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 1304
INTRODUCER:	Senator Bradley
SUBJECT:	Solar Facilities
DATE:	March 18, 2025
REVISED:	

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Schrader	Imhof	RI	**Pre-meeting**
2.			CA	
3.			FP	

I. Summary:

SB 1304 makes changes to Florida's solar energy generating facility law by:

- Repealing current law providing that solar facilities are a permitted use in all agricultural land use categories in a local government comprehensive plan and all agricultural zoning districts within an unincorporated area;
- Authorizing counties to adopt ordinances requiring decommissioning of solar facilities at the end of such facilities' end of useful life; and
- Authorizing counties to require financial assurance for such decommissioning.

The bill has an effective date of July 1, 2025.

II. Present Situation:

Local Government Authority

The Florida Constitution grants local governments broad home rule authority. Specifically, non-charter county governments may exercise those powers of self-government that are provided by general or special law.[1] Those counties operating under a county charter have all powers of local self-government not inconsistent with general law or special law approved by the vote of the electors.[2] Likewise, municipalities have those governmental, corporate, and proprietary powers that enable them to conduct municipal government, perform their functions and provide services, and exercise any power for municipal purposes, except as otherwise provided by law.[3]

[1] FLA. CONST. art. VIII, s. 1(f).
[2] FLA. CONST. art. VIII, s. 1(g).
[3] FLA. CONST. art. VIII, s. 2(b). *See also* s. 166.021(1), F.S.

Renewable Energy

Section 366.91, F.S., establishes a number of renewable policies for the state. The purpose of these policies, as established in statute, states that it is in the public interest to promote the development of renewable energy resources in this state.[4] Further, the statute is intended to encourage fuel diversification to meet Florida's growing dependency on natural gas for electric production, minimize the volatility of fuel costs, encourage investment within the state, improve environmental conditions, and make Florida a leader in new and innovative technologies.[5]

The section defines "renewable energy" to mean:

> [E]lectrical energy produced from a method that uses one or more of the following fuels or energy sources: hydrogen produced or resulting from sources other than fossil fuels, biomass, solar energy, geothermal energy, wind energy, ocean energy, and hydroelectric power. The term includes the alternative energy resource, waste heat, from sulfuric acid manufacturing operations and electrical energy produced using pipeline-quality synthetic gas produced from waste petroleum coke with carbon capture and sequestration.[6]

Solar Energy

Solar energy is a form of renewable energy by which power is produced from the sun. The sun emits solar radiation in the form of light. Solar energy technologies capture this emitted radiation and convert it into energy.[7] The two main types of solar energy technologies are:

- Photovoltaics (PV), which is the technology that is familiar to most people. PV is used in solar panels. When sunlight (i.e. radiation) hits a solar panel, the energy from that sunlight is absorbed by the PV cells in the panel. This absorbed energy creates electrical charges which move in response to an electrical field internal to the PV cell. These charges then allow electricity to flow from the panel.[8] Solar panels can be used in small scale (such as home rooftop solar) up to large utility-scale operations; and
- Concentrating solar-thermal power (CSP), which uses a system of mirrors to reflect and concentrate sunlight onto a receiver. This concentrated sunlight heats a high temperature fluid in the receiver to create thermal energy. This thermal energy can be used to spin a turbine (similar to how any coal or gas-fired power plant would work) or power an engine to create energy. The heat can also be used in industrial applications such as water desalination, enhanced oil recovery, food processing, chemical production, and mineral processing. CSP-based systems are generally used for utility scale operations. However, some single receptor and engine systems can be as small as 5 to 25 kilowatts and be used for distributed power applications.[9]

[4] Section 366.91(1), F.S
[5] *Id.*
[6] Section 366.91(2)(e), F.S.
[7] United States Office of Energy Efficiency and Reliability, *Solar Energy*, https://www.energy.gov/topics/solar-energy (last visited Mar. 13, 2025).
[8] United States Department of Energy, *How Does Solar Work*, https://www.energy.gov/eere/solar/how-does-solar-work (last visited Mar 13, 2025).
[9] United States Department of Energy, *Concentrating Solar-Thermal Power Basics*, https://www.energy.gov/eere/solar/concentrating-solar-thermal-power-basics.

