

The Florida Senate
BILL ANALYSIS AND FISCAL IMPACT STATEMENT

(This document is based on the provisions contained in the legislation as of the latest date listed below.)

Prepared By: The Professional Staff of the Committee on Regulated Industries

BILL: SB 1338

INTRODUCER: Senator Diaz

SUBJECT: Floating Solar Facilities

DATE: January 31, 2022

REVISED: _____

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Sharon _____	Imhof _____	RI _____	Favorable
2.	_____	_____	CA _____	_____
3.	_____	_____	RC _____	_____

I. Summary:

SB 1338, creates s. 163.32051, F.S., relating to floating solar facilities (FSF). The bill defines “floating solar facility,” as a solar facility located on a wastewater treatment pond, abandoned limerock mine area, or other manmade water storage reservoir.

The bill requires FSFs to be a permitted use in appropriate land use categories in each local government’s comprehensive plan. Each local government must amend its development regulations to promote the expanded use of FSFs.

The bill authorizes counties to specify buffer and landscaping requirements, but such requirements may not exceed those for similar uses involving solar facility construction that is permitted in agricultural land use categories and zoning districts.

The bill prohibits FSF construction in the Lake Belt Area or an Everglades Agricultural Area reservoir project, if the local governments involved determine that there would be a negative impact on that area or project.

The bill requires the Office of Energy (OOE) within the Department of Agriculture and Consumer Services (DACS) to develop and submit recommendations to the Legislature by December 31, 2022, providing a regulatory framework for private and public sector entities that implement FSFs.

The bill is effective July 1, 2022.

II. Present Situation:

Renewable Energy

Florida law declares it to be the intent of the Legislature to:

- Promote the development of renewable energy;
- Protect the economic viability of Florida’s existing renewable energy facilities;
- Diversify the types of fuel used to generate electricity in Florida;
- Lessen Florida’s dependence on natural gas and fuel oil for the production of electricity;
- Minimize the volatility of fuel costs;
- Encourage investment within the state;
- Improve environmental conditions; and
- Minimize the costs of power supply to electric utilities and their customers.¹

Section 377.803, F.S., defines “renewable energy” to mean “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.”²

Florida Energy Efficiency and Conservation Act

Under the Florida Energy Efficiency and Conservation Act (FEECA),³ enacted in 1980, the Legislature directed the Public Service Commission⁴ (PSC) to develop and adopt programs for increasing energy efficiency and conservation, intending, in part, that solar energy and renewable energy sources be encouraged.⁵ The Legislature’s goal is to advance the conservation of expensive resources, such as petroleum fuels, in order to reduce and control electric consumption.⁶

Renewable Portfolio Standards and Goals

Renewable portfolio standards (RPS) are policies, either voluntary or formal, designed to increase the use of renewable energy sources for electricity generation.⁷ RPS policies require that a specified percentage of the electricity sold by utilities comes from renewable resources.⁸

¹ Section 366.92, F.S.

² See also s. 366.91, F.S.

³ Sections 366.80-366.85, F.S.

⁴ The PSC is an arm of the Legislature and its role is to ensure that Florida’s consumers receive utility services, including electric, natural gas, telephone, water, and wastewater, in a safe, reasonable, and reliable manner. To do so, the PSC exercises regulatory authority over public utilities. Section 350.001, F.S; Florida Public Service Commission, *The PSC’s Role*, <http://www.psc.state.fl.us> (last visited Jan. 28, 2022).

⁵ Section 366.81, F.S.

⁶ *Id.*

⁷ U.S. Energy Information Administration, *Renewable Energy Explained: Portfolio Standards*, [https://www.eia.gov/energyexplained/renewable-sources/portfolio-standards.php#:~:text=Renewable%20portfolio%20standards%20\(RPS\)%2C,energy%20sources%20for%20electricity%20generation.&text=However%2C%20most%20states%20have%20enacted%20their%20own%20RPS%20programs](https://www.eia.gov/energyexplained/renewable-sources/portfolio-standards.php#:~:text=Renewable%20portfolio%20standards%20(RPS)%2C,energy%20sources%20for%20electricity%20generation.&text=However%2C%20most%20states%20have%20enacted%20their%20own%20RPS%20programs) (last visited Jan. 28, 2022).

⁸ National Conference of State Legislatures, *State Renewable Portfolio Standards and Goals*, <https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx> (last visited Jan. 28, 2022).

