50 STATES OF SOLAR DECOMMISSIONING

2024 Snapshot

NC CLEAN ENERGY TECHNOLOGY CENTER | DSIRE insight

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The NC Clean Energy Technology Center is a UNC System-chartered Public Service Center administered by the College of Engineering at North Carolina State University. Its mission is to advance a sustainable energy economy by educating, demonstrating and providing support for clean energy technologies, practices, and policies. The Center provides service to the businesses and citizens of North Carolina and beyond relating to the development and adoption of clean energy technologies. Through its programs and activities, the Center envisions and seeks to promote the development and use of clean energy in ways that stimulate a sustainable economy while reducing dependence on foreign sources of energy and mitigating the environmental impacts of fossil fuel use.

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Introduction

Solar decommissioning is the process of deconstructing and removing solar energy facilities, ancillary equipment, and related structures (i.e. solar panels, racking systems, posts, electric wiring, fencing, inverters and transformers, access roads, etc.) from a site and restoring it to its previous state so that the land may be repurposed for future use. Decommissioning occurs after a solar project has reached the end of its lifespan – on average after 25 to 30 years of operating – and may require the project owner/developer to provide financial assurance for the estimated removal and site restoration costs. Financial assurance aims to provide the landowner of a solar facility site, among other stakeholders, with proof that a decommissioning plan can fully be carried out in line with projected costs.

According to the National Renewable Energy Laboratory, the amount of potential solar panel waste could total to around 3,000 football fields by 2030.[1] Although the relative size of the solar waste that will accumulate by 2030, 2040, and 2050 is still predicted to be smaller than other waste streams,[2] the size and number of solar projects planned for the coming years still signal the importance of solar project owners decommissioning solar facilities properly and to assure impacted landowners that site conditions will return to what they once were. As the pace of installations increases, more projects will reach the end of their useful lives at similar times, creating the necessity - and opportunity - for states and localities to have policies to handle decommissioning consistently and comprehensively. According to the Solar Energy Industries Association (SEIA) and Wood Mackenzie, about 40.5 GW of solar capacity is forecasted to have been added in 2024 alone,[3] an approximate 25% increase over 2023's record-breaking 32.4 GW of new solar generation.[4]

Currently, there is no consistent standard for solar decommissioning in the country, as relatively few projects have gone through the end-of-life process. Nevertheless, SEIA is in the process of developing a solar and energy storage equipment decommissioning standard, which will cover the removal, handling, logistics, contracts, land rehabilitation and other critical aspects of system removal, in addition to elements related to environmental and social responsibility.[5,6]

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[1] Hurdle, J. (2023). As Millions of Solar Panels Age Out, Recyclers Hope to Cash In. Retrieved from https://e360.yale.edu/features/solar-energy-panels-recycling#:~:text=The%20area%20covered%20by%20solar,regulatory%20analyst%20at%20the%20lab

[2] Mirletz, H., Hieslmair, H., Ovaitt, S., Curtis, T. L., & Barnes, T. M. (2023). Retrieved from https://www.nature.com/articles/s41567-023-02230-0

[3] SEIA & Wood Mackenzie. (2024). Solar Market Insight Report Q4 2024. Retrieved from https://seia.org/research-resources/solar-market-insight-report-q4-2024/

[4] Solar Energy Industries Association. (2024). Solar Installations Skyrocket in 2023 in Record-Setting First Full Year of Inflation Reduction Act. Retrieved from https://seia.org/news/solar-installations-skyrocket-2023-record-setting-first-full-year-inflation-reduction-act/#:~:text=For%20the%20first%20time%20in,a%2051%25%20increase%20from%202022

[5] Solar Energy Industries Association. (2023). SEIA Gets Greenlight to Develop 11 New Standards Governing Solar Installation, Training, Recycling, Consumer Protection and Supply Chain Traceability. Retrieved from https://seia.org/news/seia-gets-greenlight-develop-11-new-standards-governing-solar-installation-training-recycling/

[6] Solar Energy Industries Association. (2024). Standards Development. Retrieved from https://seia.org/initiatives/standards-development/

Additionally, as more solar developers start the process of developing large-scale solar projects, communities that will be impacted by development and operations may raise concerns about the end-of-life stage. A 2024 study[7] from the Lawrence Berkley National Laboratory on local stakeholder perspectives details this concern, and elaborates on the importance of improving community engagement, including during the decommissioning process.

As it relates to this issue of communication and community participation, several states are already deploying programmatic opportunities to connect silos and close the information gap as part of the U.S. Department of Energy's Renewable Energy Siting through Technical Engagement and Planning (R-STEP) program.[8]

This report provides readers and stakeholders at different stages of the solar project development cycle, with information on the types of policy models states are employing to guide solar decommissioning; updates on legislation that has passed or is still being considered related to solar decommissioning as of the end of 2024; gives a brief analysis of current state-by-state policy - specifically those offering state-based rules and statutes; and ends with a summary of notable trends and concluding thoughts.

[7] Bessette, D.L., Hoen, B., Rand, J., Hoesch, K., White, J., Mills, S.B., & Nilson, R. (2024). Good fences make good neighbors: Stakeholder perspectives on the local benefits and burdens of large-scale solar energy development in the United States. Energy Research & Social Science, 108, 103375. Retrieved from https://doi.org/10.1016/j.erss.2023.103375

[8] U.S. Department of Energy. (2023). U.S. Department of Energy Launches Program to expand state and local capacity for renewable energy planning, siting, and permitting | Department of Energy. Renewable Energy Siting through Technical Engagement and Planning (R-STEP). Retrieved from https://www.energy.gov/eere/articles/us-department-energy-launches-program-expand-state-and-local-capacity-renewable

Types of Statewide Policy Models

From state to state, various decommissioning policy models give certain jurisdictional powers to local governments and state agencies. The following model types are generally seen when examining the national solar decommissioning policy landscape:

- 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.

2024 SOLAR DECOMMISSIONING LEGISLATIVE UPDATES

As of the end of 2024, at least a dozen state legislatures have or are still considering bills related to administering decommissioning rules for solar facilities or mandating financial assurance to be part of existing rules. Some proposed legislation has been successfully enacted, while other bills have either been carried over to 2025 or have failed to pass, including the following:

- **Arizona**: In January 2024, the state legislature introduced H.B. 2133, which provides localities with grants to help decommission and dispose of solar panels. The bill failed to pass both legislative chambers and died at the end of the legislative session.[9]
- **California:** In February 2023, the state legislature introduced A.B. 1238[10], which adds consumer-owned solar photovoltaic modules to the definition of electronic devices covered by the Electronic Waste Recycling Act of 2003. On or after January 1, 2030, a consumer or a service provider serving the consumer, must pay a consumer-owned solar photovoltaic module recycling fee in an amount to be determined by CalRecycle.

  The bill also establishes the Non consumer-Owned Solar Photovoltaic Module Stewardship Program to be administered by CalRecycle. Photovoltaic modules not included within the definition of covered electronic devices in the Electronic Waste Recycling Act of 2003, as amended by this bill, are covered by the Stewardship Program. Through the Stewardship Program, persons responsible for the decommissioning of a covered product must establish and implement a stewardship program independently, or as part of a group of other stewards through membership in a stewardship organization.

  The steward or stewardship organization must file a Stewardship Plan with CalRecycle, which describes the entity that is responsible for managing covered products at each step of their life, and how covered products will be collected, reused, refurbished, or recycled. Recycling strategies in the Stewardship Plan must include at least one of the following elements: a manufacturer take-back program; a company's in-house recycling program; participation in a statewide or national recycling program; or identification and contracting with one or more legitimate recyclers to be used or contracted with for the recycling of the solar photovoltaic module. The bill also requires stewards and stewardship organizations to pay an administrative fee to be determined by CalRecycle, which is sufficient to cover its administration and enforcement costs. The bill was passed by the Assembly in May 2023.
- **Colorado:** In April 2024, the state's General Assembly introduced S.B. 212, which directs the Colorado Energy Office to submit a report by September 30, 2025, that must include an evaluation of decommissioning as it relates to renewable energy projects, including commercial solar projects defined as those that are ground installed, have at least 5 MW of total capacity, and use solar energy to generate electricity for the primary purpose of wholesale or retail sale and not primarily for on-site consumption. The bill was enacted on May 21, 2024.[11]