Florida Energy Consumption and Generation

Florida is the third-largest energy consuming state; however, it uses less energy per capita than all but six other states. Florida is also the second-largest producer of electricity in the nation (behind Texas). Natural gas is, by far, the largest energy source in Florida, and has been since 2003 when it surpassed coal.[10] As of 2023, the energy sources, as a percentage of all energy sources in Florida, are as follows:

- Natural gas: 72.78 percent
- Nuclear: 11.19 percent
- Coal: 5.24 percent
- Renewables: 6.83 percent
- Other: 1.62 percent
- Firm Inter-Region Interchange: 1.92 percent
- Distillate (i.e. fuel oil/diesel fuel): 0.11 percent
- Residual: 0.00 percent
- Non-utility generators: less than 0.32 percent [11]

Approximately three-fourths of Florida's renewables generation is from solar. Of that solar generation, approximately four-fifths are from utility-scale operations. As of December 2024, Florida is the 3rd largest generator of solar energy in the United States (behind California and Texas).[12] Florida generates solar energy from both PV and CSP technologies—and Florida is one of only four states that has utility-scale CSP generation.[13]

The Florida Reliability Coordinating Council expects a nearly six-fold increase in solar as a percentage of Florida's total energy production (increasing from nearly 5.28 percent in 2023 to 30.33 percent in 2033).[14]

Solar Facility Development in Agricultural Areas

A utility-scale solar generation system requires larger quantities of land per unit of power produced than traditional power plants.[15] Solar generation facilities require "at least [ten] times

[10] United States Energy Information Administration, *Florida Profile Analysis*, Feb. 15, 2024, https://www.eia.gov/state/analysis.php?sid=FL#:~:text=Solar%20energy%20and%20biomass%20provide,generation%20 (last visited Mar. 14, 2025).
[11] Florida Reliability Coordinating Council, *2023 Regional Load & Resource Plan FRCC-MS-PL-586 Version: 1*, s-18, Jun. 4, 2024 (available at: https://www.floridapsc.com/pscfiles/website-files/PDF/Utilities/Electricgas/TenYearSitePlans/2024/FRCC_RLRP.pdf).
[12] United States Energy Information Administration, *Electricity Data Browser*, https://www.eia.gov/electricity/data/browser/#/topic/0?agg=1,2,0&fuel=004&geo=00fvvvvvvvvvo&sec=g&linechart=ELEC.GEN.SUN-CT-99.M&columnchart=ELEC.GEN.SUN-CT-99.M&map=ELEC.GEN.SUN-CT-99.M&freq=M&start=202411&end=202412&ctype=linechart&ltype=pin&rtype=s&maptype=0&rse=0&pin= (last visited Mar. 14, 2025).
[13] United States Energy Information Administration, *Florida Profile Analysis*, *supra* note 10.
[14] Florida Reliability Coordinating Council, *supra* note 11.
[15] Samantha Gross, *Renewables, land use, and local opposition in the United States*, Jan. 2020, (available at: https://www.brookings.edu/research/renewables-land-use-and-local-opposition-in-the-united-states/.

as much land per unit of power produced than coal or natural gas-fired power plants."[16] Solar facilities are generally located where resource availability (i.e. suitably large-enough land at reasonable prices) is highest, instead of where it is most convenient for people and infrastructure. As a result, these projects tend to end up in less industrially-developed areas—such as agricultural areas. Siting such facilities can be challenging and the facilities are sometimes viewed as unpopular by those who do not want these large projects near their homes.[17]

There has been, especially over the last several years, growing concern and sentiment against widespread development of solar facilities in agricultural areas. These concerns include:

- Aesthetic impacts.[18] Some are concerned that the solar facilities negatively impact the visual character of agricultural areas and negatively impact historical, eco, and agricultural tourism. This may have long-term impacts on the character of rural and agriculture areas and property values.[19]
- Impact on the agricultural industry by reducing the "prime" areas available for agricultural production.[20] This could have a negative impact on agricultural supply chain resiliency[21] and increase prices or competition for agricultural land.[22]
- Impacts on local agricultural-related industry.[23]
- Environmental impacts such as runoff of water and topsoil, erosion, flood control, damage from materials used in solar power facilities, dust, noise and light pollution, and loss of wildlife habitat.[24]
- Perception that rural areas bear greater burden, without benefit, to provide power for far-away more densely populated urban and suburban areas.[25]
- The complexity and cost of connecting potentially far-flung agricultural areas producing power to power-consuming urban and suburban areas. Extensive rural solar development requires significant upgrades to transmission infrastructure (which can be a very time-