Currently, the U.S. does not have a national RPS.⁹ However, most states have enacted their own RPS programs. In recent years, state governments nationwide have revised their RPS policies to require that a specified percent of electricity sold come from renewable sources.¹⁰ Twelve states, including Florida do not have either a formal renewable energy portfolio or a voluntary renewable energy portfolio.¹¹

Solar Electrical Generation

Under current law, a solar facility is a production facility for electric power which uses photovoltaic modules to convert solar energy to electricity that may be stored on site, delivered to a transmission system, and consumed primarily offsite.¹² It consists principally of photovoltaic modules, a mounting or racking system, power inverters, transformers, collection systems, battery systems, fire suppression equipment, and associated components.¹³ It may include accessory administration or maintenance buildings, electric transmission lines, substations, energy storage equipment, and related accessory uses and structures.¹⁴

Americans overwhelmingly favor renewable energy and the cost of solar power has declined rapidly in recent years.¹⁵ However, utility-scale solar generation requires larger quantities of land than traditional power plants.¹⁶ Solar generation requires ten times the land per unit of power produced than coal or natural gas plants.¹⁷ This can make siting solar facilities challenging and unpopular among residents in the area who do not want unsightly large scale projects near their homes.¹⁸

Floating Solar “Floatovoltaics”

Floating Solar, known colloquially as the portmanteau “floatovoltaics,” refers to a photovoltaic system mounted on linked floating arrays.¹⁹ Solar arrays may be installed across calm bodies of water such as stormwater retention ponds, industrial pools, water reservoirs, small lakes, and other natural and manmade bodies of water.²⁰ The solar panels are affixed to a buoyant structure, keeping the panels above the surface.²¹

⁹ U.S. EIA, *supra* note 7.

¹⁰ *Id.*

¹¹ *Id.*

¹² Section 163.3205(a), F.S.

¹³ Section 163.3205(b), F.S.

¹⁴ Section 163.3205(c), F.S.

¹⁵ Samantha Gross, *Renewables, land use, and local opposition in the United States*, Jan. 2020, <https://www.brookings.edu/research/renewables-land-use-and-local-opposition-in-the-united-states/> (last visited Jan. 28, 2022).

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ Florida Dept. of Agriculture and Consumer Services, *2022 Legislative Bill Analysis for SB 1338*, p. 1 (Jan. 10, 2022) (on file with the Senate Committee on Regulated Industries).

²⁰ Energy Sage, *Floating Solar: What You Need to Know*, <https://news.energysage.com/floating-solar-what-you-need-to-know/> (last visited Jan. 28, 2022).

²¹ *Id.*

This technology was first patented in 2008.²² The technology is predominantly installed in countries such as Japan, China, and the U.K.²³ However, researchers at Department of Energy’s National Renewable Energy Laboratory estimate that “installing floating solar photovoltaics on the more than 24,000 man-made U.S. reservoirs could generate about 10 percent of the nation’s annual electricity production.”²⁴

Floating Solar in Florida

In comparison to other states, Florida’s low-lying topography and abundant sunshine has the greatest potential for energy generation from floating solar.²⁵ Researchers have identified a subset of 172 manmade bodies of water capable of generating approximately 13.69 gigawatts of energy.²⁶

Recently, Florida has seen floating solar panels installed in Altamonte Springs, Miami-Dade County, and Orlando. The Altamonte Electric Authority, as its first project, installed a floating solar array consisting of 2,430 panels, generating one megawatt of electricity, making it the largest in Florida and the third largest in the United States.²⁷ Florida Power and Light Company partnered with Miami-Dade County to install a 402-panel floating solar installation near Miami International Airport.²⁸

In Orlando, a collection of 360 solar panels, arranged in the shape of the airport’s logo which can light up at night, was installed at Orlando International Airport in partnership with the Orlando Utilities Commission.²⁹ The FSF is capable of powering about 14 homes.³⁰ Additionally, the Orlando Utilities Commission began a pilot project in 2017, establishing a 31.5 kilowatt floating solar array at its headquarters.³¹ The Florida Solar Energy Center at the University of Central Florida is leading a nationwide team of researchers to study the effects of floating solar, with a \$1 million grant from the U.S. Department of Energy’s Solar Energy Technologies Office.³²

In 2021, the Solar Energy Technologies Office awarded a \$1.5 million grant for a project located in Tallahassee to develop a new racking system, which is easier to deploy and will advance

²² *Id.*

²³ *Id.*

²⁴ National Renewable Energy Laboratory, *News Release: NREL Details Great Potential for Floating PV Systems*, Dec. 27, 2018, <https://www.nrel.gov/news/press/2018/nrel-details-great-potential-for-floating-pv-systems.html> (last visited Jan. 28, 2022).

