

**Renewable Energy Generation
Data Requirements of
Section 366.92,
Florida Statutes**

Florida Public Service Commission Workshop
on a Florida Renewable Portfolio Standard

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Legislative Direction

Section 366.92(3)(a), F.S., directs the Commission to evaluate for each renewable energy generation method through 2020:

1. Current and forecasted levelized costs in cents per kWh
2. Installed and forecasted capacity in kW

Requested Data

1. Renewable energy generation methods
2. Commercial availability
3. Performance characteristics
4. Environmental characteristics
5. Renewable energy costs

RENEWABLE ENERGY GENERATION METHODS

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**

Source: Florida Energy Commission

RENEWABLE ENERGY GENERATION METHODS

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

Source: Florida Energy Commission

RENEWABLE ENERGY GENERATION METHODS

Landfill Gas

Methane combustion

Municipal Solid Waste

**Biogenic
Non-biogenic**

Hydrogen, Renewable

**Fuel cells
Combustion**

Waste Heat

Sulfuric acid manufacturing

Other Sources

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Source: Florida Energy Commission

Commercial Availability

1. When is the first commercial in-service date?
2. What is the required lead time for permitting & construction?
3. What is the life cycle?

Performance Characteristics

1. Estimated maximum kilowatt capacity and kilowatt hour output
2. Availability to operate during the year
3. Contribution to summer and winter peaks
4. Fuel efficiency (Average annual heat rate)

Environmental Characteristics

**CO₂
Emissions**

**NO_x
Emissions**

**Mercury
Emissions**

**SO₂
Emissions**

**Water
Use**

Renewable Energy Costs

1. Total costs

Capital

Operation & maintenance

Fuel costs

2. Levelized costs in cents per kWh over the life of the method