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[16] *Id*.
[17] *Id*.
[18] Nichola Groom, REUTERS, *U.S. solar expansion stalled by rural land-use protests*, Apr. 7, 2022 (available at https://www.reuters.com/world/us/us-solar-expansion-stalled-by-rural-land-use-protests-2022-04-07/#:~:text=As%20solar%20developers%20propose%20new,farm%20culture%2C%20or%20wildlife%20habitat).
[19] *Id* and Inhwan Ko, *Rural opposition to landscape change from solar energy: Explaining the diffusion of setback restrictions on solar farms across South Korean counties*, ENERGY RESEARCH & SOCIAL SCIENCE, Volume 99, 2023, 103073 (available at https://www.sciencedirect.com/science/article/pii/S2214629623001330).
[20] Zachary A. Goldberg, *Solar energy development on farmland: Three prevalent perspectives of conflict, synergy and compromise in the United States*, ENERGY RESEARCH & SOCIAL SCIENCE, Vol. 101, pg. 4, 2023 (available at https://www.sciencedirect.com/science/article/pii/S2214629623002050).
[21] *Id* and Fred Pearce, *'Green Grab': Solar and Wind Boom Sparks Conflicts on Land Use*, YALE ENVIRONMENT 360, Feb. 20, 2025 (available at https://e360.yale.edu/features/solar-land-grabs-agrovoltaics).
[22] Tom Daniels and Hannah Wagner, KLEINMAN CENTER FOR ENERGY POLICY, *Regulating Utility-Scale Solar Projects on Agricultural Land*, Aug. 11, 2022 (available at https://kleinmanenergy.upenn.edu/research/publications/regulating-utility-scale-solar-projects-on-agricultural-land/#:~:text=Some%20people%2C%20however%2C%20oppose%20using,agricultural%20production%20will%20likely%20increase).
[23] *Id*.
[24] Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States, Solar Energy Development Environmental Considerations, 2012 (available at https://solareis.anl.gov/guide/environment/) and, Julia Simon, *In some fights over solar, it's environmentalist vs. environmentalist*, NATIONAL PUBLIC RADIO, Jun. 18, 2023.
[25] Krishna Ramanujan, Lack of local benefits fuels upstate opposition to solar farms, Cornell Chronicle, May 3, 2023 (available at https://news.cornell.edu/stories/2023/05/lack-local-benefits-fuels-upstate-opposition-solar-farms).

consuming process) and construction of new transmission lines can cause costly disruptions to agricultural operations.[26]

- Future decommissioning procedures, responsibilities, and costs.[27]

Development of Solar Facilities in Agricultural Areas in Florida

In 2021 the Florida Legislature passed SB 896 (ch. 2021-178, Laws of Florida). The bill, in part, specified that solar facilities are a permitted use in all agricultural land use categories in a local government comprehensive plan and all agricultural zoning districts within an unincorporated area.[28] It required such facilities to comply with the setback and landscaped buffer area criteria for other similar uses in the agricultural district.[29] It also authorized counties to adopt ordinances specifying buffer and landscaping requirements for such facilities if the requirements do not exceed those for similar uses involving the construction of other facilities that are permitted uses in agricultural land use categories and zoning districts.[30] The intended effect of this legislation was to increase solar development in Florida "in various locations throughout this state in order to ensure the availability of renewable energy production, which is critical to this state's energy and economic future." [31]

State Solar Decommissioning Requirements

Solar panels are generally designed to have a lifespan of approximately 25 to 35 years.[32] Solar panels will not fail, per se, after this time, however its energy generation will likely be significantly less than the manufacturer intended after the end of that "lifespan." Most solar panels have a yearly degradation in power production of approximately 0.5 percent;[33] thus, over the course of 25 to 35 years, the power production of a panel could be expected to drop to approximately 87.5 percent to 82.5 percent of its original generating capacity.

