

Green County Community Perspectives on Large-Scale Solar Development

Renewable Energy Siting & Engagement
for Tomorrow (RESET)

**Engaging Wisconsin Communities
in Renewable Energy**

MARCH 2026



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Green County Advisory Team

The Green County Advisory Team provided local expert guidance on community, economic, and environmental issues that should be considered throughout the Green County Renewable Energy Siting & Engagement for Tomorrow (RESET) process. Advisory Team members included the following (listed alphabetically by first name):

- Adam Wiegel, Green County Land Use and Zoning
- Ben Huber, Green County Farm Bureau
- Chris Narveson, New Glarus Town Chair / Wisconsin Towns Association
- Jody Hoesly, Green County Board
- Matt Sheaffer, RES, Farmer's Union (Rock, Green, Lafayette), and City of Monroe
- Olivia Otte, Green County Development Corporation
- Scott Timm, Farmer Led Watershed Groups, Green County Farm Bureau
- Sue Nelson, Wisconsin Farmers Union (Rock, Green, Lafayette)
- Todd Jenson, Green County Land and Water

UW-Madison Division of Extension

Extension staff organized and led the community engagement process and preparation of this report. Student interns and RESET Collaborative members helped draft the report.

- Victoria Solomon, Community Development Educator, Green County
- Jessy Bradish, Renewable Energy Specialist
- Diane Mayerfeld, Outreach Specialist
- Sherrie Gruder, Sustainable Design Specialist and Energy Program Manager
- Maia Ninan, Renewable Energy Planning Intern
- Darby Martinez, Renewable Energy Intern
- Rylee McDaniel, Renewable Energy Intern
- Mohammad K. Qureshi, Renewable Energy Intern
- Logan Roessler, Renewable Energy Intern
- Tiana Snyder, The Nature Conservancy
- Lynn Markham, UW-Stevens Point Center for Land Use Education (CLUE)

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The views and opinions of authors expressed in this report do not necessarily state or reflect those of the United States Government or any agency thereof.



Glossary

Agrivoltaics

The practice of combining solar photovoltaic energy production with agricultural activities, such as grazing livestock or growing crops under and around solar panels. Also referred to as dual use.

Battery Energy Storage System (BESS)

A system that stores electricity in batteries for later use. For example, BESS can store solar electricity generated during the day to be used at night.

Certificate of Public Convenience and Necessity (CPCN)

A permit issued by the Public Service Commission of Wisconsin for energy projects 100 megawatts or larger, confirming the project serves the public interest.

Community Benefit Agreement (CBA)

A legally binding agreement between a developer and a community coalition that ensures specific benefits such as jobs, funds, and/or environmental protections as part of a project.

Decommissioning

The process of removing infrastructure and restoring land to its original condition at the end of a solar project's life.

Dual use

Designing solar sites to support additional uses beyond energy generation, such as grazing, forage production, or pollinator habitat. Also referred to as agrivoltaics when the additional use is agricultural.

Financial assurance

A financial guarantee (such as a bond, escrow, or letter of credit) that is required from developers to ensure funds will be available for decommissioning and site restoration at the end of a project's life.

Good Neighbor Agreement

An agreement between a solar developer and adjacent landowners to mitigate impacts such as visual changes, noise, or property value concerns.

International Fire Code (IFC)

IFC is the model global standard for fire safety, including solar and battery energy storage systems (BESS).

Joint Development Agreement (JDA)

A contract between a developer and local government outlining developer commitments such as road repairs, local hiring, and community investments.

Large-scale solar

Large-scale solar projects can also be referred to as utility-scale projects. In this report large-scale solar projects are projects at least one megawatt (MW) in size.

Life Cycle Analysis (LCA)

An assessment of the environmental impacts of a solar panel throughout its lifespan, from raw material extraction to manufacturing, operation, and disposal.

Megawatt (MW)

A megawatt is a unit of electrical power. One MW is equal to 1,000 kilowatts (kW), which is the unit of electricity measurement used for residential utility bills.

Midcontinent Independent System Operator (MISO)

The regional transmission organization that manages electricity flow and reliability across fifteen states, including Wisconsin.

Net metering

A billing arrangement that can allow utility customers with on-site solar installations to receive some type of credit for electricity they send to the grid. This agreement depends on the utility.

Public Service Commission of Wisconsin (PSC)

The Public Service Commission of Wisconsin regulates utilities and approves large-scale energy projects.

RESET: Renewable Energy Siting & Engagement for Tomorrow

RESET is a Wisconsin program supporting community engagement for renewable energy siting. RESET is funded by an award from the U.S. Department of Energy.

Utility aid

Annual payments from the Wisconsin Department of Revenue to counties and municipalities hosting tax-exempt utility property, currently \$5,000 per MW for renewable energy projects over 50 MW. Some utility aid is also available for many large-scale solar projects between 1 MW and 50 MW.

Table of Contents

Acknowledgements 1

Glossary..... 3

Section 1: Introduction and Executive Summary..... 8

Section 2: Introduction to Electricity and Large-Scale Solar..... 12

 How does the electrical grid work in Wisconsin?..... 12

 Where does Wisconsin’s electricity come from? 13

 What is large-scale solar?..... 14

 Does large-scale solar make sense in Wisconsin?..... 14

 Where does the electricity that’s generated go? 14

 Could large-scale solar increase Wisconsin’s energy independence? 14

 Could large-scale solar reduce grid outages in the area? 15

 Could large-scale solar projects reduce local electricity bills? 15

Want to learn more? Check out these resources.15

Section 3: Laws, Policy, and Planning 16

Wisconsin State Regulations: Laws, Policy, and Planning.....16

 Local permitting for projects between 1 - 100 megawatts 16

 Current Green County renewable energy ordinances 17

 State permitting for projects 100 megawatts or larger 17

 How can members of the public give input on the PSC process? 18

 What does it mean to be an intervenor in a PSC siting review process?..... 19

 How can comprehensive planning influence siting?..... 19

Want to learn more? Check out these resources.20

Section 4: Economics 21

Economic Impacts to Landowners21

 What are average annual payments for solar land leasing? 22

 What happens to agricultural and residential property values?..... 22

Economic Impacts to Farmers.....22

 How does solar development affect farmers financially? 22

Economic Impacts to Businesses23

Economic Impacts to Local Government23

How are taxes impacted by large-scale energy projects?	23
What are possible costs to local governments?	23
Economic Leverage Points	24
Want to learn more? Check out these resources.	24

Section 5: Environment..... 25

Solar Project Life Cycle Analysis	25
Is solar net-positive or negative for the environment?	26
Soils	26
How will solar projects affect soil health?.....	26
Habitat and Wildlife	26
What happens to existing habitat when a solar project is built?	26
Do solar farms disrupt wildlife movement or block animals like deer from passing through?	27
How do solar projects impact pollinators and biodiversity?	27
How can we measure whether a solar site is supporting biodiversity?	27
Water	27
How will solar projects affect water runoff and groundwater recharge?.....	27
How will solar projects affect water quality?	28
Air and emissions	28
Environmental Leverage Points	29
Want to learn more? Check out these resources.	30

Section 6: Land Use 31

Farmland Loss	31
Why are large-scale solar projects usually built on agricultural land?.....	32
Will solar development affect our food supply?	32
Why not put solar on buildings, parking lots, or brownfields?	32
Can visual impacts be minimized?.....	33
Dual Use Solar: Agrivoltaics and Pollinator Plantings	33
What types of agrivoltaics work in Wisconsin?.....	33
What about agrivoltaics with cattle?	34
Pollinator plantings?	34
Land Use Leverage Points	35
Want to learn more? Check out these resources.	35