²⁵ DACS, *supra* note 19, at p. 2.

²⁶ *Id.*

²⁷ Altamonte Electric Utility, *The City of Altamonte Springs Invests In Renewable Energy to Power the Future*, p. 1, available at <http://www.altamonte.org/DocumentCenter/View/8800/AEU-Solar-Array-Info-Sheet> (last visited Jan. 28, 2022).

²⁸ Victoria Lewis, *FPL launches nation's first floating solar array at Miami International Airport*, WPTV (Jan. 29, 2020), <https://www.wptv.com/news/state/fpl-launches-nations-first-floating-solar-array-at-miami-international-airport> (last visited Jan. 28, 2022).

²⁹ Jessica Albert, Fox 35 Orlando, *Orlando International Airport Unveils Its 1st Floating Solar Array*, Dec. 10, 2020, <https://www.fox35orlando.com/news/mco-debuts-floating-solar-array> (last visited Jan. 28, 2022).

³⁰ *Id.*

³¹ DACS, *supra* note 19, at p. 2; Southern Alliance for Clean Energy, *Orlando/OUC “The Reliable One” Exhibiting Real Leadership on Renewable Energy*, Jan. 27, 2020, <https://cleanenergy.org/blog/orlando-ouc-the-reliable-one-exhibiting-real-leadership-on-renewable-energy/> (last visited Jan. 28, 2022).

³² Univ. of Central Florida, *UCF Leads National Team to Study Floating Solar*, Nov. 4, 2019, <https://www.ucf.edu/news/ucf-leads-national-team-to-study-floating-solar/> (last visited Jan. 28, 2022).

manufacturing for FSFs to improve U.S. competitiveness in the market.³³ The project will reduce the cost of floating solar, making it similar to or less than the cost of solar systems mounted on the ground.³⁴

Local Land Development and Comprehensive Plans

The Community Planning Act (act) directs the manner in which local governments create and adopt their local comprehensive plans.³⁵ The act prescribes certain principles, guidelines, standards, and strategies to allow for orderly and balanced future land development.³⁶ Section 163.3177, F.S., outlines the required and optional elements of a comprehensive plan and includes provisions which govern agricultural lands and practices.³⁷

Section 163.3205(3), F.S., requires solar facilities to be a permitted use in all agricultural land use categories in a local government's comprehensive plan and all agricultural zoning districts within an unincorporated area. Solar facilities must comply with setback and landscaped buffer area criteria for similar uses in the agricultural district.³⁸ A county may adopt ordinances specifying buffer and landscaping requirements for solar facilities.³⁹ Such requirements may not exceed those for similar uses involving construction of other facilities permitted in agricultural land use categories and zoning districts.⁴⁰

The Lake Belt and Everglades Agricultural Areas

The Lake Belt Area, located at the edge of the Miami-Dade County urban area, consists of 77.5 square miles of environmentally sensitive wetlands and lakes.⁴¹ This area offers the potential to act as a buffer to the Everglades from the negative impacts of nearby urban development.⁴² The Florida Legislature acknowledged the importance of this area and established the Lake Belt Mitigation Committee, which is tasked with developing a plan for the area.⁴³

The South Florida Water Management District and the U.S. Army Corps of Engineers are working on the Everglades Agricultural Area Reservoir Project.⁴⁴ The project aims to construct a treatment wetland that will clean water and a reservoir that will store excess water from Lake Okeechobee.⁴⁵

³³ U.S. Dept. Energy, *Solar Energy Technologies Office Fiscal Year 2021 Systems Integration and Hardware Incubator Funding Program*, <https://www.energy.gov/eere/solar/solar-energy-technologies-office-fiscal-year-2021-systems-integration-and-hardware> (last visited Jan. 28, 2022).

³⁴ *Id.*

³⁵ Section 163.3167(2), F.S.

³⁶ *Id.*

³⁷ Section 163.3162, F.S.

³⁸ Section 163.3205(3), F.S.

³⁹ Section 163.3205 (4), F.S.

⁴⁰ Section 163.3205(4), F.S.

⁴¹ South Florida Water Management District, *Lake Belt Mitigation Committee*, <https://www.sfwmd.gov/our-work/lake-belt-committee> (last visited Jan. 28, 2022).

⁴² *Id.*

⁴³ Section 373.41492, F.S.

⁴⁴ South Florida Water Management District, *Progress Continues on the Everglades Agricultural Area Reservoir Project*, <https://www.sfwmd.gov/our-work/cerp-project-planning/eaa-reservoir> (last visited Jan. 22, 2022).

