

SOLAR DECOMMISSIONING IN THE CAROLINAS

Solar decommissioning is the process of deconstructing and removing solar energy projects, supporting equipment, and related structures (including 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. As part of the decommissioning process, financial assurance provides landowners and stakeholders with assurance that decommissioning can be carried out thoroughly. North and South Carolina each have statewide decommissioning regulations that allow local governments to enact stricter requirements.

Key Takeaways:

- North Carolina solar projects with a 2 megawatt (MW) or greater capacity are required to file decommissioning plans with the Department of Environmental Quality.¹
- South Carolina solar projects that occupy more than 13 acres must provide decommissioning registration information to the Department of Environmental Services.²
- North and South Carolina both require financial assurance for applicable solar energy projects.



Why is solar decommissioning and financial assurance important?

The National Renewable Energy Laboratory estimates that potential solar photovoltaic (PV) waste could accumulate to the equivalent of about 3,000 football fields by 2030.³ Although solar PV waste is relatively small compared to other waste streams,⁴ the scale and number of planned solar projects highlight the importance of proper decommissioning.

As more solar developers begin developing large-scale solar projects, communities that will be impacted by development and operations may raise concerns about the end-of-life stage. As solar installations increase, more projects will reach the end of their useful lives at similar times, creating the necessity—and opportunity—for states and local governments to adopt policies for consistent, comprehensive decommissioning.

Another facet of decommissioning is financial assurance, which aims to provide the landowner of a solar project site, among other stakeholders, with assurance that a decommissioning plan can be carried out thoroughly within the estimated removal costs. Financial assurance is seen as a key tool to ensure that decommissioning plans are implemented and that local governments and neighboring communities do not bear the costs of site restoration and project removal, including for abandoned projects.

SOLAR DECOMMISSIONING REQUIREMENTS IN NORTH CAROLINA

In North Carolina, new solar projects with an energy capacity of 2 MW or greater, including any co-located battery energy storage system, must register with the Department of Environmental Quality (DEQ). At registration, a decommissioning plan, a decommissioning cost estimate, proof of financial assurance, and the payment of the registration fee are required.⁵

Projects are categorized as either existing or new, depending on when the application for a Certificate of Public Convenience and Necessity (CPCN) was submitted. A CPCN is required for any non-utility owner of a clean energy facility that:

- ▶ Has a capacity greater than 2 MW and up to 80 MW, and
- ▶ Does not primarily generate electricity for personal use.
- ▶ Existing projects are those that submitted a CPCN before June 26, 2023.
- ▶ New projects are those that submitted a CPCN on or after June 26, 2023, or that have been expanded or rebuilt since that date.

All projects must also register with the DEQ and renew their registration every 5 years.

REGISTRATION FEES:⁶

PROJECT TYPE	INITIAL FEE	SUBSEQUENT FEE
Existing Utility-Scale Solar Projects	\$175 per MW AC	\$25 per MW AC
New Utility-Scale Solar ≤ 20 MW AC	\$500 per MW AC	\$50 per MW AC
New Utility-Scale Solar > 20 MW AC	Lesser of \$300 per MW AC or \$50,000	Lesser of \$25 per MW AC or \$25,000

PROCESS OF DECOMMISSIONING IN NC:

Decommissioning is required once a project ceases operations and must include the removal of all system components, such as panels, foundations, underground cables, fencing, and batteries. Materials should be reused and recycled whenever practicable, and both hazardous and non-hazardous waste must be appropriately disposed of. The site must be restored to its pre-project condition or to another condition agreed upon by the project owner and the landowner. A decommissioning cost estimate must be submitted at the time of registration and updated every 5 years. For new projects, this estimate must account for the costs of a third party performing the decommissioning, including labor, transportation, and fees for the nearest available recycling or disposal facility. A separate estimate reflecting the salvage value of materials must also be included.

INFORMATION TO BE PROVIDED AT REGISTRATION WITH THE DEQ:

Decommissioning Plan Requirements

All projects must submit a decommissioning plan that includes:

- ▶ Project owner information.
- ▶ Narrative of decommissioning activities.
- ▶ Steps to restore the property in accordance with state law.

Projects must also provide:

- ▶ Decommissioning cost estimate, minus the value of any salvageable equipment.
- ▶ Proof of financial assurance.
- ▶ Payment of the registration fee.