Section 7: Decommissioning 37

What happens at the end of a large-scale solar project’s life?	37
Can solar panels and equipment be recycled?.....	38

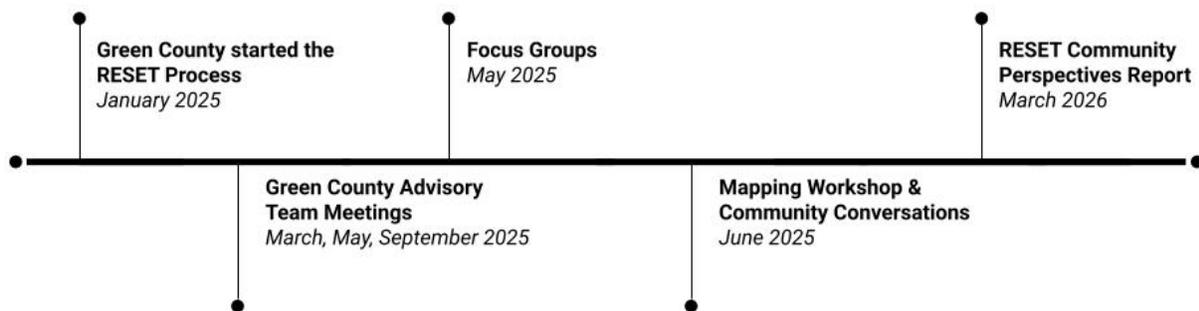
Who is responsible for decommissioning?.....	38
Are there financial protections if the project owner goes bankrupt?	38
Decommissioning Leverage Points.....	39
Want to learn more? Check out these resources.....	40
 <i>Section 8: Health & Safety</i>	 <i>41</i>
Fires	41
What are the fire risks and regulations with photovoltaic (PV) solar panels?.....	41
How can local emergency responders prepare for solar (PV) related fires?	42
What are the fire risks and regulations with battery energy storage systems (BESS) ?	42
How can local emergency responders prepare for BESS-related fires?.....	42
Toxins.....	43
What toxic materials are in solar panels, and are they a health risk?	43
What toxins are in batteries, and are they a health risk?	43
Stray Voltage.....	43
Is stray voltage a concern, and how is it prevented?.....	43
Extreme Weather Events	44
Does extreme weather damage solar panels, and who pays for repairs?.....	44
Health and Safety Leverage Points	44
Want to learn more? Check out these resources.....	45
 <i>Section 9: Leverage Points</i>	 <i>46</i>
Ordinances	46
Comprehensive Plans.....	47
Contracts.....	47
What kind of contracts exist around large-scale solar projects?	47
What should a landowner consider before signing a solar land lease?.....	48
What is a Good Neighbor Agreement, and why is it important?.....	48
What are Joint Development Agreements?.....	48
Want to learn more? Check out these resources.....	49
 <i>Section 10: Conclusion.....</i>	 <i>50</i>
 <i>Appendix 1: Green County Community Engagement Comments</i>	 <i>51</i>
 <i>Appendix 2: Bibliography.....</i>	 <i>63</i>

Section 1: Introduction and Executive Summary

Purpose & Process

The Renewable Energy Siting & Engagement for Tomorrow (RESET) program helps Wisconsin communities prepare and plan for large-scale renewable energy and energy storage projects. RESET aims to empower local communities, provide educational resources, and support collaboration to address the impacts of renewable energy on land, water, wildlife, people, and the local economy. In January 2025, Green County passed a resolution to be part of the RESET process, becoming the first county in Wisconsin to go through this program. This process was guided by a multi-sector Advisory Team with folks from across Green County.

The Green County RESET Process



Community Engagement

This process intentionally focused on gathering community perspectives through focus groups, a mapping workshop, and two community conversations. Contributors included the Advisory Team, which was a multi-sector group of Green County leaders, as well as farmers, business leaders, conservation leaders, and local government. The two community conversations convened Green County residents, with more than 70 participants. After a short educational presentation on large-scale solar from UW-Madison Extension and other experts, participants used a post-it method to share their perspectives on possible benefits, concerns, and questions. All community members were invited to join in the community conversations through a number of channels, including radio announcements, flyers, social media and local newsletters. 56 participants attended the first community conversation, and 18 participants attended the second community conversation. 35 completed follow-up surveys.

As shared in the follow-up surveys, as a result of community conversations:

- 97% shared that “I had the opportunity to voice my thoughts.”
- 65% felt more prepared to engage in renewable energy conversations or decision-making.

Additional comments included:

- “This was a great event. The organizers and presenters made it useful, enjoyable, informative, and comfortable. Productive evening. Thank you. It is invigorating to see so many in our community come together for exploration and discussion.”
- “Lots to think about!!”
- “Appreciate the opportunity to meet and discuss.”



Comments from an engagement session (red=concern, blue=benefit, yellow=question)

567

Comments gathered across 8 engagement sessions

+

—

?

164

203

200

*Comments about possible
Benefits*

*Comments about potential
Concerns*

Questions

Themes

Community member comments were sorted into the themes identified below. These themes from the community conversations inform the content of this report.

For a complete list of comments, see Appendix 1: Green County Community Engagement Comments.

Electricity and Large-Scale Solar

- Grid, Transmission, Energy Mix
- Energy Independence and Climate Leadership

Law, Policy, and Planning

- Legal Framework, Local Control
- Siting and Planning Process
- Education and Public Participation

Economics

- Impacts on Landowners
- Impacts on Farmers
- Impacts on Local Businesses
- Impacts on Local Government

Environment

- Soil, Water, Wildlife, Air
- Construction Best Management Practices

Land Use

- Loss of Farmland, Alternative Locations
- Visual Landscape and Tourism
- Dual Use (Agrivoltaics)

Health and Safety

- Emergency Response, Fires, Toxins

Decommissioning / End of Life

- Physical, Financial

Leverage Points

Wisconsin law places limits on local control of utility-scale renewable energy. The Public Service Commission of Wisconsin (PSC) has siting authority for projects that are 100 megawatts (MW) in size or larger. Local jurisdictions are responsible for permitting projects under 100 MW, but they may only regulate based on public health and safety concerns, may not apply more stringent standards than those set out in state law, and they may not impose requirements that significantly increase the cost of electricity generation. However, communities do have tools they can use to influence large scale projects. Here are some ways individuals and communities can get involved with large-scale solar project siting.

Ordinances (under 100 MW)

- Counties and Towns can consider ordinances addressing large-scale solar energy that are aligned with [Wisconsin Statute 66.0401\(1m\)](#). Ordinances can include conditional use permit application requirements such as describing screening, setback, and vegetation management plans; construction Best Management Practices; Emergency Management Services/fire access; and appropriate financial assurances for decommissioning.
- Communities can also require construction Best Management Practices (BMPs) for soil and water protection, traffic plans, monitoring, vegetation management, and other reasonable environmental measures as part of a conditional use permit (CUP).

Plans

- Counties and Towns can update their comprehensive plans to address renewable energy development goals and concerns.
- The Public Service Commission will consider planned residential and commercial development documented in a comprehensive plan that is adopted before a project application is submitted.