[9] AZ H.B. 2133
[10] CA A.B. 1238
[11] CO S.B. 212

- **Georgia:** In February 2023, the state's General Assembly introduced H.B. 300, which was substituted in February 2024 with different provisions that detail various new statewide solar decommissioning requirements for companies leasing property for solar farms. The requirements apply to new or renewed solar power facility agreements made on or after July 1, 2024, which must stipulate various decommissioning responsibilities that the operator/lessee must comply with once the lease has been terminated regarding removal of devices, ancillary equipment, foundation, cables, access roads, among other things. The bill also stipulates financial assurance requirements defined as a surety or performance bond alongside an updated cost estimate that must be submitted once very five years. Local governments are not allowed to impose financial assurance requirements on an operator/lessee that has entered into a facility agreement and conforms with the bill's assurance requirements. The bill was enacted on April 22, 2024.[12]
- **Illinois:** In January 2024, lawmakers introduced H.B. 4422 and S.B. 2892, which remove provisions from a current law, Public Act 102-1123, that prevent counties from adopting stricter construction, decommissioning, or deconstruction requirements than those specified in state law. The bills failed to progress through the legislative process and died due to the end of the legislative session in early January 2025.
- **Maryland:** In February 2024, the state's General Assembly introduced H.B. 1328 and S.B. 1082, which create the Utility-Scale Solar Design and Siting Advisory Commission. The Commission must provide the Governor with recommendations on decommissioning standards for solar energy generating stations by December 1, 2025. Both bills failed to pass a legislative chamber and died by the end of the legislative session.[14]
- **Missouri:** In January 2024, the state's General Assembly introduced H.B. 1854, which amends the state's net metering rules. The amendments include a provision that specifies that any prospective or existing customer-generator with a net-metered system or who provides a net-metering service must provide a construction proposal that includes a bond or other acceptable form of financial assurance to ensure proper maintenance and decommissioning of the qualifying system (those with a nameplate capacity of max 100 kW). The bill failed to pass either legislative chamber by the end of the legislative session.[15]
- **New Jersey:** In June 2024, the state legislature introduced S.B. 3399[16], which instructs the Department of Environmental Protection to adopt regulations to establish standards for the removal and recycling of solar and PV energy generation facilities and structures.
- **New York:** In December 2024, the state Senate introduced S.B. 9961[17], which allows any municipality to require any approval, consent, permit, certificate, contract, agreement, or other condition for decommissioning of a major renewable energy facility. The bill failed to make it through the legislature by the end of the legislative session in early January 2025.

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[12] GA H.B. 300
[13] IL H.B 4422 / S.B. 2892
[14] MD H.B. 1328 / S.B. 1082
[15] MO H.B. 1854
[16] NJ S.B. 3399
[17] NY S.B. 9961

- **Ohio**: In April 2024, Ohio lawmakers introduced S.B. 247[18], which creates a community solar program. The bill contains numerous provisions for the decommissioning of community solar projects. The bill makes community solar organizations, which operate the community solar facilities, responsible for decommissioning. Decommissioning of a community solar facility must commence within 18 months of the facility ceasing to generate electricity. Decommissioning includes removal of solar panels, site remediation, removal of all non-utility-owned equipment, graveled areas, and access roads, replacement of topsoil and reseeding of the cleared area. Not more than 20% of the total combined mass of the community solar facility may be sent to a landfill. The bill also requires community solar organizations to maintain financial assurances in the form of a bond to provide for the cost of decommissioning. The bill did not move forward due to a lack of further action by the close of the legislative session at the end of December 2024.
- **Rhode Island:** In March 2024, the state legislature introduced H.B. 7426[19] and S.B. 2808[20], which require developers of ground-mounted solar systems to submit a decommissioning plan, including a financial estimate, to be held on file by the municipality. Municipalities may require the developer to post a performance bond to cover the decommissioning cost. The Rhode Island Department of Environmental Management must provide technical assistance to municipalities and developers regarding the creation of plans. The bill passed the House and Senate in June 2024, and were signed by the Governor on June 26, 2024.

  South Carolina: On May 24, 2024, the state's General Assembly published the state register officially approving the final regulation drafted by the Department of Health and Environmental Control (separated into two departments, the Department of Public Health and the Department Environmental Services in July 2024), stipulating new statewide decommissioning requirements for large solar systems that occupy more than thirteen acres. The regulation includes a required decommissioning plan and a list of utilizable financial assurance mechanisms (i.e. cash, insurance, trust funds, surety bonds, letters of credit, certificates of deposit, and financial tests). Local governments are allowed to establish and keep stricter assurance ordinances than the statewide standard. The assurance requirements do not apply to systems owned and operated by local, state, or federal government entities. The law also impacts existing large solar energy systems operating before the law's effective date.[21]
- **Tennessee:** In January 2024, the state's General Assembly introduced H.B. 2496 and S.B. 2486, which lower the threshold for solar projects that must follow decommissioning requirements to 5 MW from 10 MW. H.B. 2496 was substituted by S.B. 2486 in early April 2024. S.B. 2486 was then enacted on April 11, 2024.[22]
- **Wisconsin:** In May 2023, the Wisconsin Legislature introduced A.B. 258, which creates a community solar program under which the subscriber organization -- which is the entity that owns and/or operates a solar facility with a capacity of at least 5 MW -- must maintain proof of financial responsibility ensuring the availability of funds for decommissioning the facility so that the costs are not borne by landowners, the state, city, or other local governments. The subscriber organization must establish a plan outlining time frames and estimated costs. The

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[18] OH S.B. 247
[19] RI H.B. 7426
[20] RI S.B. 2808
[21] SC Final Regulation Document No. 5191
[22] TN H.B. 2496 / S.B. 2486

bill failed to pass either legislative chamber and died in April 2024.[23]

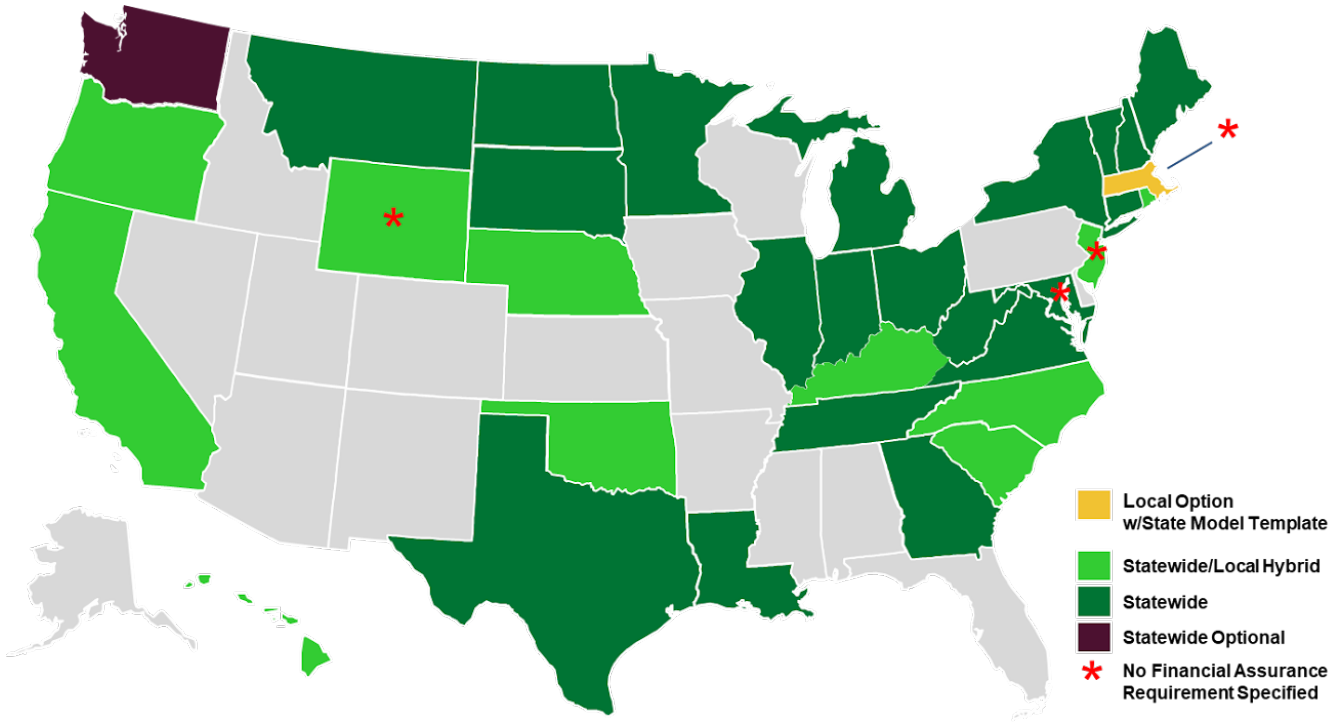
- **West Virginia:** In February 2024, the state's legislature introduced H.B. 5626, which establishes a community solar program under which a facility must adhere to best market practices for decommissioning facilities. The facilities in question must have at least three subscribers and are limited to a capacity of 5 MW or less or 10 MW or less if it is on a qualifying site -- specifically those that are made up of at least 1 contiguous parcel of land where the majority of the acreage utilized for a community solar facility has been: previously used in electric generation, industrial, manufacturing or mining operations, including, but not limited to, brownfields, closed landfills, former industrial and mining sites, and hazardous waste sites; will be utilized for the deployment of agrivoltaics; or to provide at least 51 percent of any electricity generated to low-income customers. The bill failed to pass both legislative chambers and died by the end of the legislative session.[24]