Most of the solar PV systems in the world are young—according to the United States Department of Energy, approximately 70 percent of solar systems in existence have been installed since 2017. Thus, while some solar equipment has entered the waste stream, significantly more systems will be reaching their end-of-life stage in the next few decades.[34]

At the end of the useful life of a solar facility, operators generally have three choices:

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[26] Betty Resnick and Arica Hamilton, *Solar Energy Expansion and its Impacts on Rural Communities*, AMERICAN FARM BUREAU FEDERATION, Aug. 8, 2024 (available at https://www.fb.org/market-intel/solar-energy-expansion-and-its-impacts-on-rural-communities).
[27] *Id.*
[28] Section 163.3205(3), F.S.
[29] *Id.*
[30] Section 163.3205(4), F.S.
[31] Section 163.3205(1), F.S.
[32] Berkeley Lab: Energy Markets and Policy, *New study finds increase in expected useful life and decrease in operating expenses over time for utility-scale PV*, https://emp.lbl.gov/news/new-study-finds-increase-expected, Jun. 2, 2020.
[33] U.S. Light Energy, *How Long Do Solar Farms Last?*, https://uslightenergy.com/how-long-do-solar-farms-last/#:~:text=What%20is%20the%20Typical%20Life,while%20reducing%20the%20degradation%20rate, Nov. 17, 2023.
[34] United States Department of Energy, *End-of-Life Management for Solar Photovoltaics*, https://www.energy.gov/eere/solar/end-life-management-solar-photovoltaics#:~:text=Read%20about%20SETO's%20PV%20End%2Dof%2DLife%20Action%20Plan%20.&text=Most%20PV%20systems%20are%20young,may%20produce%20power%20much%20longer (last visited Mar. 14, 2025).

- Refurbishing the plant by correcting any deficiencies;
- Repowering the plant with new PV modules and inverters; or
- Decommissioning the plant and removing all the hardware from the site.[35]

Abandoning in place is also a potential option, however, this is often unacceptable to landholders and, increasingly, regulators.[36]

Solar decommissioning is the process of deconstructing and removing facilities used for the generation of solar energy after a facility has reached the end of its useful life. Decommissioning generally involves the removal of a facility itself, along with ancillary equipment and related structures (such as solar panels, racking systems, posts, electric wiring, fencing, inverters and transformers, and access roads) from a site used for solar energy generation and returning the site to its state before being used for such generation.[37]

Presently, there is no consistent standard for solar facility decommissioning in the United States—as relatively few solar projects have reached end-of-life.[38] However, 33 states now have some type of solar decommissioning policy (Florida does not currently have such a policy).[39] This has increased significantly from 2016 when only 9 states had some sort of solar decommissioning policy.[40]

The North Carolina Clean Energy Technology Center (NCCETC) has identified 5 types of solar decommissioning statewide policy models:

- Local Option Only: States with no statewide policy, giving local governments the sole jurisdiction to implement solar decommissioning rules.
- Local Option w/State Model Template: States in which there is no statewide policy, giving local governments the sole jurisdiction to implement solar decommissioning rules, but are provided with a model template for requirements by the state government that localities can use.
- Statewide/Local Hybrid: States with a statewide decommissioning statute or rule that may give local governments the option to impose stricter requirements.
- Statewide: States in which statewide decommissioning statutes or rules are required.
- Statewide Optional: States with decommissioning statutes or rules that can be administered in lieu of local regulations.[41]

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[35] Taylor Curtis, et al., *Best Practices at the End of the Photovoltaic System Performance Period*, NATIONAL RENEWABLE ENERGY LABORATORY, pg. 1, Feb 2021 (available at https://www.nrel.gov/docs/fy21osti/78678.pdf).
[36] *Id.*
[37] North Carolina Clean Energy Technology Center, *The 50 States of Solar Decommissioning: 2024 Snapshot*, pg. 4, January 2025 (available at https://nccleantech.ncsu.edu/wp-content/uploads/2025/01/50-States-of-Solar-Decommissioning-2024-Snapshot.pdf).
[38] *Id.*
[39] *Id.*
[40] Emily Apadula, *The State of Solar Decommissioning Policy: Then and Now*, NORTH CAROLINA CLEAN ENERGY TECHNOLOGY CENTER, Oct. 29, 2023. https://www.dsireinsight.com/blog/2023/10/27/the-state-of-solar-decommissioning-policy-then-and-now.
[41] North Carolina Clean Energy Technology Center, *The 50 States of Solar Decommissioning: 2024 Snapshot*, *supra* note 37 at 6.