Contracts

- Local governments can negotiate contracts with developers to address a variety of concerns. These contracts are typically called Joint Development Agreements (JDAs) but sometimes go by other names. JDAs can be used to address items such as providing monetary compensation for road impacts, requiring local or union hiring, community investments, and coordination with local Emergency Management Services on emergency response training, especially for battery energy storage systems (BESS). Payment for this training can be included as part of a Joint Development Agreement.
 - Local government can convene a working group that includes County and Town officials, along with farmers and local leaders, to draft issues to address in Joint Development Agreements with future projects.
- Landowners can negotiate for provisions in the leases they sign with solar developers. For example, they can stipulate that specified agricultural uses will be allowed.
- Individuals who own land adjacent to the project may also be able to negotiate contracts with the developer to address concerns. These are typically called Good Neighbor Agreements.

Decommissioning

- For projects under 100 MW, communities can require decommissioning plans, recycling commitments where feasible, and financial guarantees for decommissioning costs as part of a conditional use permit.
- For projects over 100 MW, communities can negotiate decommissioning assurances as part of a JDA.

Section 2: Introduction to Electricity and Large-Scale Solar

This section includes:

- An introduction to how the electrical grid works,
- An explanation of large-scale solar’s current footprint in Wisconsin, and
- Resources to learn more.

Community input summary: benefits, concerns, and questions about electricity and large-scale solar

Benefits

- **Energy independence:** Local power generation enhances energy independence
- **Clean energy:** Provides clean, renewable energy and reduces reliance on fossil fuels
- **Updated grid:** Improves grid resilience and reliability

Concerns

- **Transmission system:** Infrastructure costs for transmission lines and grid upgrades
- **Supply and demand:** Challenges with meeting new energy demand (such as data centers)
- **Subsidies:** Dependence on incentives for profitability
- **Complexity:** Challenges of integrating large-scale solar with existing electrical grid

Questions

- **Utility bills:** Will solar projects reduce consumer electricity costs?
- **Grid reliability:** Will grid outages or rolling brownouts be reduced by large-scale solar?
- **Who is the end user:** Will the power be exported or used by local communities?

Green County residents had questions about how electricity, large-scale solar, and the grid work, along with questions about how local energy generation could impact utility bills, grid blackouts, and energy independence.

How does the electrical grid work in Wisconsin?

Wisconsin’s electricity system is operated by the Midcontinent Independent System Operator (MISO). MISO (pronounced “MY-so”) manages the electrical grid and high-voltage transmission for more than 40 million customers across 15 states (see Figure 2-1).

MISO’s core role in the regional electric grid is to make sure that customers have a consistent supply of electricity at an affordable cost. Electricity flow is managed on a second-by-second basis, while planning for projected electricity needs requires planning decades into the future. MISO coordinates between



Figure 2-1: MISO territory

utilities and other stakeholders, and is managed through state and federal regulations.¹

Where does Wisconsin's electricity come from?

Wisconsin's electricity mix includes natural gas, coal, nuclear power, hydro, wind, and solar. As you can see in Figure 2-2,² the supply mix has shifted over time. In 2024, natural gas produced 40% of Wisconsin's electricity, coal provided 32% (down from 61% in 2014), and nuclear provided 15%. Renewable resources (solar, wind, and hydro power) provided 12% of Wisconsin's electricity.³

Wisconsin currently consumes almost six times as much energy as the state produces, and spends \$14 billion annually buying fossil fuels from out of state.⁴ Based on current consumer usage trends, modeling indicates the state will require up to 60 gigawatts (60,000 MW) of new electricity generating capacity by 2050.⁵ As existing energy generating plants are retired, Wisconsin will need new sources of electricity generation to avoid utility rate increases and rolling blackouts. Although Wisconsin does not have commercial fossil fuel reserves, it does have renewable resources like sunshine and wind.

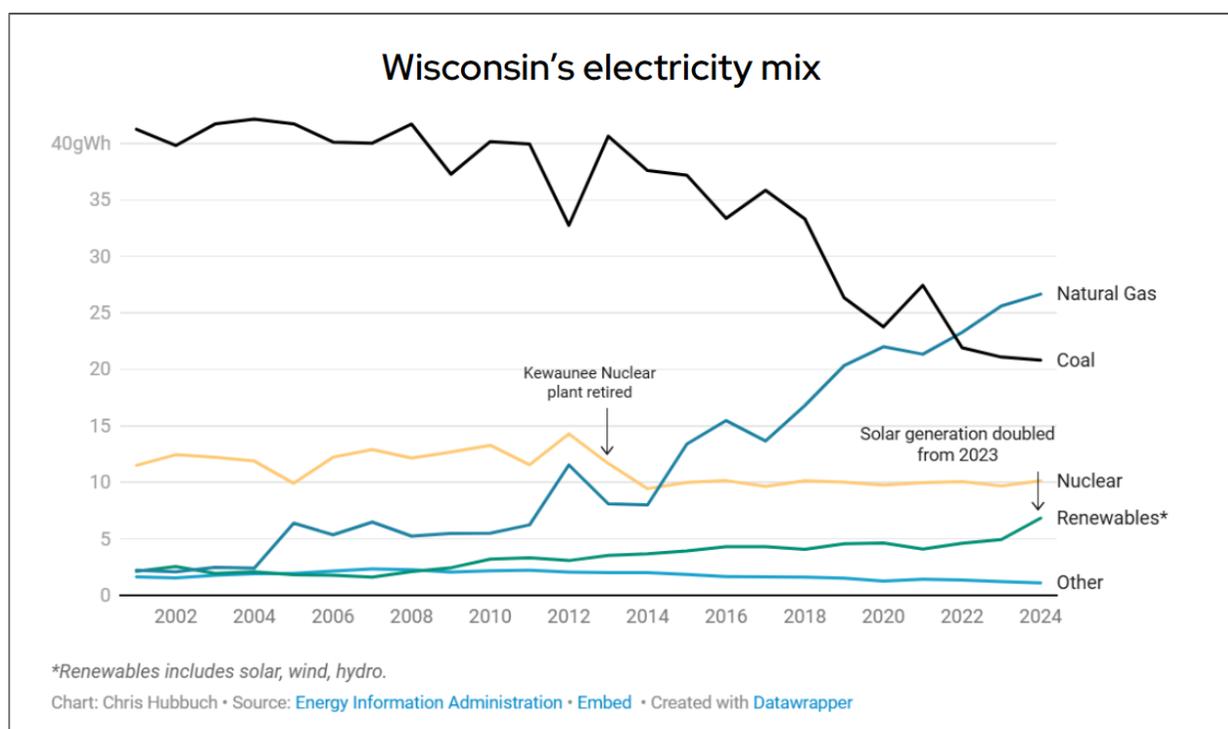


Figure 2-2: Wisconsin's changing electricity sources

¹ Great Plains Institute, "MISO 101 Primer: Part 1, Introduction to MISO," 2022, <https://betterenergy.org/wp-content/uploads/2023/06/MISO-101-Part-1-Intro-to-MISO.pdf>.

² Wisconsin Energy Institute, "2024 Was the Dawn of Wisconsin's Solar Era, but There Are Clouds on the Horizon," April 1, 2025, <https://energy.wisc.edu/news/2024-was-dawn-wisconsins-solar-era-there-are-clouds-horizon>.

³ U.S. Energy Information Administration, "Wisconsin State Energy Profile," Wisconsin State Energy Profile, December 2025, <https://www.eia.gov/state/print.php?sid=WJ>.