[23] WI A.B. 258
[24] WV H.B. 5626

Statewide Solar Decommissioning Policy Review

The current state decommissioning policies are listed below, with states ranked alphabetically. As of 2024, **20 states** have a statewide policy, **11 states** have a statewide/local hybrid policy, **1 state** has a statewide optional policy, and **1 state** provides an official model template that local governments may adopt. Each entry includes information on the corresponding state's total installed solar capacity (in MW) based on the Solar Energy Industry Association's Q3 2024 data and the corresponding state capacity ranking:[25]

Figure 1. Map of Solar Decommissioning Policies in the United States (as of December 2024)



[25] All installed solar capacity numbers and rankings for each state are taken from the following map: https://www.seia.org/states-map

California

Statewide / Local Hybrid	#1	49,777 MW
Policy Model	SEIA State Solar Capacity Ranking *Unchanged from Q4 2023*	Total Installed Solar Capacity

LAW: California Code of Regulations 14-3100 et seq.[26]

DECOMMISSIONING RULES

As a condition of a self-renewing Solar Use Easement,[27] a solar easement project owner must submit a decommissioning plan and financial assurance to the local city or county government with jurisdiction. The locality submits the application, decommissioning plan, and proof of financial assurance to the California Department of Conservation for review and final approval. Soil management and site restoration plans are required to be filed with the Department. Site restoration plans must include restoration to the same condition that existed at the time of approval for the solar use easement, including restoration procedures, equipment and structure removal, and any provisions for monitoring restoration progress at the site.

FINANCIAL ASSURANCE

May be one or a combination of the following forms of assurance, including performance bonds, surety bonds, irrevocable letters of credit, trust funds, a corporate guarantee, and/or other forms of financial securities approved by the local government, but project owners must review and resubmit every five years.

[26] California Code of Regulations 14-3100 et seq.
[27] California Government Code 51190(c)

Connecticut

Statewide	#23	1,632 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	-3 compared to Q4 2023	

LAW: General Statutes of Connecticut: 16-50k[28,29]

DECOMMISSIONING RULES

Apply to projects over 2 MW on prime farmland or prime forestland. Decommissioning and returning the land to productive agricultural use would include removing solar arrays; removing racking posts completely from the ground by pulling them out (not just cutting them at ground level); removing foundations for inverters and transformers; decompacting compacted soils; backfilling excavations with only native soils; re-vegetating (if vegetation disturbance is a result of decommissioning); removing access roads, drainage ditches, and detention ponds and backfilling using native soils to level the terrain (if agreed upon by the landowner); and testing soil and incorporating needed amendments to restore the soil for farming.[30,31]

According to draft guidance for siting solar on agricultural land, decommissioning plans must be filed with the Connecticut Siting Council as a part of the original application.[32] The state's Department of Energy and Environmental Protection must submit a final draft of the aforementioned guidance by May 2025.[33]

FINANCIAL ASSURANCE

Projects on prime farmland over 2 MW must furnish a bond to cover all costs of restoring the site to its former use when requesting a certificate of environmental compatibility at the beginning of project construction. Solar projects over 2 MW located on core forestland also require a certificate of environmental compatibility, but the statute's wording does not explicitly state that these projects would require a decommissioning/restoration bond. However, other materials, like a letter of support from the Council of Environmental Quality, imply that projects on core forestland must furnish a decommissioning/restoration bond.

[28] Connecticut Statutes § 16-50k
[29] Supplemental Connecticut Statutes § 16-50k
[30] Steps for Solar Development
[31] DRAFT Guidance for Siting Solar on Agricultural Land
[32] Ibid.
[33] Letter of Support from the Council on Environmental Quality (February 12, 2023)

Georgia

Statewide
Policy Model

#7
SEIA State Solar Capacity Ranking
Unchanged from Q4 2023

7,281 MW
Total Installed Solar Capacity

LAW: Code of Georgia 46-367 et seq.[34]

DECOMMISSIONING RULES

Apply State statute applies to new or renewed solar power facility agreements made on or after July 1, 2024, and requires companies leasing property for solar farms to establish decommissioning rules as part of the agreement. The agreement must stipulate that the operator/lessee of the facility is responsible for removing it from the landowner's property once the lease has been terminated, in addition to the following requirements: clear, clean, and removal of all solar energy devices and equipment, personal property, and any improvements used to support solar-related devices; for foundation used to support devices, transformers, or substations installed on the property the operator/lessee must clear, clean, and remove any foundation and cables to a depth of at least three feet below the surface grade of the land, and ensure that each hole is filled with a similar type of soil or predominant soil found on the property; must also remove overhead power or communication lines, access roads, and any rocks more than 12 inches in diameter that were excavated during the facility decommissioning process, and ensure that each hole is filled with similar or predominant soil found on the property; and that the surface is returned to its previous condition, including by reseeding pasture land with native grasses and legumes.

FINANCIAL ASSURANCE

State statute defines financial assurance as a surety or performance bond that renews automatically, is issued by a company listed on the U.S. Department of Treasury's List of Certified Companies, and has a strength rating of at least an "A." The assurance amount must be at least equal to the estimated cost of removing the facility and restoring the site to its previous condition, minus the salvage value of the facility, plus any portion of the facility's value that will be utilized to secure any outstanding debt. An updated cost estimate must be submitted no later than 20 years after the facility's commercial operation date, and at least once every five years after the operation date. Assurance must be provided by the time the facility is commercially operational. Local governments are not allowed to impose financial assurance requirements on an operator/lessee that has entered into a facility agreement and conforms to the assurance requirements stipulated above.

[34] Code of Georgia 46-367 et seq.

Hawaii

Statewide/Local Hybrid
Policy Model

#23
SEIA State Solar Capacity Ranking
-3 compared to Q4 2023

2,064 MW
Total Installed Solar Capacity

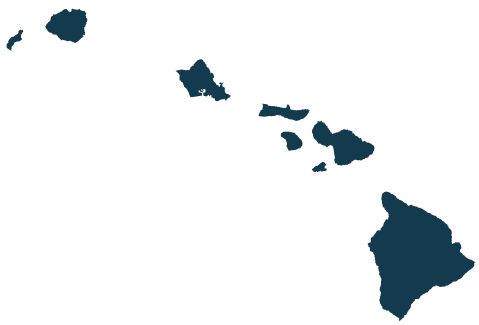
LAW: Hawaii Revised Statutes 205-4.5[35]

DECOMMISSIONING RULES

As a Special Use Permit condition, solar energy facilities located on agricultural lands with a soil productivity rating of B or C must comply with decommissioning requirements and submit proof of financial assurance to the local county planning commission with jurisdiction before beginning construction. Local county commissions must submit all special use permit applications to the Hawaii Land Use Commission. Solar energy facilities must be decommissioned at the owner's expense, under which all equipment related to the facility must be removed within 12 months of the conclusion of operation or useful life of the facility. Soil and land conditions must also be restored to essentially the same state as before facility development took place.

FINANCIAL ASSURANCE

Type unspecified, but must satisfy the county planning commission.



[35] Hawaii Revised Statutes 205-4.5

Illinois

Statewide	#14	3,512 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	+1 compared to Q4 2023	

LAW: 505 Illinois Compiled Statutes 147/ et seq.[36] & 55 Illinois Compiled Statutes 5/5-12020[37]

DECOMMISSIONING RULES

Solar facilities with a capacity over 500 kW located on agricultural land owned by a third party must file an Agricultural Impact Mitigation Agreement outlining construction and deconstruction plans with the state Department of Agriculture and submit a deconstruction plan to the county government with jurisdiction prior to beginning construction. County governments cannot require stricter decommissioning requirements for ground-installed commercial solar energy systems that utilize solar energy primarily for wholesale or retail sale purposes. Commercial systems do not include utility-scale energy facilities eligible to participate in an Illinois Power Agency-conducted procurement event. An exemption is given to commercial solar development within a certified enterprise zone under the Illinois Enterprise Zone Act that was classified as industrial by its zoning authority after January 26, 2023, and is located within four miles of the intersection of Interstate 88 and Interstate 39.[38] The requirements outlined in the Agricultural Impact Mitigation Agreement also hold true in case of abandonment, meaning when deconstruction has not been completed within 12 months after the facility reaches the end of its useful life, which is when the owner fails to pay the landowner any amount agreed upon in the Agreement for six consecutive months.

FINANCIAL ASSURANCE

Regarding the above-mentioned solar facilities with a capacity of over 500 kW, the project owner must submit assurance to the county government with jurisdiction before beginning construction. County governments cannot require stricter financial assurance requirements for ground-installed commercial solar energy systems that utilize solar energy primarily for wholesale or retail sale purposes. An exemption is given to commercial solar development within a certified enterprise zone under the Illinois Enterprise Zone Act, classified as industrial by its zoning authority after January 26, 2023, and located within four miles of the intersection of Interstate 88 and Interstate 39. The financial assurance requirements remain even in case of abandonment, as defined above.