As of January 2025, the NCCETC has identified 20 states as having a statewide policy, 11 states having a statewide/local hybrid policy, 1 state having a statewide optional policy, and 1 state having an official model template that local governments may adopt.[42]

III. Effect of Proposed Changes:

Section 1 of the bill amends s. 163.3205, F.S., to revise the legislative intent for that section. It removes a statement that, in part, provides that the intent of the section is to encourage renewable solar electrical generation throughout the state in various locations. It adds a statement that it is the intent of the legislature that agricultural land used for a solar facility be returned to its original state and be viable for agricultural use at the end of the life of the solar facility.

The bill also creates a definition for "agricultural land" to mean:

- An area categorized as agricultural land in a local government comprehensive plan. Such categorization includes any agricultural land use category; or
- An agricultural zoning district within an unincorporated area.

It creates a definition for "decommissioned" to mean the removal of a solar facility and return of agricultural land that was used for such solar facility to an agriculturally useful condition similar to that which existed before construction of the solar facility. This would include the removal of above-surface facilities and infrastructure that do not serve a continuing purpose.

The bill requires that for any solar facility[43] over 2 megawatts that is constructed on agricultural land, counties may adopt an ordinance requiring that such solar facilities be properly decommissioned upon such facilities reaching the end of their useful life. The bill provides that a county may presume a facility has reached the end of its useful life if:

- The solar facility fails to produce power for a period of 12 months after construction of the solar facility has been completed. This 12-month period does not include a period in which the solar facility does not produce power due to a disaster or other event beyond the control of the facility owner; or
- The solar facility has been abandoned. A solar facility is considered abandoned if:
  - After commencement of the solar facility's construction but before completion, no significant construction of the facility occurs for a period of 24 months; or
  - After becoming nonoperational due to a disaster or other event beyond the control of the facility owner, no significant reconstruction of the solar facility occurs for a period of 12 months.

[42] *Id* at 11.

[43] Section 163.3205, F.S. defines "solar facility" to mean a production facility for electric power which: (a) uses photovoltaic modules to convert solar energy to electricity that may be stored on site, delivered to a transmission system, and consumed primarily offsite; (b) consists principally of photovoltaic modules, a mounting or racking system, power inverters, transformers, collection systems, battery systems, fire suppression equipment, and associated components, and (c) may include accessory administration or maintenance buildings, electric transmission lines, substations, energy storage equipment, and related accessory uses and structures.

These presumptions may be rebutted if the owner of the facility can provide the county with a plan, schedule, and adequate assurances for the continuing construction or operation of the solar facility.

Counties, under the bill, may also require financial assurance for the decommissioning of a solar facility in the form of a bond, an irrevocable letter of credit established pursuant to ch. 675, F.S., a guarantee by the solar facility owner's parent company, or another financial device deemed adequate by the county to cover the estimated cost of decommissioning the solar facility. The solar facility owner must provide the information necessary for the county to establish the estimated cost of such decommissioning. Counties may require an update of this cost estimate and assurance no less than every five years.

If a solar facility owner does not complete the decommissioning as required by county ordinance, counties may take action to complete the decommissioning (this would include taking action to require forfeiture of the financial assurance). Counties, however, must allow owners at least 12 months to commence decommissioning and 24 months to complete decommissioning before taking such a forfeiture action.

In addition to the decommissioning provisions, the bill also deletes the current law providing that solar facilities are a permitted use in all agricultural land use categories in a local government comprehensive plan and all agricultural zoning districts within an unincorporated area.

Section 2 amends s. 163.3208, F.S., to make a conforming amendment to delete a provision exempting solar facility substations from the electric substations for which local governments may adopt and enforce certain land development regulations.

Section 3 provides an effective date of July 1, 2025, for the bill.

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 will have an indeterminate financial impact on the cost of opening new solar facilities in the state, in part, depending on the number of local jurisdictions that put into place decommissioning requirements as authorized under the bill. It also may increase local regulatory approval costs for persons wishing to construct new solar facilities on agricultural land.

C. Government Sector Impact:

None.

VI. Technical Deficiencies:

None.

VII. Related Issues:

None.

VIII. Statutes Affected:

This bill substantially amends the following sections of the Florida Statutes: 163.3205 and 163.3208

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.