⁴ High Road Strategy Center, UW Madison, "Wisconsin Opportunity in Domestic Energy Production: The Economic and Health Benefits of 100 Percent In-State Energy Production," February 4, 2019, <https://highroad.wisc.edu/publications/wisconsin-opportunity-in-domestic-energy-production-the-economic-and-health-benefits-of-100-in-state-energy-production/>.

⁵ Clean Wisconsin, RENEW Wisconsin, Evolved Energy Research, *Wisconsin's Roadmap to Net Zero by 2050*, 2025, <https://www.cleanwisconsin.org/our-climate/wisconsins-roadmap-to-net-zero>.

What is large-scale solar?

Large-scale solar, also referred to as utility-scale solar, is any project at least one megawatt (MW) in size. One megawatt is the same as 1,000 kilowatts (kW).

One kilowatt of optimally placed solar panels will produce more than 1,000 kWh of electricity in a year in Wisconsin. The average Wisconsin home uses less than 8,000 kilowatt-hours (kWh) of electricity annually.⁶ Therefore, a megawatt of solar powers more than 100 Wisconsin homes.

Does large-scale solar make sense in Wisconsin?

There are already dozens of large-scale solar projects operating in Wisconsin, totaling more than 3,300 megawatts.⁷ Dozens more projects are approved and under construction, or in the permitting process. People often wonder whether solar makes sense in Wisconsin because of seasonality. Even though Wisconsin winters reduce solar's annual production, large-scale solar is one of the least expensive forms of electricity available today. The levelized cost of energy (LCOE) is a cost comparison of different energy generation technologies published annually by Lazard.⁸ Their 2025 report said that "renewables remain the most cost-competitive form of new-build generation on an unsubsidized basis."

The costs of wind and solar are lower than any other type of electricity generation.⁸ The LCOE does not include tax subsidies or other incentives, but does include the total lifetime costs of building, operating, and decommissioning a power plant. Key components include construction, operation and maintenance costs of managing the facility, financing costs, and the fuel costs (if applicable). Wind and solar electricity are some of the least expensive electricity sources per megawatt-hour, since the sun shines and the wind blows for free.

Where does the electricity that's generated go?

Electricity generated by any type of power plant enters the grid. It becomes part of MISO's overall supply that serves homes and businesses across 15 states. Managing base loads and peak demand means that, depending on the grid's supply and demand at a given moment, your electricity might come from the closest source or a plant hundreds of miles away.

Could large-scale solar increase Wisconsin's energy independence?

Wisconsin currently spends \$14 billion each year importing coal and gas.⁹ Large-scale solar can help meet in-state electricity needs and reduce reliance on imported fuels.

⁶ Energy Information Agency, "2024 Average Monthly Bill- Residential," 2024, https://www.eia.gov/electricity/sales_revenue_price/pdf/table_5A.pdf.

⁷ Solar Energy Industries Association (SEIA), "Wisconsin Solar State Spotlight," December 2025, <https://seia.org/state-solar-policy/wisconsin-solar/>.

⁸ Lazard, "Lazard's Levelized Cost of Energy+ (LCOE+)," December 2025, <https://www.lazard.com/research-insights/levelized-cost-of-energyplus-lcoeplus/>.

⁹ High Road Strategy Center, UW Madison, "Wisconsin Opportunity in Domestic Energy Production: The Economic and Health Benefits of 100 Percent In-State Energy Production," February 4, 2019, <https://highroad.wisc.edu/publications/wisconsin-opportunity-in-domestic-energy-production-the-economic-and-health-benefits-of-100-in-state-energy-production/>.

Could large-scale solar reduce grid outages in the area?

Large-scale solar alone won't result in fewer outages because solar power depends on sunlight. However, if solar (or wind) projects are combined with battery energy storage systems (BESS), they can improve resilience by providing immediate additional backup power during grid disturbances.

Could large-scale solar projects reduce local electricity bills?

A large-scale project does not change local electricity costs. The power generated is sold into the regional electrical grid. However, from a supply and demand perspective, having more electricity supplied to the grid from low-cost sources such as solar, wind, and natural gas will keep prices lower than if additional energy is not added to the supply.

Want to learn more? Check out these resources.

- To learn more about Wisconsin energy use see U.S. Energy Information Administration [Wisconsin State Energy Profile](#).
- There were some questions about how the county might encourage local commercial and residential solar energy production. The RESET project is focused on energy produced for utilities, but the [Wisconsin Local Government Greening the Grid Playbook](#) created by the Great Plains Institute provides guidance on supporting renewable energy for local consumption.

Section 3: Laws, Policy, and Planning

This section includes:

- Summary of state regulations for siting utility-scale solar projects,
- Information about Green County’s existing ordinances for large-scale solar projects, and
- Potential leverage points, and resources to learn more about laws, policy, and planning.

Community input summary: benefits, concerns, and questions about laws, policy, and planning

Benefits

- **State law:** Establishes clear standards and planning frameworks
- **Utility aid:** State law provides revenue for local governments

Concerns

- **Transparency:** Non-disclosure agreements and complex contracts
- **Costs:** Time and money needed for legal and permitting processes
- **Changing regulations:** Financial risks due to potential policy changes
- **Lack of local control:** Governance issues over siting and operations

Questions

- **Regulations:** Who governs large-scale solar projects at state and local levels?
- **End of life:** Can bonds or financial guarantees be required for decommissioning?
- **Local government:** What role should municipalities play in siting decisions?

Green County residents had questions about Wisconsin’s regulatory landscape for siting large-scale renewable energy projects, including who is the siting authority, and how can communities and local governments get involved.

Wisconsin State Regulations: Laws, Policy, and Planning

Wisconsin law specifies how local jurisdictions and state agencies can and cannot regulate renewable energy. Project size determines whether local or state government handles the permitting process. Wisconsin law also provides utility aid payments to local jurisdictions for most large-scale renewable energy projects. See Section 4, Economics, for information about utility aid.

Local permitting for projects between 1 - 100 megawatts

Local governments (counties, cities, villages, or towns) are responsible for permitting large-scale renewable energy projects under 100 megawatts. Local governments can adopt zoning ordinances to protect public health and safety for solar projects less than 100 MW. Conditional use permits may also require appropriate financial assurance for decommissioning.

However, [Wisconsin Statute 66.0401\(1m\): Authority to restrict systems limited](#) places limits on what requirements local governments can impose for large-scale projects of any size:

“No political subdivision may place any restriction, either directly or in effect, on the installation or use of a solar energy system ... or a wind energy system, unless the restriction satisfies one of the following conditions:

- (a) Serves to preserve or protect the public health or safety.
- (b) Does not significantly increase the cost of the system or significantly decrease its efficiency.
- (c) Allows for an alternative system of comparable cost and efficiency.”

In addition, under [Wisconsin Statute 66.0401\(4\)\(f\)1: Regulation relating to solar and wind energy systems, local procedure](#), local ordinances specifying large-scale renewable energy permit requirements cannot be more restrictive than the regulations the Public Service Commission of Wisconsin (PSC) has developed for wind energy. The PSC’s regulations are set forth in [Chapter PSC 128: Wind Energy Systems](#), and include provisions addressing permit application requirements, emergency response planning, noise, and decommissioning plans and financial assurances.

Wisconsin Land+Water has developed a number of [fact sheets](#)¹⁰ about Wisconsin's regulatory landscape and local government's role in siting renewable energy projects.

