

RPS Data Form 1: Renewable Generating Technologies

Company Name: Solid Waste Authority of Palm Beach County (SWA)
Applicable Utility Service Area: Florida Power & Light Company

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 Refuse Derived Fuel	Biogenic Non-Biogenic Combination of both
Hydrogen, renewable	Fuel Cells
	Combustion
Waste Heat	Sulfuric Acid Manufacturing

RPS Data Form 2: Conventional Generating Technologies

Company Name: Not Applicable

Applicable Utility Service Area: Not Applicable

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:

Solid Waste Authority of Palm Beach County (SWA)

Energy Resource:

Municipal Solid Waste – Refuse Derived Fuel
Biogenic and Non-Biogenic – **Existing Facility**

Typical Unit Annual Capacity Rating (MW)	61.0 megawatt gross 47.5 megawatt net
Earliest Commercial In-Service Date (Year)	Existing facility that began operation in 1989. Under contract into 2010 for sale of firm Capacity and Energy
Typical Construction & Permitting Time (Years)	Not Applicable. Currently in existence
Useful Life of Unit (Years)	Typically 20 to 30 years. Existing facility in operation since 1989 and scheduled for refurbishment beginning in 2010 upon expiration of capacity and energy sales agreement.
Fuel Type	Municipal Solid Waste – Refuse Derived Fuel. Combination of Biogenic and Non-Biogenic components.

RPS Data Form 4: Performance Characteristics Data

Company Name:

Solid Waste Authority of Palm Beach County (SWA)

Energy Resource:

Municipal Solid Waste – Refuse Derived Fuel
 Biogenic and Non-Biogenic - **Existing Facility**

Contribution to Summer Peak Demand (MW)	50.0 megawatts net*
Contribution to Winter Peak Demand (MW)	50.0 megawatts net*
Average Annual Heat Rate (BTU/kWh)	In the range of 18,000 BTU/kWh*
Equivalent Availability Factor (%)	95%*
Average Annual Generation (MWH)	350,000 megawatthours*
Resulting Capacity Factor (%)	85%

* All data approximate

RPS Data Form 5: Environmental Characteristics Data

Company Name: Solid Waste Authority of Palm Beach County (SWA)
Energy Resource: Municipal Solid Waste – Refuse Derived Fuel
 Biogenic and Non-Biogenic - **Existing Facility**

Emission Rates (Based on 2007 Data)	Carbon Dioxide (CO ₂) (lb/kWh)	To be determined. (Carbon dioxide is not subject to permit limitations and is therefore not measured or recorded. However, On a "life cycle" basis, analyses indicate a net negative carbon dioxide impact on the order or -4.0 lb/kWh.)
	Sulfur Dioxide (SO ₂) (lb/kWh)	1.55 X 10 ⁽⁻³⁾
	Nitrogen Oxide (NO _x) (lb/kWh)	6.42 X 10 ⁽⁻³⁾
	Mercury (Hg) (lb/kWh)	8.67 X 10 ⁽⁻⁸⁾
	Water Usage (gal/kwh)	1.0

Derived from 2007 stack tests used for reporting to the Florida Department of Environmental Protection

RPS Data Form 6: Estimated Cost Data

Company Name: Solid Waste Authority of Palm Beach County (SWA)
 Municipal Solid Waste – Refuse Derived Fuel

Energy Resource: Biogenic and Non-Biogenic - **Existing Facility**⁽⁴⁾

	First Year of Commercial Operation (Year)	1989
Installed Capital	Cost ⁽¹⁾ (\$/kw)	In the range of \$4,000 ⁽³⁾
	Escalation Rate (%)	Not available at this time ⁽³⁾
	Cost ⁽¹⁾ (\$/kw-year)	Not available at this time ⁽³⁾
Fixed O & M	Escalation Rate (%)	Not available at this time ⁽³⁾
	Cost ⁽¹⁾ (\$/kwh)	Not available at this time ⁽³⁾
Variable O & M	Escalation Rate (%)	Not available at this time ⁽³⁾
	Cost ⁽¹⁾ (\$/kwh)	Not available at this time ⁽³⁾
Energy	Escalation Rate (%)	Not available at this time ⁽³⁾
	Cost ⁽¹⁾ (\$/kwh)	Not available at this time ⁽³⁾
	Levelized Cost ⁽²⁾ - Life of Unit (cents/kwh)	Not available at this time ⁽³⁾

(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

(3) The electric generation component of the facility is only one part of an integrated solid waste management system. As such it is difficult to determine which components and component costs should be included. The SWA would be pleased to discuss with Staff in an effort to provide necessary information.

