-420,000 MWh 410,000 MWh expected
Resulting Capacity Factor (%)	92% to 96% 94% expected

Note: These values are based on actual operating experience of our biomass power plants, which have been in operation since 1990 and 1992.

RPS Data Form 5: Environmental Characteristics Data

Company Name: Decker Energy International

Energy Resource: Biomass Direct Combustion

Emission Rates	Carbon Dioxide (CO ₂) (lb/kWh)	-3 to -4 lb/kWh (see note) -3.74 lb/kWh expected
	Sulfur Dioxide (SO ₂) (lb/kWh)	2x10 ⁻⁴ to 3.4x10 ⁻⁴ lb/kWh
	Nitrogen Oxide (NO _x) (lb/kWh)	1x10 ⁻³ to 2x10 ⁻³ lb/kWh
	Mercury (Hg) (lb/kWh)	7x10 ⁻⁹ lb/kWh
	Water Usage (gal/kwh)	0.6-0.7 gal/kWh

Note: CO₂ emissions will be negative. Stack emissions are net zero because CO₂ emitted from combustion is captured by growing trees in the biogenic carbon cycle. In addition, the waste wood fuel if not used for fuel would decay, forming methane, which is 25 times as potent a greenhouse gas as CO₂. By preventing this methane production biomass plants have net negative GHG emissions.

Second note: Emissions and water usage data are based on the actual operating results of our biomass plants.

RPS Data Form 6: Estimated Cost Data

Company Name: Decker Energy International

Energy Resource: Biomass Direct Combustion

	First Year of Commercial Operation (Year)	2011-2012
Installed Capital	Cost ⁽¹⁾ (\$/kW)	\$3,000 to \$3,500 per kW \$3,300/kW expected
	Escalation Rate (%)	Included in above
Fixed O & M	Cost ⁽¹⁾ (\$/kW-year)	\$118/kW-yr
	Escalation Rate (%)	2% to 4% per annum
Variable O & M	Cost ⁽¹⁾ (\$/kWh)	\$0.0028/kWh
	Escalation Rate (%)	2% to 4% per annum
Energy	Cost ⁽¹⁾ (\$/kWh)	\$0.025/kWh to \$0.040/kWh \$0.030/kWh expected
	Escalation Rate (%)	3% to 4% per annum
	Levelized Cost ⁽²⁾ - Life of Unit (cents/kWh)	11-12 cents/kWh 11.5 cents/kWh expected

(1) Expressed in year dollars associated with the first year of commercial operations

(2) Cumulative Present Value Total Revenue Requirements levelized over the life of the unit expressed in year dollars associated with the first year of commercial operation