Current Green County renewable energy ordinances

Chapters 11 and 12 of Green County’s existing zoning ordinance address wind and solar energy systems. The current solar ordinance distinguishes between small systems, designed to provide electricity to customers on-site, and large systems that are designed to provide electricity to the grid. The ordinance outlines some requirements for large solar projects, including a 15 foot setback requirement, a height maximum of 35 feet, and a decommissioning plan and financial assurance for decommissioning, but there is potential to strengthen the guidance for permitting large-scale solar projects between 1-100 megawatts. See Section 9, Leverage Points, and UW-Madison Extension’s [Solar Regulation Guidance for Wisconsin Counties, Cities, Villages, and Towns](#)¹¹ for information on what local governments can include in an ordinance for project siting under 100 MW.

State permitting for projects 100 megawatts or larger

The PSC has siting authority for any energy-generating project that is 100 megawatts or larger. These projects must apply to the PSC for a Certificate of Public Convenience and Necessity (CPCN). In order to be issued a CPCN these projects must comply with [Wisconsin Statute 197.491\(3d\): Certificate of Public Convenience and Necessity](#). The [Solar Energy Projects Application Filing Requirements](#)¹² describe all the information that must be included in a CPCN application to the Public Service Commission of Wisconsin for solar energy projects 100 MW or greater. Project reviews usually take 6–12 months, but are legally required to finish within a year.

¹⁰ Wisconsin Land and Water, “Renewable Energy,” Wisconsin Land and Water, December 2025, <https://wisconsinlandwater.org/members-hub/conservation-resources/climate-resilience/renewable>.

¹¹ UW-Madison Extension. 2026. Solar Regulation Guidance for Wisconsin Counties, Cities, Villages, and Towns. <https://economicdevelopment.extension.wisc.edu/reset/solar-regulation-guidance-for-local-government/>.

¹² Public Service Commission of Wisconsin and the Wisconsin Department of Natural Resources, “Solar Energy Projects Application Filing Requirements,” 2022, <https://psc.wi.gov/SiteAssets/2022SolarPowerAFR.pdf>.

How can members of the public give input on the PSC process?

There are multiple opportunities to get involved in the siting review process. Local government, organizations, and individuals can read the notification letter and project application, attend public information meetings and any PSC scoping meetings, submit comments to the PSC, review and comment on environmental reports, and speak at PSC public hearings. Figure 3-1 shows the steps the PSC follows to assess a CPCN application and where the public can submit comments.

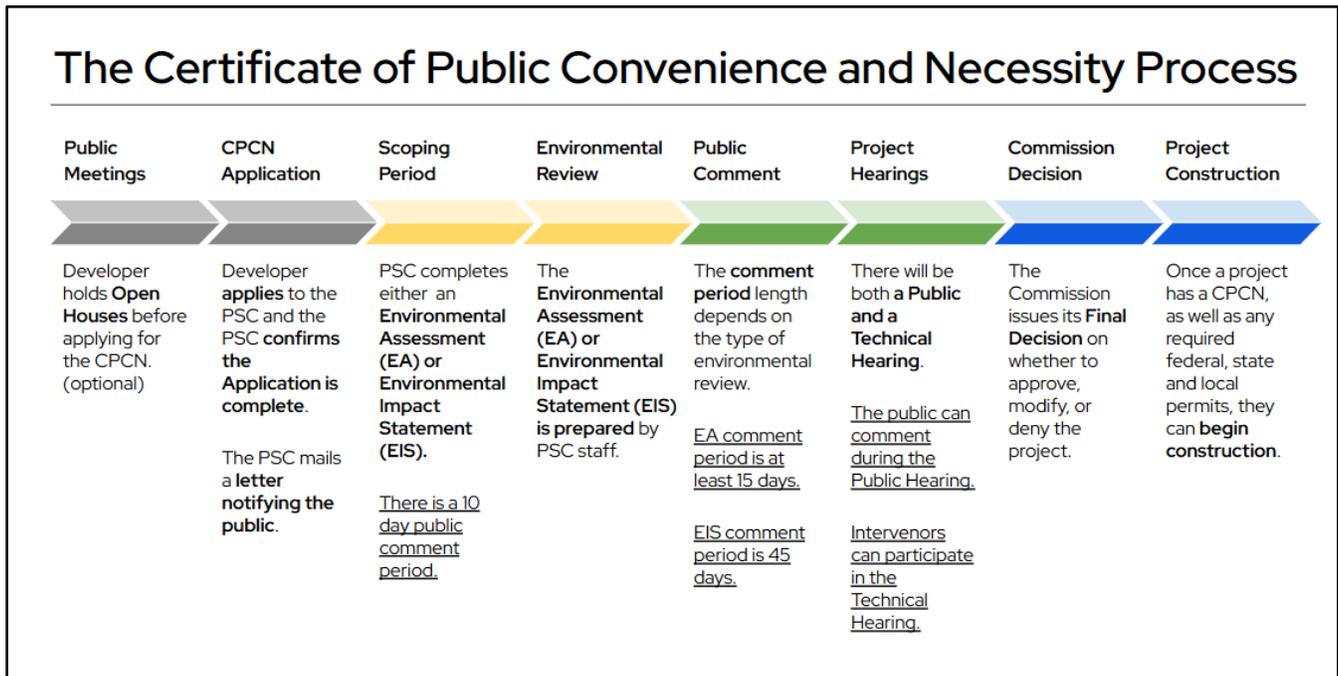


Figure 3-1: The Certificate of Public Convenience and Necessity application and public comment process

If you give public testimony, be clear about who you are, how you are connected to the case, your perspective and why you feel that way, and suggest a reasonable alternative if possible. See the PSC’s page on participating in the siting process, including [requirements of a public comment](#) and suggestions for [making effective comments](#).¹³

¹³ Public Service Commission of Wisconsin, “PSC Public Participation,” accessed December 5, 2025, <https://psc.wi.gov/Pages/CommissionActions/PublicParticipation.aspx>.

What does it mean to be an intervenor in a PSC siting review process?

An intervenor is a formal party to the proceeding, and as such gets to participate in a case by submitting evidence in the form of environmental scoping or review comments, pre-filed testimony and exhibits, or testimony at technical hearings. Being an intervenor is not necessary in order to participate in public hearing and comment periods. If a municipality wants to be part of the technical hearing as well, they can as an intervenor. To intervene in a CPCN process comes with a number of rights and responsibilities. The time and financial commitment required to be an intervenor vary widely depending on the scale of the intervention’s goals. More information on the process of becoming an intervenor and the associated responsibilities can be found on the [PSC website](#).

How can comprehensive planning influence siting?

During their siting review, the PSC will consider local environmental and safety concerns and planned residential or commercial development plans that are listed in comprehensive plans. [Wisconsin Statute 196.491\(3d\)](#) states “the proposed facility will not unreasonably interfere with the orderly land use and development plans for the area involved.” However, local zoning designations are not considered grounds to deny a renewable energy application, and pre-existing zoning regulations can be preempted by the Commission. See [Wisconsin Statute 196.491\(3\): Certificate of Public Convenience and Necessity](#)¹⁴ for more information.

Laws, Policy and Planning Leverage Points Tools for individuals and local government	Person/ Landowner	Local Government
Ordinance		
Local jurisdictions can pass an ordinance about renewable energy siting for projects under 100 megawatts that sets out certain requirements for a conditional use permit. Review Solar Regulation Guidance for Wisconsin Counties, Cities, Villages, and Towns and Chapter PSC 128: Wind Energy Systems to avoid creating legal issues for local governments.		✓
Comprehensive Plan		
Local jurisdictions can update their comprehensive plan to include information about preferred renewable energy siting locations and planned development that will be considered by the PSC.		✓

¹⁴ Wisconsin State Legislature, “Wisconsin Statute 196.491(3): Certificate of Public Convenience and Necessity,” accessed November 1, 2025, <https://docs.legis.wisconsin.gov/statutes/statutes/196/491/3>.