[36] 505 Illinois Complied Statutes 147/ et seq.
[37] 55 Illinois Compiled Statutes 5/5-12020
[38] 20 Illinois Compiled Statutes 665/1 et seq.

Indiana

Statewide
Policy Model

#20
SEIA State Solar Capacity Ranking
-4 compared to Q4 2023

2,477 MW
Total Installed Solar Capacity

LAW: Indiana Code 8-1-42-1 et seq.[39]

DECOMMISSIONING RULES

The intent to decommission must be submitted to the local permit authority 60 days before the end of a commercial solar system's (those that are at least 10 MW in capacity and sell electricity at wholesale to off-site entities) service. Structures, foundations, roads, gravel areas, and cables shall be removed from the site to a depth of 36 inches below grade. The ground must be restored to a reasonably similar condition to that before the construction of the solar project.

FINANCIAL ASSURANCE

Surety bond, parent company guarantee, irrevocable letter of credit, or other proof deemed sufficient by the permit authority. Security shall be required in increments based on project life: 25% of total estimated decommissioning costs be the start date of the system's commercial operation. 50% of total estimated decommissioning costs by the fifth anniversary of system commercial operations and 100% by the tenth anniversary of operations. The estimated decommissioning cost shall be reevaluated by a licensed or registered engineer on the tenth anniversary of commercial operations and every five years thereafter.

[39] Indiana Code 8-1-42-1 et seq.

Kentucky

Statewide/Local Hybrid
Policy Model

#38
SEIA State Solar Capacity Ranking
-4 compared to Q4 2023

513 MW
Total Installed Solar Capacity

LAW: Kentucky Revised Statutes 278.700-706[40]

DECOMMISSIONING RULES

Local planning and zoning commissions can supersede state decommissioning and setback rules here. Merchant electric generating facilities (capacity 10 MW or above) must file a decommissioning plan as part of a completed application for certificate to construct to the office of the Public Service Commission, to describe how they will be decommissioned and dismantled at the end of their useful life. Decommissioning plans shall remove all above-ground facilities and underground components to a depth of three feet unless otherwise agreed to by the landowner. Plans shall return the land to a substantially similar state as it was found before construction. Interconnection components and other facilities shall be left in place for future use after decommissioning, unless requested by the landowner.

FINANCIAL ASSURANCE

A bond or similar financial security instrument is required. The amount of the bond shall be determined by an independent licensed engineer. It shall be either the calculated net present value of the cost of completing the decommissioning plan or the bond amount required by the county or municipal government with jurisdiction on the project site. Projects in multiple jurisdictions will use those authorities' highest bond security requirement. Suppose the facility is to be located in a locality that has not established a decommissioning bond or security obligation. In that case, the bond shall name the locality as a secondary beneficiary (with the locality's consent).

[40] Kentucky Revised Statutes 278.700-706

Louisiana

Statewide	#30	1,138 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	+9 compared to Q4 2023	

LAW: Louisiana Revised Statutes 30:1154[41]

DECOMMISSIONING RULES

The statute requires, at minimum, property leases for producing solar energy to include decommissioning requirements. The decommissioning plan must include plans for closing at the end of the facility's life, or in the event that a disaster makes facility operations impossible. The plan must be updated every five years, reviewed by the Department of Natural Resources, and approved by the Secretary of the Department of Natural Resources. No specific facility size is given in the statute; besides that, a facility includes one or more solar energy systems, which explicitly includes a battery storage or an energy storage facility, among other supportive systems.

FINANCIAL ASSURANCE

Construction permits must include a bond or other acceptable financial security in an amount described by the Secretary of the Department of Natural Resources for efficient site closure. Any bond or other financial instrument is allowed and must be payable to the Department of Natural Resources and may also be collected even from facilities certified by the Public Service Commission or New Orleans City Council (applicable to solar facilities sited in New Orleans) before August 3, 2022. The estimated amount or other specific bond/security requirements must be determined by reviewing the following: applicant assets, debts, and compliance history; condition and capacity of the facility; and the estimated cost of facility closure and site restoration, but only the salvage value and related infrastructure can be used to determine the estimated cost of restoration and closure if the materials are still available during decommissioning, while the facility owner is dealing with bankruptcy.

[41] Louisiana Revised Statutes 30:1154

Maine

Statewide	#28	1,415 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	Unchanged from Q4 2023	

LAW: Maine Revised Statutes 35-A §3491 et seq.[42]

DECOMMISSIONING RULES

Under state statute, the Department of Environmental Protection requires a decommissioning plan in all organized municipalities for solar projects that use 3 or more acres and start construction after September 30, 2021, or for such sized projects that undergo an ownership transfer after this date. Decommissioning must also include the removal of all solar components, including foundations and anchoring at depths of at least 24 inches or bedrock (whichever is less), among other structures and ancillary equipment to the same depths.

Suppose any developed portion is or is planned to be on farmland within five years before construction starts. In that case, the plan must provide for farmland restoration that allows the resumption of agricultural activities. Solar components on farmland at least 48 inches deep or to the depth of bedrock (whichever is less) must be removed. The decommissioning plan must be updated 15 years after approval of the initial plan and five years thereafter. The decommissioning plan must include the restoration of the grading and vegetation of utilized land and demonstrate current and future financial capacity to decommission properly. The Maine Land Use Planning Commission is responsible for enforcing decommissioning in the unorganized and deorganized areas of the state. If solar panels and other waste components of the solar project are recyclable, state decommissioning rules require such waste to be recycled by authorized facilities.

In case of a facility ownership transfer, the person transferring ownership will remain liable for implementing a decommissioning plan until the responsible environmental permitting entity approves transfer of the plan to the new facility owner/operator.

FINANCIAL ASSURANCE

Eligible assurance types include performance or surety bonds and irrevocable letters of credit.

[42] Maine Revised Statutes 35-A § 3491 et seq.

Maryland

Statewide	#21	2,355 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	-2 compared to Q4 2023	

LAW: Code of Maryland Regulations 27.01.14 et seq.[43]

DECOMMISSIONING RULES

For certain solar projects larger than 2 MW seeking a certificate of public convenience and necessity from the state's Public Service Commission, the Commission may require a decommissioning plan.[44,45]

Additionally, state statute directs local jurisdictions to require a decommissioning plan for solar projects in case the Commission does not, including for major and minor solar systems, meaning those that produce more than 2 MW of electricity or 2 MW or less, respectively – except for residential solar systems that generate electricity for use on the same residential lot. Solar systems explicitly include energy storage devices, except for where the device operates independently and does not support the solar system.

No additional information is given about the decommissioning plan.

FINANCIAL ASSURANCE

None specified in the rules, but the state's Public Service Commission often requires a mechanism for funding decommissioning.[46]

[43] Code of Maryland Regulations 27.01.14 et seq.
[44] Overview of Maryland's Utility-Scale Solar Review and Approval Process
[45] Maryland Certificate of Public Convenience and Necessity Consideration
[46] Office of People's Counsel Testimony Re: H.B. 908 (February 23, 2023)

Massachusetts

Local Option w/ State Model	#11	5,399 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	Unchanged from Q4 2023	

LAW: Massachusetts Model Zoning Bylaw for the Regulation of Solar Energy Systems[47]

DECOMMISSIONING RULES

The model bylaws recommend removal requirements for solar energy systems that cease operation, which includes systems whose purpose is to store and distribute solar energy for electricity generation. All physical components must be removed, solid and hazardous wastes must be disposed of according to applicable standards, and erosion from the site must be minimized through stabilization or re-vegetation. With agreement from the Site Plan Review Authority, owners/operators may leave landscaping and designated below-grade foundations in place to minimize vegetation disturbance or erosion.

According to this model, a large-scale ground-mounted solar energy is considered abandoned in the event that it fails to operate for more than a year without written consent by the Site Plan Review Authority. The local government under which the system site is located has the right to remove the abandoned system, if it has not been removed within 150 days of abandonment.

FINANCIAL ASSURANCE

Communities may require financial surety, but specific types are not listed.

[47] Massachusetts Executive Office of Energy and Environmental Affairs Model Zoning Bylaw (December 2014)

Michigan

Statewide	#27	1,548 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	-3 compared to Q4 2023	

LAW: Michigan Compiled Laws 324.36104e[48] & 460.1221 et seq.[49]

DECOMMISSIONING RULES

Solar projects with a capacity of at least 50 MW must provide a decommissioning plan consistent with the agreement between the landowner and the project owner/applicant. The property must be restored to pre-construction conditions, and the plan must include the removal of any above-surface infrastructure no longer serving a purpose. Solar projects include the various ancillary and supporting equipment on the site, explicitly including energy storage facilities. Site plans must be submitted to the Public Service Commission as well as the clerk of the affected local government.