⁴⁵ *Id.*

The Office of Energy

The Legislature created the OOE within the DACS to act as the energy policy and program development office for the State of Florida.⁴⁶ According to the DACS, the OOE evaluates energy-related studies, analyses and stakeholder input to recommend energy policies and programs that will move Florida toward a more diverse, stable, and reliable energy portfolio.⁴⁷ Moreover, the DACS is responsible for the administration of a number of programs relating to energy infrastructure, including the Renewable Energy and Energy-Efficient Technologies Grants Program,⁴⁸ the Energy Efficiency and Conservation Clearinghouse,⁴⁹ the Florida Green Government Grants Act,⁵⁰ and the Natural Gas Fuel Fleet Vehicle Rebate Program.⁵¹ Additionally the DACS has the statutory authority to allocate federal energy conservation bonds⁵² and to post information on its website relating to alternative fueling stations or electric vehicle charging stations that are available for public use.⁵³

III. Effect of Proposed Changes:

The bill states the following legislative findings:

- FSFs, “floatovoltaics,” can be effective tools in harnessing energy on manmade bodies of water;
- Siting FSFs on wastewater treatment ponds, abandoned limerock mine areas, and other water storage reservoirs is a beneficial use of those areas, whereas the panels cool off in the water, which can boost power production, and help decrease water lost to evaporation and the formation of harmful algal blooms; and
- Siting of FSFs should be encouraged by local governments as an appropriate use of water and land areas.

The bill creates s. 163.32051, F.S., relating to FSFs. The bill defines “floating solar facility,” as a solar facility located on a wastewater treatment pond, abandoned limerock mine area, or other manmade water storage reservoir.

The bill defines the term solar facility pursuant to s. 163.3205(2), which is a production facility for electric power using photovoltaic modules to convert solar energy to electricity that may be stored on site, delivered to a transmission system, and consumed primarily offsite. It consists

⁴⁶ Section 377.805, F.S.; Florida Dept. Agriculture and Consumer Services, *Office of Energy*, <https://www.fdacs.gov/Divisions-Offices/Energy> (last visited Jan. 28, 2022).

⁴⁷ *Id.*

⁴⁸ Section 377.804, F.S. (establishing the Renewable Energy and Energy-Efficient Technologies Grants Program “to provide renewable energy matching grants for demonstration, commercialization, research, and development projects relating to renewable energy technologies that significantly increase energy efficiency for vehicles and commercial buildings.”).

⁴⁹ Section 377.805, F.S., (requiring the development of a clearinghouse of “information regarding cost savings associated with various energy efficiency and conservation measures” in consultation with the PSC, the Florida Building Commission, and the Florida Energy Systems Consortium).

⁵⁰ Section 377.808, F.S., (directing the DACS to use appropriated funds to award grants that assist local governments and school districts with development and implementation of programs aimed at achieving green standards).

⁵¹ Section 377.810, F.S., (establishing the program within the DACS to help reduce transportation costs and encourage freight mobility investments contributing to the state’s economic growth).

⁵² Section 37.816, F.S.

⁵³ Section 377.815, F.S.

principally of photovoltaic modules, a mounting or racking system, power inverters, transformers, collection systems, battery systems, fire suppression equipment, and associated components. It may include accessory administration or maintenance buildings, electric transmission lines, substations, energy storage equipment, and related accessory uses and structures.

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The bill requires the OOE within the DACS to develop and submit recommendations to the Legislature by December 31, 2022, providing a regulatory framework for private and public sector entities that implement floating solar facilities.

The bill is effective July 1, 2022.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

D. State Tax or Fee Increases:

None.

E. Other Constitutional Issues:

None.

V. Fiscal Impact Statement:**A. Tax/Fee Issues:**

None.

B. Private Sector Impact:

The bill may result in a positive fiscal impact to the private sector by stimulating installation of FSFs and may result in an increase in jobs, profit, manufacturing, and services associated with FSFs.

C. Government Sector Impact:

The DACS does not anticipate that the bill will result in a fiscal impact and should be able to implement the reporting requirement with existing OOE staff.⁵⁴

VI. Technical Deficiencies:

None.

VII. Related Issues:

None.

VIII. Statutes Affected:

This bill creates 163.32051 of the Florida Statutes.

IX. Additional Information:**A. Committee Substitute – Statement of Changes:**

(Summarizing differences between the Committee Substitute and the prior version of the bill.)

None.

B. Amendments:

None.

This Senate Bill Analysis does not reflect the intent or official position of the bill's introducer or the Florida Senate.

⁵⁴ DACS, *supra* note 19, at p. 3.