	Person / Landowner	Local Government
Participate in the PSC siting review		
Participate in the PSC siting process as a member of the public.	✓	✓
Participate in the PSC siting process as an intervenor. See the PSC's How Construction Projects Are Approved: Power Plant Review Process	✓	✓

Want to learn more? Check out these resources.

Local Government Role in Siting Projects

- For information about the County Role in Siting Renewable Energy Projects, visit Wisconsin Land+Water’s [renewable energy page](#) which has multiple fact sheets about local regulation, and information about Wisconsin’s statutes.
- For information about what local jurisdictions can include in ordinances see UW-Madison Extension’s [Solar Regulation Guidance for Wisconsin Counties, Cities, Villages, and Towns](#).

Overview of the Permitting Processes

- [Overview of the PSC and DNR Permitting Process for Large Electric Generating Facilities](#)
- [Solar Energy Projects Application Filing Requirements](#) from the PSC.

Participating in the siting process

- The PSC’s page on [Public Participation](#) in the siting process.

Participating in public comments

- [RESET website](#) with more information about how to participate in public comments.

Section 4: Economics

This section includes:

- Information about state utility aid payments to the local governments of host communities,
- Economic impacts to local landowners, farmers, governments, and businesses, and
- Resources to learn more.

Community input summary: benefits, concerns, and questions about economics

Benefits

- **Revenue streams:** Generates stable, long-term financial returns for landowners
- **Local economy:** Potential to boost local economies through utility aid revenue and job creation
- **Local investments:** Keeps energy dollars within local communities instead of purchasing coal and gas from outside Wisconsin
- **Agrivoltaics:** Possibilities for sheep grazing and other dual land use on solar sites

Concerns

- **Local costs:** Uncertainty about true costs to communities
- **Financial:** Increased agricultural land values and rental rates create barriers for farmers
- **Property Values:** Potential decrease in neighboring property values
- **Tourism:** Negative impact on the visual landscape

Questions

- **Land value:** What are the comparative economics of solar leasing versus crop farming?
- **Fair payments:** Can mechanisms ensure fair compensation for landowners and neighbors?
- **Taxes:** How do solar projects affect local tax structures and community budgets?

Green County residents had questions about the economic impacts of large-scale renewable energy projects, including how solar projects could impact land values for landowners, farmers, renters, and nearby residents. They also had questions about how these projects impact local government, and the relationship between property taxes and utility aid.

Economic Impacts to Landowners

Economic impacts on landowners from solar developments depend on whether their land is included in the solar project or adjacent to it, and whether the land is residential or agricultural. Green County residents were concerned about rising land costs impacting farmers, and what happens to non-participating property values. They noted the strong benefit of a guaranteed annual income for the landowners.

What are average annual payments for solar land leasing?

Solar lease rental payments are typically much higher than income from agricultural use, so landowners who sign a lease usually benefit financially. Solar leases typically last 25-35 years, and sometimes include escalating lease payments for inflation. Most leases include a non-disclosure clause, so exact rates are not public. However, based on conversations Extension specialists have had with landowners, annual rents in Wisconsin range from about \$500 to over \$1,500 per acre, depending on factors such as proximity to substations and transmission lines. In contrast, the average rental rate for agricultural use in Wisconsin was \$158/acre in 2024 and \$183/acre in 2025.¹⁵ Rental rates for farmland next to solar projects may also rise as a result of the reduced supply of land available.

What happens to agricultural and residential property values?

A 2025 scholarly study found that agricultural land values close to solar fields increased by an average of 19.4% compared to land values further away. The same study found that residential properties located next to large-scale solar projects may have a temporary decline in property value. On average residential property values within a half mile of large-scale solar developments in the U.S. declined by 7.2% for the first few years after construction of the solar facility. These declines were greatest in the northeastern US and highly variable in the Midwest, with many properties near solar sites actually increasing in value.¹⁶

Non-participating property owners who are immediately adjacent to a solar field may be able to negotiate Good Neighbor Agreements that provide a landowner payment, or that obligate the solar site manager to provide visual screening, noise abatement, or other adjustments to mitigate negative effects on the adjacent property.

Economic Impacts to Farmers

How does solar development affect farmers financially?

Farmers may experience both financial benefits and costs when farmland is developed for solar energy.

- **For landowners who farm:** Rent from solar developers typically far exceeds income from farming and provides stable, predictable payments year after year. This consistent revenue can help farms weather market downturns or management transitions.
- **For adjacent landowners:** Property values may rise, though agricultural property taxes remain based on use value, not market value.
- **For tenant farmers:** Those renting land to grow crops or spread manure may lose access and face higher rental or purchase costs for nearby farmland.
- **Dual use opportunities:** Some farmers can graze sheep or pursue other agricultural activities within solar projects, offering affordable land access. (See “Dual Use and Agrivoltaics” in Section 6: Land Use.)

¹⁵ UW-Madison Extension, “Wisconsin Agricultural Land Prices 2024,” Farm Management, 2025, <https://farms.extension.wisc.edu/articles/wisconsin-agricultural-land-prices/>; Economic Research Service, USDA, “Land Use, Land Value & Tenure - Farmland Value | Economic Research Service,” 2025, <https://www.ers.usda.gov/topics/farm-economy/land-use-land-value-tenure/farmland-value>.

¹⁶ Chenyang Hu et al, “Impact of Large-Scale Solar on Property Values in the United States: Diverse Effects and Causal Mechanisms,” Proceedings of the National Academy of Sciences of the United States of America, June 9, 2025, <https://www.pnas.org/doi/10.1073/pnas.2418414122>.

Economic Impacts to Businesses

Few Green County comments mentioned impacts on other businesses. The main concern was potential effects on Green County's tourism economy. Some noted possible indirect benefits, such as local spending by solar construction crews and the economic boost from farms thriving through solar lease income. Because economic conditions vary by region, there is not good information on whether solar development ultimately helps or harms the broader business community in Green County.

Economic Impacts to Local Government

How are taxes impacted by large-scale energy projects?

For large-scale energy projects in Wisconsin, local governments receive utility aid instead of property taxes. The Wisconsin Department of Revenue distributes payment to each county and municipality that hosts tax-exempt utility property, based on the amount of energy generating capacity within each jurisdiction. For renewable energy projects over 50 MW, the total payments are \$5,000 per megawatt per year, divided between local hosting governments. Since one megawatt of solar takes up approximately seven acres of land, and many projects are 100 MW or larger, one project could be hundreds of acres and span multiple jurisdictions. Payments start the year after the project is operational, and continue for the life of the facility.¹⁷

The funds are not earmarked, and can be used in a variety of ways, including road repairs, fire services, preventing tax increases, and other local improvements. For more information see [Local Property Tax Impacts of Large-Scale Wind and Solar Projects](#).¹⁷

What are possible costs to local governments?