Solar projects participating in the Farmland and Open Space Preservation Program must make sure that the utilized farmland is restored back to normal agricultural operations by the first growing season after the solar project has been completely removed.

FINANCIAL ASSURANCE

Solar projects with at least 50 MW capacity must submit assurance in the form of a bond, a parent company guarantee, or an irrevocable letter of credit. Cash is not allowed as a form of assurance. The assurance amount must not be less than the estimated decommissioning cost after deducting the salvage value of the project assets. The required financial assurance may be submitted in increments through the following payment schedule according to the time of commercial operation: at least 25% by the start of full commercial operation; at least 50% by the start of the fifth year of operation; 100% by the start of the tenth year of operation.

Solar projects participating in the Farmland and Open Space Preservation Program must submit a bond or irrevocable letter of credit payable to the state as assurance for reverting the land used back to agricultural use. Assurance must be adjusted every three years to ensure proper coverage of estimated decommissioning costs.

[48] Michigan Compiled Laws 324.36104e
[49] Michigan Compiled Laws 460.1221 et seq.

Minnesota

Statewide	#17	2,852 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	Unchanged from Q4 2023	

LAW: Minnesota Administrative Rules 7854.0500[50] & Minnesota Statutes 216E.01 - 216E.02[51]

DECOMMISSIONING RULES

Statutes and rules requiring decommissioning impact large electric power generation plants that operate at a capacity of at least 50 MW, with plants needing a permit from the Public Utilities Commission to operate. The permit application must include the following information regarding decommissioning and site restoration: anticipated project life; cost estimates, methods and schedule for updating cost estimates, and how decommissioning and restoration will take place.

FINANCIAL ASSURANCE

Required as part of the decommissioning requirements. No specifics on types of assurance.

Note: The decommissioning and financial assurance requirements stipulated above are statutorily designated for large wind projects. However, the Public Utilities Commission has cited these requirements for use towards the siting of a large solar project as well.[52]

[50] Minnesota Administrative Rules 7854.0500
[51] Minnesota Statutes 216E.01 - 216E.02
[52] Public Utilities Commission Docket No. E-6928/GS-14-515 Administrative Law

Montana

Statewide	#42	311 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	-4 compared to Q4 2023	

LAW: Administrative Rules of Montana 17.86.101 et seq.[53]

DECOMMISSIONING RULES

State administrative rules require solar generation facility owners -- those with a nameplate capacity of at least 2 MW and produces electricity not consumed on the premises of the solar facility or on immediately adjacent premises -- to submit decommissioning plans to the Department of Environmental Quality (DEQ), which must include the following: a cost estimate for decommissioning; as-built plans of the facility; agreements signed by the landowner and project owner that provide information on alternative reclamation strategies or the non-removal of equipment and buildings; a description of the chosen decommissioning process; removal of electrical and ancillary equipment; removal underground cables to a depth of 24 inches or deeper if necessary for reclamation purposes; removal of solar foundations to minimum depth of 26 inches below grade or an alternative if necessary; soil reclamation; repair of public roads and other publicly necessary infrastructure, including removal and grading of all access roads; salvage value estimates, among other cost estimates.

In case of abandonment – defined as when the facility generates at most 10% of the monthly max generation potential for 12 consecutive months–, decommissioning must start within 90 days after, unless given approval by the DEQ for an alternative decommissioning plan. Decommissioning must then be completed within two years after abandonment, or according to a reasonable schedule proposed by the owner and approved by the DEQ. The owner must notify the DEQ within 30 days after abandonment and 30 days after beginning onsite decommissioning work.

FINANCIAL ASSURANCE

Private bonding must be provided, including the terms and conditions of a lease agreement between the landowner and project owner incorporating said bonding. Decommissioning bonds, for facilities that started operating after 2006, must be submitted before the 15th year of operations is reached. Projects are exempt from bond submission if the private landowner owns at least 10% of the facility. The owner must submit either a surety or collateral bond.

[53] Administrative Rules of Montana 17.86.101 et seq.

Nebraska

Statewide/Local Hybrid	#46	207 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	+1 compared to Q4 2023	

LAW: Nebraska Revised Statute 66-911.01[54] & 70-1014.02[55]

DECOMMISSIONING RULES

No specifics are given on what needs to be included in the decommissioning plan or what kinds of solar facilities must have a plan, except that it depends on local requirements.

There are explicit requirements for privately developed solar energy generation facilities, which are those owned by at least one private electricity supplier and not wholly owned by any public entity. Such facilities must certify to the Nebraska Power Review Board that it will comply with decommissioning requirements adopted by a local government that has jurisdiction over privately developed facilities, and must submit a decommissioning plan under which the private supplier bears all costs.

FINANCIAL ASSURANCE

The type of financial assurance that is required depends on local decommissioning requirements.

Explicit rules for privately developed solar energy generation facilities indicate that the private electricity supplier owning the facility must post a security bond or other kind of assurance by the sixth year of the facility's commercial operation.

[54] Nebraska Revised Statute 66-911.01
[55] Nebraska Revised Statute 70-1014.02

New Hampshire

Statewide	#43	296 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	-2 compared to Q4 2023	

LAW: New Hampshire Revised Statutes Section 162-H:7[56] & New Hampshire Site Evaluation Committee Site 301.08[57]

DECOMMISSIONING RULES

As part of an application for a certificate for a solar facility (defined as those with a capacity of at least 30 MW, and explicitly include storage facilities with at least 30 MW of peak capacity) that must be filed with the chairperson of the site evaluation committee in the state, a description of the elements for a facility decommissioning plan is required. The plan must include a description of sufficient funding for implementation (not accounting for salvage value), that all transformers must be transported off-site, and the removal of underground infrastructure at depths less than four feet, while those at depths greater than four feet must be abandoned in place.

FINANCIAL ASSURANCE

Plans include details of the financial assurances, which can be an irrevocable standby letter of credit, a performance bond, a surety bond, or an unconditional payment guarantee executed by a parent company of the facility owner maintaining an investment-grade credit rating.

[56] New Hampshire Revised Statutes 162-H:7
[57] New Hampshire Site Evaluation Committee Site 301.08

New Jersey

Statewide/Local Hybrid	#10	5,479 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	Unchanged from Q4 2023	

LAW: New Jersey Administrative Code 2:76-2A.12[58]

DECOMMISSIONING RULES

Solar generation facilities located on commercial farmland subject to the Right to Farm Act must submit a conservation plan, which includes decommissioning, to the local soil conservation district with jurisdiction.

Solar generation projects located in the Pinelands Management area must submit a landscaping plan that includes decommissioning.[59]

FINANCIAL ASSURANCE

The state does not require financial assurance, but localities may impose financial assurance requirements for the approval of projects.

[58] New Jersey Administrative Code 2:76-2A.12
[59] New Jersey Administrative Code 7:50-5.36

New York

Statewide	#8	6,493 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	Unchanged from Q4 2023	

LAW: New York Codes, Rules and Regulations 19-900-1.2, 900-2.24, & 900-10.2[60]

DECOMMISSIONING RULES

As part of the final decommissioning and site restoration plan that must be submitted to the Office of Renewable Energy Siting in conjunction with other pre-construction compliance filings for facilities that cannot be completed or reach their end-of-life, a cost estimate is required for components removed four feet below grade in agricultural land and three feet below grade in non-agricultural land, as well as removal and restoration of any access road locations). The cost estimates must include a gross and net estimate, including projected salvage value and a 15% contingency cost based on the overall estimate. At a minimum, the plan must address environmental impacts, timeline, funding, future site usage, recycling, safety, and removal of hazardous conditions. Solar facilities of at least 25 MW must follow these requirements, including any co-located energy storage system.

FINANCIAL ASSURANCE

The final decommissioning and restoration plan requires proof of a letter of credit or other financial assurance approved by the Office of Renewable Energy Siting. A letter of credit must be provided a year after system operation, with updates every five years thereafter.

[60] New York Codes, Rules and Regulations 19-900-1.2, 900-2.24, 900-10.2

North Carolina

Statewide/Local Hybrid	#4	9,723 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	Unchanged from Q4 2023	

LAW: North Carolina General Statutes 130A-309.240[61]

DECOMMISSIONING RULES

Statutory rules[62] apply to new solar projects with a 2 MW or greater nameplate capacity, which explicitly includes ancillary battery storage facilities. Project owners must register with the Department of Environmental Quality (DEQ) and file decommissioning plans with the DEQ for approval. Decommissioning requires removal of all project components from the site after operations cease, reusing and recycling where practicable, and properly disposing of hazardous and non-hazardous waste. Decommissioning must restore the property to its condition before the utility-scale solar project is sited, as nearly as practicable, or an alternative condition agreed upon by the landowner and the project owner. Local governments and landowners may require more stringent terms in contracts. A decommissioning cost estimate must also be provided for the overall plan.

