

RESTORING SOLAR SITES

Ordinances Should Include Standards for Decommissioning Grid-Scale Installations

Whether to approve grid-scale solar energy development in your township is just the beginning of the decisions surrounding these large installations. In addition to drafting regulations for the site, such as setback, screening, and fencing, you must also consider what will happen when the facility reaches the end of its useful life.

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Editor's note: This is the latest article in a series designed to inform municipal officials and employees about grid-scale solar projects. PSATS has partnered with the state Department of Environmental Protection (DEP) to provide these educational opportunities.

Questions about how best to plan for decommissioning of grid-scale solar developments (GSSDs) are often at the top of municipal officials' minds when they think about these projects. This article presents the latest developments in decommissioning planning for Pennsylvania.

The life of most solar panels is 25 to 35 years. Typically, the lease terms for landowners hosting GSSDs include

language allowing for extension of the lease time, under like conditions, possibly with a clause to adjust pricing. Down the road, when the lease expires, the panels and the associated equipment will need to be decommissioned.

Decommissioning is the removal of all solar energy generating, storage, and associated equipment and the return of the land to its preconstruction condition. The specifics for this process should be addressed in a grid-scale solar lease, a township or county zoning ordinance, and/or state regulations.

Decommissioning requirements should protect the municipality and the landowner from incurring costs at the end of the project's useful life or if the facility owner/operator goes out of business or abandons the property. Once constructed, GSSDs retain value as they generate electricity and revenue with little operating cost, so it is more likely that the facility will be transferred to a new owner, rather than abandoned.

Consequently, decommissioning obligations should transfer to any subse-

quent owners/operators. Requirements should place the risk on the company, while not creating undue roadblocks to GSSD.

County ordinance does it right

The decommissioning terms of the Bradford County Solar Facilities Ordinance provide an example of best practices for municipalities when working on their own ordinance. The Bradford County ordinance requires the owner/operator of a GSSD to:

- submit a schedule for decommissioning and proof of financial assurance as a condition of preliminary project approval;
- begin decommissioning work when there has been no commercial electricity production or distribution from the site for 12 continuous months;
- remove all panels, buildings, roads, facilities, cabling, and equipment down to a depth of 36 inches;
- regrade and reseed disturbed earth, access roads, and stormwater facilities unless the landowner requests in writing that any of these features be retained;
- retain an independent, certified engineer to calculate the value of the required decommissioning bond. *(The ordinance specifies a formula for estimating the decommissioning cost, which can be offset by 90% of the estimated value of salvage/resale of any equipment from the site. These estimates are to be submitted to the planning commission after the first year of operation and every five years thereafter.);* and
- submit proof of financial assurance *(as a performance bond, surety bond, or other form acceptable to the planning commission)* posted to the county.

If the facility owner/operator does not complete decommissioning work within the period described above, the landowner has six months to complete the work, and the county may reimburse the landowner for these costs.

If neither the facility owner/operator nor the landowner completes decommissioning within the times outlined above, the county takes on this responsibility and may use the financial assurance posted for the project to complete prescribed decommissioning activities.

General Assembly considers statewide regulations that would preempt local ordinances

As of the end of May 2025, the Pennsylvania General Assembly is considering two bills related to solar decommissioning during the 2025-2026 legislative session. These bills, SB 349 and HB 1080, would provide standard guidance and oversight at the state level that would supersede local ordinances. Each of the proposed bills includes many of the best practices described in this article, including proof of financial assurance; defining decommissioning requirements, such as the removal of equipment/roads, restoration of property to similar preconstruction condition, and reseeding; and specifying a methodology for calculating decommissioning costs and revisiting these costs every five years for adjustment based on salvage value and other market conditions.

PSATS is opposed to these bills, though, because they would preempt local decision-making, including bonding and decommissioning ordinances already adopted by many townships. Please watch for updates on these bills in PSATS' daily Morning News, monthly News Bulletin, and the Legislative Update that appears in this magazine each month.

If the solar facility is sold or transferred to another owner, the new owner must adhere to the decommissioning requirements spelled out for the original developer.

Making sure the money will be there

One of the challenges with a solar decommissioning bond is looking decades into the future to determine the cost of removing the panels and all re-

lated infrastructure and then offsetting that cost against the potential value of the recycled materials.

Various approaches can be used to place a value on a decommissioning bond. Research at Penn State Law indicates that all Pennsylvania solar ordinances that mention decommissioning include a bonding requirement.

A 2023 study by the law firm Lewis Roca found that 33 states have fully established rules and regulations for



Planning for solar facility decommissioning should be a part of a municipality's ordinance development process.

SOLAR DECOMMISSIONING

decommissioning. Where no statewide law is in place, decommissioning standards are left to local governments.

Recycling the panels

Pennsylvania does not currently require solar panels to be recycled, but future legislation may change this. Pennsylvania has expertise in the mining and metal refining industries, and in extracting, processing, and marketing metals. Panel recycling, therefore, could become a growth sector in Pennsylvania.

New Jersey currently hosts the only solar panel recycling facility in the mid-Atlantic region (commercial-solar-panel-recycling.com/from-solar-to-circularity-commercial-solar-panel-recycling-cuts-the-ribbon-on-njs-first-pv-recycling-center/).

Bringing the site back to life

Although not common practice currently, it is possible that “repowering” grid-scale solar facilities — replacing panels at the end of their technical lifespan of 25 to 35 years and constructing an updated facility at the

same site — may be cost-effective in the future. This practice would help maximize the return on investment for the project and allow ongoing solar energy production on parcels of land where it already exists, reducing new greenfield development.

Presumably, much of the racking and site infrastructure, such as roads and fencing, would still be useful. As solar panel technology continues to improve, less area will be needed to generate the same amount of electricity, so a portion of a site may still need to be returned to its preconstruction condition while electric generation operations continue on a smaller parcel of land. Decommissioning requirements should account for this possibility.

Returning the land to farming

In case a landowner would want to return the land to agricultural use, municipalities drafting a solar ordinance should consider whether the ordinance language can accommodate future agriculture activities on the site. If drafted without considering future use, plus stormwater management practices, movement of topsoil, tree planting, and the use of earth berms for screening, the ordinance could hinder the return to agricultural use.

However, with proper design on the front end, sites can be restored at the

end of useful life to allow for long-term agricultural use. Decommissioning ordinances can require this standard.

Decommissioning of a large solar energy facility at the end of its life or lease period remains a somewhat speculative undertaking because most GSSD facilities have not yet reached this point in the U.S. More exploration and fine-tuning of requirements for financial assurance for decommissioning is needed.

The Solar Energy Industries Association (SEIA), the national industry trade association, is developing a comprehensive decommissioning standard. Efforts also continue at the state level in Pennsylvania to standardize GSSD bonding and decommissioning requirements.

Here's where to find more information

To learn more about grid-scale solar and related ordinance review and development, email Tom Murphy, PSATS' solar program educator, at tmurphy@psats.org, or call the PSATS office at 717-763-0930. Additional resources on grid-scale solar development can be found in the *Municipal Officials' Guide to Grid-Scale Solar Development in Pennsylvania* at www.marcellus.psu.edu/solar. ♦



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