Dealing with any large-scale development takes time and financial resources. Here is a list of some of the common items local governments might consider when planning for proposed projects:

Staff time and administrative resources

- For permitting processes (especially for projects under 100 MW that require local approval)
- Managing community engagement and addressing resident concerns throughout planning and construction

Infrastructure impacts

- Repairing or upgrading roads damaged by heavy construction traffic
- Possible wear on bridges or culverts requiring reinforcement or replacement

Legal and negotiation expenses

- Fees for attorneys and professional negotiators for developer agreements
- Drafting and reviewing contracts, easements, and compliance documents

Specialized professional services

- Engineering, environmental, and/or financial consultants to evaluate project impacts and agreements
- Additional planning or zoning expertise for complex siting issues

¹⁷ Graham Sustainability Institute, University of Michigan, "Local Property Tax Impacts of Large-Scale Wind and Solar Projects," 2025, <https://graham.umich.edu/project/renewable-energy-tax-impacts>.

Fiscal impacts on schools

- Loss of school district revenue from property taxes is usually addressed by the state school aid formula
- Utility aid carveouts could be used to compensate for any remaining shortfall

Other indirect or unforeseen costs

- Emergency services readiness (such as fire or EMS) for new infrastructure
- Potential costs related to decommissioning, oversight, or long-term land use changes

Economic Leverage Points Tools for individuals and local government	Person / Landowner	Local Government
Contract Negotiations		
The county may negotiate a Joint Development Agreement with provisions such as: <ul style="list-style-type: none"> • Prioritizing local contractors for construction, vegetation management, and maintenance • Developer-funded training for local residents to fill long-term solar facility jobs • Visual screening to reduce aesthetic impacts • Funding to offset costs like emergency services training • A commitment to maintain utility aid payments if the state law changes 		✓
Landowners can work with a knowledgeable attorney to negotiate a lease that optimizes financial benefits and addresses other concerns.	✓	
Neighboring property owners may be able to negotiate Good Neighbor Agreements with the developer for visual screening, a payment, or other ways to address impacts.	✓	

Want to learn more? Check out these resources.

- [Learn about Solar Land Leasing Contracts](#), UW-Madison Extension, offers a guide for landowners considering leasing their land, and a companion worksheet to help document important information when meeting with developers.
- [Finding a Wisconsin Farm Lawyer](#), UW-Extension
- [County Role in Siting Renewable Energy Projects](#), Wisconsin Land+Water, has several fact sheets about local authority in large-scale project siting.
- [Wisconsin Policy Brief Local Property Tax Impacts of Large-Scale Wind and Solar Projects](#) was created by the University of Michigan’s Graham Institute and the Center for EmPowering Communities to help communities understand how large-scale wind and solar projects impact local property taxes and budgets.
- [Utility Aid Payments for Wind and Solar Frequently Asked Questions](#), Clean Wisconsin

Section 5: Environment

This section includes:

- Information on life cycle impacts of utility-scale solar projects,
- Information on soil, water, and wildlife impacts of large-scale solar projects, and
- Potential leverage points, and resources to learn more about the environment.

Community input summary: benefits, concerns, and questions about the environment

Benefits

- **Energy:** Replaces fossil fuels and reduces emissions from electricity production
- **Water:** Reduces water pollution from fertilizers and pesticides, improves groundwater recharge
- **Biodiversity:** Supports biodiversity through pollinator-friendly practices
- **Soil:** Decreases soil erosion and runoff over system lifetime
- **Resting the land:** Provides opportunities for ecological restoration and habitat creation

Concerns

- **Soil:** Potential soil degradation from erosion, compaction, and removal
- **Habitat:** Wildlife disruption and habitat fragmentation
- **Water:** Contamination during construction and operation
- **End of life:** Impacts of panel and battery disposal

Questions

- **Toxins:** What are the risks of contamination from panels or batteries?
- **Wildlife:** How will projects affect local animals and ecosystems?
- **Life cycle:** Is solar power a net positive environmentally, when considering the inputs?
- **Site management:** What regulations ensure soil and water protection during construction and operation?

Green County community members identified many ways solar development might bring both benefits and harm to Green County's environment. They noted that renewable energy is beneficial because it creates fewer emissions than fossil fuels, and could increase biodiversity depending on the previous type of land use. They also had questions about how large-scale solar installations affect the environment, including water, soils, wildlife, and climate.

Solar Project Life Cycle Analysis

A life cycle analysis (LCA) evaluates the total environmental impact of a solar panel. This analysis includes impacts from raw material mining, manufacturing, electricity generation, disposal, and recycling. Modern solar panels in the United States have significantly reduced environmental impacts because manufacturing has become more energy-efficient, material use has declined, and recycling pathways are expanding. See Section 7, Decommissioning, for more information.

Is solar net-positive or negative for the environment?

Based on a 2024 National Renewable Energy Laboratory report on utility-scale solar projects, the energy payback time (EPBT) of a solar project in Wisconsin would be roughly 0.6 years, and the carbon payback time (CPBT) would be roughly one year. This means that within the first year of operation, a solar panel generates an equal amount of energy as was used to mine materials, manufacture its components, transport it, and install it. After this payback period, all remaining energy generation is effectively net-positive.

When accounting for manufacturing and end of life disposal are included, solar's total greenhouse gas emissions remain lower than nearly every other energy source, including nuclear and hydropower. During their life cycle, utility-scale solar PV systems in the U.S. generate electricity with 95% fewer greenhouse gas emissions compared to coal and roughly 90% fewer emissions than natural gas. Manufacturing energy use has fallen at least 30% due to efficiency improvements, and solar panels produce 25-35 times more energy than they consume over their lifetimes.¹⁸

Soils

How will solar projects affect soil health?

The greatest negative impacts on soil health typically occur during construction. As with any construction project, heavy equipment and soil disturbance risk compacting soils and increasing erosion.¹⁹ There may also be negative effects on soil health at the end of the project life, as decommissioning is expected to require use of heavy equipment and soil disturbance to remove racking systems and other structures. Solar developers should work with construction contractors to keep grading and topsoil movement to a minimum. See the Wisconsin DNR's [Best Management Practices for Solar Energy Projects](#) for additional ways to minimize soil damage during construction.

Vegetation management is critical to restoring and maintaining soil health both during construction and site operation. Once construction is done, perennial vegetation offers multiple soil health benefits compared to annual crops because the plants protect the soil surface all year long and their living roots support soil biology and structure year-round.

Habitat and Wildlife

What happens to existing habitat when a solar project is built?

The impact depends on the state of the land before construction. In previously cultivated areas, like crop fields, habitat can improve if native vegetation is added after construction of the solar facility. Careful siting and site management can help protect local wildlife, and designated areas of critical value for wildlife should be avoided when possible. The Nature Conservancy's interactive [Site Renewables Right](#) map shows known critical wildlife areas to help support decisions around site planning.²⁰

¹⁸ National Renewable Energy Lab (NREL), *An Updated Life Cycle Assessment of Utility-Scale Solar Photovoltaic Systems Installed in the United States*. (2024), <https://docs.nrel.gov/docs/fy24osti/87372.pdf>.

¹⁹ Great Plains Institute, *Best Practices: Photovoltaic Stormwater Management Research and Testing (PV-SMaRT)* (2023), <https://www.nrel.gov/solar/market-research-analysis/pv-smart>.

²⁰ The Nature Conservancy, "Site Renewables Right: A Clean and Green Energy Future," July 9, 2024, <https://www.nature.org/en-us/what-we-do/our-priorities/tackle-climate-change/climate-change-stories/site-wind-right/>.

Do solar farms disrupt wildlife movement or block animals like deer from passing through?

Large projects should be designed to minimize disruption to wildlife movement by using measures such as permeable fencing and wildlife corridors. Permeable fencing allows small animals to pass under the fence, and corridors are unfenced spaces between areas of panels that allow larger animals to pass through.