FINANCIAL ASSURANCE

Project owners may use insurance, financial tests, third-party guarantees by persons who can pass the financial test, guarantees by corporate parents who can pass the financial test, irrevocable letters of credit, trusts, surety bonds, or any other financial device, or any combination of the foregoing, shown to provide protection equivalent to the financial protection that would be provided by insurance if insurance were the only mechanism used. Financial assurance must be updated every five years.

[61] North Carolina General Statutes 130A-309.240

[62] The Department of Environmental Quality has been going through a rulemaking to establish financial assurance criteria and clarify decommissioning rules. Criteria and rules are expected to be finalized and adopted by August 2025, according to the Division of Waste Management, Utility-Scale Solar Management Program.

North Dakota

Statewide	#50	2 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	Unchanged from Q4 2023	

LAW: North Dakota Administrative Code 69-09-10[63]

DECOMMISSIONING RULES

Apply to commercial solar facilities with a total nameplate generating capacity of at least 500 kW. The decommissioning plan must include the anticipated life of the facility, a cost estimate (not including salvage offsets, and must be updated ten years after initial approval and then a continual update every five years after), cost estimate method, how the project will be decommissioned, expected impacts on natural resources, and a detailed financial assurance plan. The plan must be submitted to and approved by the Public Service Commission. The decommissioning period must start within 12 months after end-of-life or facility abandonment and be completed within 24 months after end-of-life or abandonment. Abandonment is presumed if no significant construction – meaning land clearing, excavation, or other activities that would impact the site environment – has occurred within a 24 month period between the start of construction and completion of the facility.

When actively decommissioning the facility, the following is required: removing all panel racking, support, fencing, cables, inverters, and other equipment; removing underground cables, pilings, anchors, foundations, buildings, and other ancillary equipment; restoring the site to the original topography before the facility was developed, with topsoil re-spread over disturbed areas at restored levels; as well as reseeding and restoring/grading topsoil of areas according to conservation recommendations. A waiver may be given to facilities with a capacity of max 5 MW.

FINANCIAL ASSURANCE

Assurance must be provided upon ten years of operation for sufficient decommissioning. It can be in the form of a performance bond, in combination or alone, as cash escrow (held by a federally insured financial institution), a surety bond, an irrevocable letter of credit, a guarantee, a parent guarantee, or another acceptable form of assurance.

The owner of the facility must provide assurance that is equal to 5% of the estimated cost of facility construction prior to actually constructing the facility, so that it may be used for decommissioning in case of abandonment prior to operations.

[63] North Dakota Administrative Code 69-09-10

Ohio

Statewide	#13	3,667 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	+9 compared to Q4 2023	

LAW: Ohio Revised Code 4906.21 et seq.[64]

DECOMMISSIONING RULES

At least 60 days prior to the commencement of construction of a large utility solar facility that has at least a 50 MW capacity, the applicant must submit a comprehensive decommissioning plan to the state's power siting board. The plan must include a schedule for decommissioning that cannot exceed 12 months from the end of commercial operations. The plan must include a full cost estimate of decommissioning the facility, proper disposal of all components, and restoration of the site to the pre-construction state. The cost estimate cannot include the salvage value for any facility materials.

FINANCIAL ASSURANCE

A performance bond must be posted prior to construction and updated every five years. Per state law, if the most recent cost estimate update associated with the bond is higher than the previous estimate, the bond must be increased proportionately, and if the most recent cost estimate update is lower, the bond must not be decreased proportionately.

[64] Ohio Revised Code 4906.21 et seq.

Oklahoma

Statewide/Local Hybrid
Policy Model

#40
SEIA State Solar Capacity Ranking
+4 compared to Q4 2023

376 MW
Total Installed Solar Capacity

LAW: Oklahoma Statutes 60-820.1[65]

DECOMMISSIONING RULES

The statute applies to commercial solar systems, but not those used for residential purposes only. Oklahoma does not provide specific guidelines regarding the size of a commercial solar system. However, under the state's net metering and Public Utility Regulatory Policies Act implementation rules, the maximum system size for a solar system is 300 kW.[66,67]

Moreover, no other specifics are given as to what needs to be included in illustrating decommissioning plans. The statute does not limit plan requirements but does require counties to file and record associated documentation.

FINANCIAL ASSURANCE

Security must be included in the application, but no other specifics are given as to what type.

[65] 60 Oklahoma Statutes Section 820.1
[66] Oklahoma Administrative Code § 165:40-9-1 et seq.
[67] Oklahoma Administrative Code § 165:35-29-1

Oregon

Statewide/Local Hybrid	#25	1,904 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	-4 compared to Q4 2023	

LAW: Oregon Revised Statutes 195.300[68] & 215.446[69]

DECOMMISSIONING RULES

The statute impacts solar generation facilities using more than 100 acres but not more than 160 acres of high-value farmland; more than 100 acres but not more than 1,280 acres of predominantly cultivated or predominantly made of classes I to IV soils; or is using more than 320 acres but not more than 1,920 acres located on other kinds of land. As part of the statute, to receive a solar facility permit, the applicant must demonstrate that the facility site can be restored to useful and nonhazardous conditions. Land use permit applications must be submitted to the governing body designated by the county in which the land is located.

FINANCIAL ASSURANCE

Applicants must obtain financial assurances that satisfy and secure site restoration. No specifics are given on what kind of assurance is required, but the county can specify the timeline for assurance.

[68] Oregon Revised Statutes 195.300
[69] Oregon Revised Statutes 215.446

Rhode Island

Statewide/Local Hybrid
Policy Model

#31
SEIA State Solar Capacity Ranking
Unchanged from Q4 2023

1,111 MW
Total Installed Solar Capacity

LAW: Rhode Island General Laws 42-98-3[70] & 42-98-8[71]; Rhode Island General Laws § 39-33-1 et seq.[72]

DECOMMISSIONING RULES

State law requires plans for decommissioning the facility at the end of its useful life, which must be submitted via application to the state's Energy Facility Siting Board. The requirements impact major energy facilities (including solar) with a gross capacity of at least 40 MW. No additional information is given via state law.

Separately, state law also requires the developer of any ground-mounted solar system to submit a decommissioning plan when they apply for necessary permits from the municipality in which the site is located. The decommissioning plan must include a cost estimate for decommissioning the site, and the state's Department of Environmental Management must provide technical assistance for municipalities and developers creating plans, and municipalities are not liable for implementing the plan. Decommissioning ground-mounted solar systems includes removal of all system components, including foundations, buildings, roads, cables, among other components, as well as stabilization and/or revegetation of a site to minimize erosion. This state law does not override existing local ordinances related to ground-mounted solar decommissioning or other renewable systems.

FINANCIAL ASSURANCE

State law regarding ground-mounted solar systems also allows municipalities to require developers to submit a performance bond to cover decommissioning costs.

[70] Rhode Island General Laws § 42-98-3
[71] Rhode Island General Laws § 42-98-8
[72] Rhode Island General Laws § 39-33-1 et seq.

South Carolina

Statewide/Local Hybrid	#19	2,589 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	-5 compared to Q4 2023	

LAW: SC Code of Regulations 61-107.20[73]

DECOMMISSIONING RULES

Regulations enforced by the Department of Environmental Control decommissioning requirements for large solar systems that occupy more than thirteen acres specify that those that intend to operate a new system must register with the Department – large solar systems explicitly include co-located storage systems. Registration information must include the projected date of decommissioning, the number of storage batteries, and a signed agreement between owner and landowner that conforms to post-decommissioning land restoration plans, among other things. Registrations must be updated every five years from the submission date or with a transfer of ownership until the system is decommissioned.

Five years before the system's projected end-of-life date, the registered person in question must submit a decommissioning plan for review and approval, which must be updated whenever facility changes deviate from the approved plan, including cost estimates. The plan must include a description of the system, total property acreage, the total acreage used for panels and ancillary equipment, the proposed number of panels for commissioning, and a list of all system components to be recycled or disposed of; a statement of the decommissioning processes objective (e.g. "to reasonably restore the site to its prior use or to a different use as approved by the owner and landowner"); the estimated time frame to complete the decommissioning process; a description of what tasks and equipment are required for the entire process; a cost estimate of recycling or disposal of system components, which may include a salvage plan to support the salvage value of ancillary and system equipment; and a financial assurance mechanism that will be utilized.

Decommissioning is considered official and complete after all solar system components are removed and disposed of properly or the site has been reasonably restored. If a system does not produce electricity for 12 continuous months, the registered owner/operator will have 12 months to decommission the solar system unless the Department approves otherwise.

The law also impacts existing large solar energy systems operating before the law's effective date (i.e. May 24, 2024), which have 180 days to comply with the stipulated requirements.