(4) As noted elsewhere, this is an existing facility under contract for firm capacity and energy pursuant to an agreement expiring in 2010.

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	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 Mass Burn	Biogenic Non-Biogenic Combination of both
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Waste Heat	Sulfuric Acid Manufacturing

RPS Data Form 2: Conventional Generating Technologies

Company Name: Not Applicable

Applicable Utility Service Area: Not Applicable

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:

Solid Waste Authority of Palm Beach County (SWA)

Energy Resource:

Municipal Solid Waste
Biogenic and Non-Biogenic – **Potential Facility**

Typical Unit Annual Capacity Rating (MW)	95.0 megawatt gross 85.5 megawatt net
Earliest Commercial In-Service Date (Year)	2015
Typical Construction & Permitting Time (Years)	6 years
Useful Life of Unit (Years)	Typically 25 to 30 years.
Fuel Type	Municipal Solid Waste. Combination of Biogenic and Non-Biogenic components.

RPS Data Form 4: Performance Characteristics Data

Company Name: Solid Waste Authority of Palm Beach County (SWA)
Energy Resource: Municipal Solid Waste
 Biogenic and Non-Biogenic - **Potential Facility**

Contribution to Summer Peak Demand (MW)	85.5 megawatts net*
Contribution to Winter Peak Demand (MW)	85.5 megawatts net*
Average Annual Heat Rate (BTU/kWh)	In the range of 18,000 BTU/kWh*
Equivalent Availability Factor (%)	95%*
Average Annual Generation (MWH)	750,000 megawatthours*
Resulting Capacity Factor (%)	85%

* Currently in planning/design stages. All data approximate based on on-going design efforts.

RPS Data Form 5: Environmental Characteristics Data

Company Name: Solid Waste Authority of Palm Beach County (SWA)
Energy Resource: Municipal Solid Waste
 Biogenic and Non-Biogenic - **Potential Facility**

Emission Rates	Carbon Dioxide (CO ₂) (lb/kWh)	See Footnote Below*
	Sulfur Dioxide (SO ₂) (lb/kWh)	30 ppm dry volume**
	Nitrogen Oxide (NO _x) (lb/kWh)	150 ppm dry volume**
	Mercury (Hg) (lb/kWh)	50 micrograms per dry standard cubic meter**
	Water Usage (gal/kwh)	1.0 maximum

* On a "life cycle" basis, analyses indicate a net **negative carbon dioxide impact on the order or -4.0 lb/kWh**. A more limited non-life cycle "stack" analysis yields 2.6 lb/kWh.

** Units for the emission source limits are stated in micrograms/dry standard cubic meter and or ppm dry volume. Conversion to lb/kWh can be a tedious process and is based on volumetric stack flows and other factors and parameters. As the SWA is currently in the design stage of its plant, many of these factors and parameter are as yet unknown. The SWA would be willing to discuss with Staff their specific needs at this time to determine whether there may be an alternative way to meet these requirements, pending a final plant design.

RPS Data Form 6: Estimated Cost Data

Company Name: Solid Waste Authority of Palm Beach County (SWA)
 Municipal Solid Waste

Energy Resource: Biogenic and Non-Biogenic - **Potential Facility**⁽⁴⁾

	First Year of Commercial Operation (Year)	2015
Installed Capital	Cost ⁽¹⁾ (\$/kw)	In the range of \$8,000 to \$10,000 ⁽³⁾
	Escalation Rate (%)	Not available at this time ⁽³⁾
Fixed O & M	Cost ⁽¹⁾ (\$/kw-year)	Not available at this time ⁽³⁾
	Escalation Rate (%)	Not available at this time ⁽³⁾
Variable O & M	Cost ⁽¹⁾ (\$/kwh)	Not available at this time ⁽³⁾
	Escalation Rate (%)	Not available at this time ⁽³⁾
Energy	Cost ⁽¹⁾ (\$/kwh)	Not available at this time ⁽³⁾
	Escalation Rate (%)	Not available at this time ⁽³⁾
	Levelized Cost ⁽²⁾ - Life of Unit (cents/kwh)	Not available at this time ⁽³⁾

(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

(3) The electric generation component of the facility is only one part of an integrated solid waste management system. As such it is difficult to determine which components and component costs should be included. The SWA would be pleased to discuss with Staff in an effort to provide necessary information. Moreover, the cost of equipment and materials associate with generating plant have risen significantly recent years increasing the difficulty of projecting such costs.

(4) As noted elsewhere, this is an existing facility under contract for firm capacity and energy pursuant to an agreement expiring in 2010.