FINANCIAL ASSURANCE:

Financial assurance can be demonstrated through corporate guarantees, financial tests, insurance, letters of credit, surety bonds, trust funds, or a combination of these methods. This assurance must be updated every 5 years, along with the decommissioning cost estimates. If a new utility-scale solar project changes ownership, the new owner must submit an executed financial assurance mechanism to the DEQ within 30 days. The previous owner remains responsible for maintaining financial assurance until the DEQ formally releases them after verifying that the new owner's assurance meets all statutory and regulatory requirements.

***Local governments and landowners may establish stricter requirements.**



SOLAR DECOMMISSIONING REQUIREMENTS IN SOUTH CAROLINA

In South Carolina, large solar systems occupying more than 13 acres, including co-located storage systems, must register with the Department of Environmental Services (DES). At the time of registration, applicants must provide information on the project operator, landowners, and project owner. Additionally, applicants must provide the projected date of decommissioning, the number of PV modules, and energy storage system batteries, and a signed agreement confirming the plan for land restoration after decommissioning. A decommissioning plan must be submitted 5 years before the projected end-of-life date.⁷

INFORMATION TO BE PROVIDED AT REGISTRATION WITH THE DES:

- ▶ Project operator, landowner, and project owner information.
- ▶ Projected date of decommissioning.
- ▶ Number of PV modules and energy storage system batteries.
- ▶ Signed agreement between the owner and the landowner confirming the plan for land restoration after decommissioning.

FINANCIAL ASSURANCE:

After the DES approves a system's decommissioning cost estimate, adjusted for inflation, the project owner must submit a financial assurance mechanism to the DES for final review and approval.

Acceptable assurance mechanisms include cash, insurance, trust funds, surety bonds, letters of credit, certificates of deposit, and financial tests.

***Local governments may establish stricter financial assurance requirements.**

The Role of Solar Decommissioning in the Carolinas

North and South Carolina have established statewide decommissioning requirements, giving stakeholders in solar development a clear understanding of what happens after a solar project's operational life. In North Carolina, developers must submit decommissioning plans as part of the project registration process, while South Carolina requires plans to be submitted five years before the project's estimated end-of-life. Both states also require financial assurance to ensure that those responsible for decommissioning meet their obligations. By setting clear standards for system removal and accountability, the Carolinas provide a consistent framework for managing solar installations at the end of their life cycle.

PROCESS OF DECOMMISSIONING IN SC:

A decommissioning plan must be submitted for DES review and approval 5 years before a system's projected end-of-life. The plan must be updated whenever facility changes deviate from the approved plan, including adjustments to cost estimates. It should include a description of the system, total property acreage, acreage used for PV modules and supporting equipment, the proposed number of modules at commissioning, and a list of all components to be recycled or disposed of.

The plan must also include a statement of the decommissioning objective, such as "to reasonably restore the site to its prior use or to another use approved by the owner and landowner," an estimated timeframe for completion, a description of required tasks and equipment, and a cost estimate for recycling or disposal (including a salvage plan if applicable).

Decommissioning is considered complete only after all system components are removed and disposed of properly, or the site has been reasonably restored. If a system does not produce electricity for 12 consecutive months, the owner/operator has 12 months to complete decommissioning, unless otherwise approved by the DES.

RESOURCES USED IN THE CREATION OF THIS FACT SHEET

¹North Carolina General Statutes 130A-309.240

²South Carolina Code of Regulations. § 61-107.20.E

³Hurdle, 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>

⁴Mirletz, H., Hieslmair, H., Ovatt, S., Curtis, T. L., & Barnes, T. M. (2023, October 5). Unfounded concerns about photovoltaic module toxicity and waste are slowing decarbonization. *Nature News*. <https://www.nature.com/articles/s41567-023-02230-0>

⁵North Carolina General Statutes. (2023). G.S. 130A-309.240. Retrieved from https://www.ncleg.gov/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-309.240.pdf

⁶15A North Carolina Administrative Code (NCAC) 01V (2025). 15A NCAC 01V. Retrieved from <http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2001%20-%20departmental%20rules/subchapter%20v/subchapter%20v%20rules.pdf>

⁷South Carolina Code of Regulations. (2024). Regulation 61-107.20: Solar Energy Systems. Retrieved from <https://des.sc.gov/sites/des/files/Documents/BLWM/Recycling/R.61-107.20%20Solar%20Energy%20Systems.pdf>



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