[73] South Carolina Code of Regulations 61-107.20

South Carolina

Statewide/Local Hybrid
Policy Model

#19
SEIA State Solar Capacity Ranking
-5 compared to Q4 2023

2,589 MW
Total Installed Solar Capacity

FINANCIAL ASSURANCE

After the Department of Environmental Control approves a system's decommissioning cost estimate, adjusted for inflation, a financial assurance mechanism paid to the Department must be submitted for final review and approval. Assurance mechanisms such as cash, insurance, trust funds, surety bonds, letters of credit, certificates of deposit, and financial tests are allowable. The system can satisfy assurance requirements by submitting proof of compliance from the local government in which the system is located. If the local government submittal is less than the Department-approved cost estimate, the Department will require a higher amount to meet assurance requirements.

Local governments are allowed to establish and keep assurance ordinances that are stricter than the statewide standard, and assurance may be updated to include the salvage value of system equipment. The system's owner and/or operator may lower the assurance amount if the approved cost estimate is higher than the maximum cost of decommissioning. The Department is allowed to take possession of an assurance mechanism if decommissioning, post-decommissioning restoration, or a renewal/provision of an alternative acceptable assurance is not completed. The assurance requirements do not apply to systems owned and operated by local, state, or federal government entities.

South Dakota

Statewide	#45	268 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	+1 compared to Q4 2023	

LAW: South Dakota Administrative Rules 20:10:22:33[74]

DECOMMISSIONING RULES

The statute requires a decommissioning plan to be submitted to the Public Utilities Commission that includes cost estimates and the site condition estimates of decommissioning for a solar energy facility, which is defined as a new facility, or facility expansion, capable of generating at least 100 MW in capacity of electricity. A facility expansion is defined as the addition of new solar panels capable of generating at least 25 MW or more of electricity, that are to be managed in common and integrated with existing panels, with the combined capacity of the existing and new solar panels being at least 100 MW.

FINANCIAL ASSURANCE

A bond, guarantee, insurance, or other instrument is required to provide funding for decommissioning. The Public Utilities Commission must consider the facility's size, location, and financial condition of the application before determining what specific type of funding is required; the same criteria must be used to determine the amount of funding.

[74] South Dakota Administrative Rules 20:10:22:33

Tennessee

Statewide	#33	897 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	-6 compared to Q4 2023	

LAW: Tennessee Code 66-9-207[75]

DECOMMISSIONING RULES

Solar power facilities with a capacity of 5 MW[76] or greater must enter into agreements that provide for the removal of all facility components located on a landowner's premises up to a depth of 36 inches. The land must be restored to its condition prior to the beginning of construction as near as reasonably possible.

Local governments may regulate solar facilities according to their zoning authority, but may not impose more stringent requirements than the state's. Solar power facilities explicitly include energy storage systems.

FINANCIAL ASSURANCE

A solar facility agreement must deliver financial assurance to the landowner in incremental amounts: at least 5% of the decommissioning cost by the commercial operation date, at least 50% of the cost on the tenth anniversary of system operations, and the full decommissioning cost by the fifteenth anniversary of system operations. Local government may not require financial assurance rules that are more stringent or additional to those required by the state. Acceptable financial assurance includes a surety bond, collateral bond, irrevocable letter of credit, parent guarantee, cash, cashier's check, certificate of deposit, or other approved negotiated instrument.

[85] Tennessee Code 66-9-207

[85] In 2024, the threshold for solar projects following decommissioning requirements was lowered from 10 MW to 5 MW.

Texas

Statewide	#2	37,713 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	Unchanged from Q4 2023	

LAW: Texas Utilities Code 302[77]

DECOMMISSIONING RULES

Each private (i.e. non-utility-owned) solar installation approved after September 1, 2021, must include an agreement between the landowner and a land lease grantee for the grantee to remove all panels, mounting and racking equipment, wiring, overhead wiring, transformers, substations, and footings from the site. All removals must go to a depth of three feet below the surface grade at the project site.

At the landowner's request, decommissioning agreements must provide for the removal of any road constructed for the solar project and any rock over twelve inches in diameter excavated during the decommissioning and removal process. Property must be returned to a tillable state and/or returned to as near a condition as possible to its state prior to construction of the solar facility, including re-seeding native grasses. Solar facilities explicitly include a battery or energy storage facility.

FINANCIAL ASSURANCE

Acceptable forms of financial assurance include a parent company guarantee with a minimum investment grade credit rating for the parent company issued by a major domestic credit rating agency, a letter of credit, a bond, or another form of financial assurance reasonably acceptable to the landowner. The amount of financial assurance must be at least equal to the estimated amount by which the cost of removing the solar power facilities from the landowner's property and restoring the property to as near as reasonably possible the condition of the property as of the date the agreement begins exceeds the salvage value of the solar power facilities, less any portion of the value of the solar power facilities pledged to secure outstanding debt. Project owners must submit an updated estimate on removal costs on or before the ten-year anniversary of the project and every five years thereafter. If a transfer of ownership of the solar facility is made by the operator or lessee, the financial security provided by that operator or lessee must remain until the date verification of financial security meeting the agreement requirements stipulated in statute is provided to the landowner.

[77] Texas Utilities Code § 302

Vermont

Statewide	#39	436 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	-2 compared to Q4 2023	

LAW: Vermont Statutes Annotated 30 § 248[78] & Vermont Public Utility Commission Rules 5.100[79] and 5.900[80]

DECOMMISSIONING RULES

The Public Utility Commission must adopt rules related to issuing certificates of public good for in-state facilities, including decommissioning plans. The requirements as laid out by the Commission include the following: submission of decommissioning cost estimates in present-day dollars (to include all labor, equipment, transportation, and associated disposal costs; restoration costs; primary agricultural soil reclamation costs; permitting costs associated with decommissioning; activity management, supervisions, and site safety costs; and any other costs); salvage value cannot be subtracted from cost estimates; estimate preparer information; renewal of the decommissioning plan every three years, among others. The decommissioning requirements are directed towards non-utility-owned facilities with a more than 500 kW plant capacity. The Commission may require the above requirements for utility-owned facilities or mandate alternative means. Non-utility-owned facilities that have a capacity of at least 150 kW and up to 500 kW must be removed with a guarantee of site restoration to make sure land conditions are rehabilitated to the greatest extent practicable.

Net-metered facilities with a capacity of at least 150 kW must also submit a decommissioning plan that must provide for removing and safely disposing of system components and restoring primary agricultural soils if they are within the system area limits.

Roof-mounted facilities and parking lot canopies are exempt from the rules.

FINANCIAL ASSURANCE

The Commission's requirements include financial assurance, specifically an irrevocable standby letter of credit equal to the estimated decommissioning and restoration costs. The letter of credit must be issued by an A-rated financial institution. The Commission provides a sample letter of credit based on what has previously been approved, and may approve other forms of financial security.

[78] Vermont Statutes Annotated 30 § 248
[79] Vermont Public Utility Commission Rule 5.100
[80] Vermont Public Utility Commission Rule 5.900
[81] Vermont Public Utility Commission Sample Letter of Credit

Virginia

Statewide	#9	6,009 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	Unchanged from Q4 2023	

LAW: Code of Virginia 15.2-2241.2[82]

DECOMMISSIONING RULES

Localities shall require a written agreement to decommission a solar energy facility as part of local approval processes or as a site plan approval condition. Decommissioning applies to solar energy equipment, facilities, and devices and requires reasonable property restoration, including soil stabilization and re-vegetation of the ground cover disturbed by the project.

FINANCIAL ASSURANCE

The owner, lessee, or project developer must provide assurance to the applicable locality in which the solar facility is located through either certified funds, cash escrow, a bond, letter of credit, or parent guarantee based upon the estimates of a licensed professional engineer in the state. The licensed professional must have experience preparing decommissioning estimates and be approved by the corresponding locality. Estimates may include the net salvage value of related equipment, facilities, or devices.

[82] Code of Virginia 15.2-2241.2

Washington

Statewide	#35	742 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	-1 compared to Q4 2023	

LAW: Washington Administrative Code 463-10[83], 463-28[84], & 463-72[85]

DECOMMISSIONING RULES

Washington permits a developer the option to apply for certification through the Energy Facility Site Evaluation Council (EFSEC)[86] instead of from their local authority. According to the EFSEC, applicants may receive certification for alternative energy electrical generation facilities, including solar facilities, of any size.[87] EFSEC approval would preempt local requirements. The application must be approved by the EFSEC and comply with the definitions of energy facilities listed in Washington Statutes. EFSEC applicants must provide a plan for site restoration and/or preservation for approval by the Council. Plans must provide processes and measures to restore or preserve the site to protect the environment and all segments of the public. Site restoration plans should parallel decommissioning plans, and must have enough detail to resolve the project's anticipated environmental, health, and safety issues. Upon completion of construction, the certificate holder for the facility must review the plan using current knowledge and information every five years (or when there is a change in project status) and report to the EFSEC.

FINANCIAL ASSURANCE

The site restoration plans submitted to the EFSEC must include a provision of evidence of insurance coverage and closure bonds or other financial instruments in an amount justified by the restoration plan. This applies to projects seeking EFSEC certification rather than local approval.

[83] Washington Administrative Code 463-10
[84] Washington Administrative Code 463-28
[85] Washington Administrative Code 463-72
[86] State of Washington - Energy Facility Site Evaluation Council
[87] State of Washington - Energy Facility Site Evaluation Council: Certification Process

West Virginia

Statewide	#47	202 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	+1 compared to Q4 2023	

LAW: West Virginia Code 60-11-1 et seq.[88]

DECOMMISSIONING RULES

Solar generation facility owners must prepare a decommissioning plan and submit it to the state's Department of Environmental Protection (DEP), unless exempt. Landowners and project owners may reach alternative agreements to the requirements below. Exempt facilities have a nameplate capacity under 1 MW or are operated by a public utility capable of demonstrating acceptable financial integrity and long-term viability to the Public Service Commission. Decommissioning plans shall include a commitment to remove all above-ground solar panels and towers and diagrams of all structural and electrical components and all disturbances associated with the facility. Plans must include descriptions of the manner of decommissioning and removal of all overhead electrical equipment, transformers, and structures associated with facility operations except those associated with interconnecting to the electric grid. All underground components must be removed to a depth of 24 inches, and foundations must be removed to a depth of 36 inches. Sites must be reclaimed to the approximate original surface topography, and reseeding or revegetation is required to prevent adverse hydrological effects.

In case of abandonment – defined as when the facility generates at most 10% of the monthly max generation potential for 12 consecutive months–, decommissioning must start within 90 days after, unless given approval by the DEP for an alternative decommissioning plan. Decommissioning must then be completed within two years after abandonment, or according to a reasonable schedule proposed by the owner and approved by the DEP. The owner

[88] West Virginia Code 60-11-1 et seq.

West Virginia

Statewide	#47	202 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	+1 compared to Q4 2023	

FINANCIAL ASSURANCE

Each facility must provide a decommissioning bond within one year of the initiation of commercial operation. The preliminary bond amount will be determined by the DEP in consultation with the facility owner. The bond amount must be based on the estimate cost of decommissioning and salvage value, estimated costs to the DEP that could arise from having to manage and maintain the facility in case the owner goes bankrupt or abounds the facility until full bond liquidation goes into effect, and estimated costs to the DEP for the need to bring personal and equipment to the facility for the purpose of performing site restoration and decommissioning work in case of facility abandonment by the owner, among other required cost information stipulated by the DEP.

Wyoming

Statewide/Local Hybrid	#41	312 MW
Policy Model	SEIA State Solar Capacity Ranking	Total Installed Solar Capacity
	+2 compared to Q4 2023	

LAW: Wyoming Statutes Annotated 18-5-501[89], 18-5-503[90], 35-12-102[91], 35-12-105[92]

DECOMMISSIONING RULES

State statute requires the submittal of a waste management plan to the state's board of county commissioners by the owner or developer of the facility in order to obtain permitting, with the waste management plan requiring a proposed disposal program for the eventual decommissioning of said facility. In order to obtain a permit, a facility must also provide a site and facility reclamation and decommissioning plan that includes the planned facility life and the various ways that the site and facility will be restored and decommissioned properly. The restoration and decommissioning plan must be updated every five years until the site has been completely restored and the facility deconstructed. The plan must comply with the state's Industrial Siting Council's requirements, which preempt local government rules regarding decommissioning and reclamation for certain facilities, including solar facilities with a capacity of more than 30 MW (including any facility expansions). The plan requirements also impact commercial solar facilities with a rated power capacity of more than 500 kW, which includes all land parcels that the project owner has the rights to construct a facility, including land used for battery storage. However, the provisions regarding a facility between 500 kW and 30 MW do not preempt local government regulations.

FINANCIAL ASSURANCE

Not required.

[89] Wyoming Statutes Annotated 18-5-501
[90] Wyoming Statutes Annotated 18-5-503
[91] Wyoming Statutes Annotated 35-12-102
[92] Wyoming Statutes Annotated 35-12-105

Trends & Concluding Thoughts

Several trends emerge after examining recent legislative changes and current decommissioning requirements. It is clear that more states are gradually administering decommissioning rules, some starting the rule process by initially studying solar decommissioning before introducing legislation (as in the case of the Carolinas[93,94]). In 2024, at least a dozen states had legislative actions related to solar decommissioning, with the Southeast showing the most activity for a second consecutive year, as Georgia and South Carolina each enacted laws mandating statewide decommissioning requirements and financial assurance, while Tennessee lowered its threshold for projects that must abide by its decommissioning requirements. Additionally, Colorado, which currently does not have a statewide policy, may soon follow the precedent exemplified by the Carolinas and enact decommissioning recommendations expected to be reported by the state's energy office later this year.

33 states have some variation of a statewide solar decommissioning policy. Generally, rules require the decommissioning process for solar projects to begin and be completed within one to two years of the facility ceasing commercial operations or being abandoned. Many rules explicitly require project owners to restore the site to its pre-construction state. Most statewide policies include some sort of provision requiring financial assurance with several options, usually a bond, insurance, or guarantee. Decommissioning rules typically apply to large-scale solar facilities, and a number of states, including Connecticut, Hawaii, Illinois, and Michigan, specifically mandate decommissioning plans and assurance for solar facilities built on agricultural or forest lands. While most states stipulate a capacity-based threshold for following decommissioning requirements, states like Maine and South Carolina specify acreage as a determining factor for projects that must follow such requirements.

At present, state policies explicitly mention greenfield-type development for these requirements. Brownfields, landfills, and recovered areas are not explicitly mentioned when reviewing state decommissioning policies; the application of rules to these site types is uncertain. Furthermore, due to the relative prevalence of existing and forthcoming greenfield solar projects, the policy focus for regulators and policymakers is oftentimes directed to such projects, rather than to brownfields and reclaimed minefield projects, amongst others. According to the Environmental Protection Agency (EPA), as of December 2024, there were about 536 solar projects on brownfields and reclaimed mine lands in the United States, an increase of more than 40 projects compared to 2023.

Additionally, several states (e.g. Vermont, North Dakota, New Hampshire, Ohio, etc.) do not allow the salvage value of assets to be included and/or subtracted from decommissioning cost estimates. As for the inclusion of co-located energy and/or battery storage systems, a plurality of states explicitly include such systems under their definition of a solar power facility, while some may refer to storage implicitly in the context of supporting or ancillary equipment. Maine, for example, has rules for co- and standalone battery storage systems.

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[93] Final Report on the Activities Conducted to Establish a Regulatory Program for the Management and Decommissioning of Renewable Energy Equipment (January 1, 2021)

[94] South Carolina Department of Health and Environmental Control Solar Panel Stakeholder Group

Trends & Concluding Thoughts

As solar power continues to grow, particularly at the utility-scale, states and localities can set processes and expectations for project developers/owners to follow regarding how to treat their facilities at the end of their functional life. Restoration of lands used for solar, especially on productive agricultural lands, is a cross-cutting concern. Developing clear rules for how to treat a site or allowing negotiated restoration with localities and landowners can often create the best results.

Financial assurance is seen as a key tool in making sure that decommissioning plans are implemented. A phased approach, where percentages of the financial assurance for estimated decommissioning cost are due at different periods over the first five to 10 years of a project's operation, can be less onerous to facility owners while still offering security to landowners for restoration – as mandated in Michigan and Indiana already. Additionally, periodic revisits over the functional life of projects can ensure that financial security remains sufficient until the decommissioning process begins. States could also require a certain percentage of assurance to be submitted prior to project construction so that it may specifically be used for decommissioning in case of project abandonment prior to operations, much like in North Dakota, to provide additional protection for affected stakeholders in such rare circumstances. Even allowing state and local oversight authorities/agencies to remove and sell abandoned project assets, may provide an incentive to lessen the likelihood of abandonment; as well as providing clear conditions for owners that wish to transfer project ownership, and thus decommissioning responsibilities, to another authorized party, in response to contractual difficulties.

Moreover, to reduce the possible push back and animosity towards future solar projects, regularly requiring solar project developers/owners to notify nearby communities of any decommissioning policies and processes that they are required to follow may help build critical and transparent communication channels between communities, local governments, landowners, and project developers/owners early in the process before decommissioning takes place. Similarly to what is provided in Rhode Island, responsible state agencies and authorities may also consider providing technical assistance to local governments and project developers/owners going through the planning and execution phases of decommissioning.

Lastly, providing accessible educational resources, and connecting stakeholders to various programs, including R-STEP, may help bridge silos and close the information gap that may be present throughout the solar project development process.