How do solar projects impact pollinators and biodiversity?

Wisconsin's native pollinator populations have been declining, and large-scale solar projects offer an opportunity to restore habitat and promote growth by planting native vegetation.²¹ Establishing perennial native plants under and between solar panels can improve habitat quality for pollinators in the Midwest by up to 300% compared to traditional row cropland. In addition, when pollinator-friendly vegetation is used, crops such as soybeans and cranberries can see higher yields and improved quality up to one mile beyond the solar site due to increased pollinator activity. When native and pollinator-friendly seed mixes are planted below and between solar panels, they also create stable habitats that support other insects, birds and other small wildlife, especially if mowing is timed to avoid disturbing nesting birds.²²

How can we measure whether a solar site is supporting biodiversity?

Researchers and agencies can use tools such as [pollinator scorecards](#)²³ and pollinator counts to track the quality of the habitat over time. This tracking can help communities quantify the responses of native plants and animals when solar panels are introduced to the land, allowing for necessary adjustments.

Water

Because Green County has good groundwater resources, there were questions about impacts to groundwater quantity and quality. Depending on where they are sited and how they are managed, solar projects have the potential to improve or decrease water quality.

How will solar projects affect water runoff and groundwater recharge?

Construction increases risk of runoff due to soil disturbance and heavy equipment compacting surface soils. Consult the Wisconsin DNR's [Best Management Practices for Solar Energy Projects](#)²⁴ or the Great Plains Institute's [Photovoltaic Stormwater Management Research and Testing \(PV-SMaRT\)](#) project²⁵ for best practices during construction.

Even after construction is completed, the hard surfaces of the solar panels mean that instead of rain falling evenly across the site there are areas of concentrated water hitting the soil surface below the panel edges. This changed precipitation pattern increases the risk of rainfall running off the site. However, if the site has good perennial vegetative cover such as native pollinator species or perennial forages for sheep, then the vegetated

²¹ Wisconsin Department of Natural Resources, "Saving Wisconsin's Native Pollinators," accessed January 12, 2026, <https://dnr.wisconsin.gov/topic/endangeredresources/pollinators>

²² Clean Wisconsin, *Local Environmental Benefits of Solar Farming in Wisconsin*, April 3, 2025, <https://www.cleanwisconsin.org/local-environmental-benefits-of-solar-farming-in-wisconsin/>

²³ UW-Madison, "Wisconsin Solar Pollinator Program," accessed January 5, 2026, <https://pollinators.wisc.edu/solar/about/>.

²⁴ Wisconsin Department of Natural Resources, "Wisconsin DNR Best Management Practices (BMPs) for Solar Energy Projects," 2025, https://dnr.wisconsin.gov/sites/default/files/topic/Sectors/Solar_BMPs_FINAL_November_2025.pdf

²⁵ Great Plains Institute, *Best Practices: Photovoltaic Stormwater Management Research and Testing (PV-SMaRT)* (2023), <https://www.nrel.gov/solar/market-research-analysis/pv-smart>.

areas between the panels are expected to absorb any runoff.²⁶ UW-Madison is currently conducting research on the hydrological impacts of a solar array.

If the land was in row crops that did not use cover crops before the solar development, then replacing those crops with perennial groundcover, especially native deep-rooted species, can reduce the likelihood of runoff and erosion, particularly between October and May.

Solar developers should check the site for the presence of tile and other drainage infrastructure, avoid damage to those structures, and repair them when necessary as outlined in [Chapter PSC 128: Wind Energy Systems: Decommissioning \(PSC 128.19\)](#) and the PSC's [Solar Energy Projects Application Filing Requirements](#).

How will solar projects affect water quality?

The greatest risks to water quality from solar development occur during construction and decommissioning. During those phases there is a risk of erosion due to soil disturbance that can negatively affect surface water resources.

If solar development occurs on land that was previously in row crops, and if the site is planted with diverse perennial vegetation, then solar projects will likely improve water quality once construction is done. These water quality improvements are due to two factors. First, in contrast to when it was producing row crops, the land is no longer at risk for erosion in winter and early spring because it is covered in year-round vegetation. Second, some of the fertilizers and pesticides typically applied to row crops get into the surface and groundwater.²⁷ Once they are established, pollinator plantings and diverse pasture mixes generally do not require additional fertilizer or pesticide applications.

Intact solar panels do not leach chemicals, and they are designed to withstand most severe weather, including moderate hail.²⁸ Even when panels are damaged or cracked, the exposure point concentrations are still "several orders of magnitude below USEPA health screening values for soil, air, and groundwater."²⁹ Most modern panels also pass federal "leachate" Toxic Characteristic Leaching Procedure (TCLP) tests, meaning they are not classified as hazardous waste at the end of their lifespan.³⁰

Air and emissions

Green County participants appreciated that solar development could reduce greenhouse gas emissions and other air pollution associated with electricity production from fossil fuels. See the section on Life Cycle Analysis at the beginning of this section for more information.

²⁶ Chesapeake Bay Scientific and Technical Advisory Committee (STAC), "Best Management Practices to Minimize Impacts of Solar Farms on Landscape Hydrology and Water Quality," January 2024, https://www.chesapeake.org/stac/wp-content/uploads/2024/01/FINAL_Report_Solar-Development_24_001-2.pdf.

²⁷ Extension Green County, "Groundwater Quality Trend Data Program," December 2025, <https://green.extension.wisc.edu/groundwater-quality-trend-data-program/>.

²⁸ North Carolina State Extension Publications, *Health and Safety Impacts of Solar Photovoltaics* (2017), <https://content.ces.ncsu.edu/health-and-safety-impacts-of-solar-photovoltaics>.

²⁹ International Energy Agency, *Human Health Risk Assessment Methods for PV Part 2 – Breakage Risks* (IEA PVPS, 2019), https://iea-pvps.org/key-topics/iea-pvps-t12-15_human-health-risk-assessment-methods-for-pv-part-2/.

³⁰ North Carolina State Extension Publications, *Health and Safety Impacts of Solar Photovoltaics* (2017), <https://content.ces.ncsu.edu/health-and-safety-impacts-of-solar-photovoltaics>.

How will solar development affect climate change and local microclimates?

As discussed in the Life Cycle Analysis section, large-scale solar projects generate 90% lower greenhouse gas emissions than natural gas. Solar panels convert the energy from sunlight into electricity and do not generate waste heat as part of that process, so solar facilities do not have the same heat island effect as urban development. If the sites are vegetated, evapotranspiration (EV) from the vegetation, combined with shading by the panels, are expected to have a slight cooling effect on site. This evaporative cooling will likely be slightly smaller than that associated with corn in July and August. Research at a nearby solar site in Dane County will provide better information on the microclimate impacts of solar facilities in coming years.

Environmental Leverage Points Tools for individuals and local government	Person/ Landowner	Local Government
Comprehensive Plans		
Recommend that renewable energy development protect biodiversity by: <ul style="list-style-type: none"> • Prioritizing previously cultivated lands rather than natural areas for solar projects, • Identifying critical wildlife areas and migration routes and recommending permeable fencing and wildlife corridors to allow wildlife movement, • Planting native perennial vegetation to increase biodiversity and protect soil and water, and • Following the DNR’s Best Management Practices for Solar Energy Projects. 		✓
Conditional use permits for projects under 100 MW		
<ul style="list-style-type: none"> • Require construction best management practices such as avoiding soil disturbance and use of heavy equipment when soils are wet, minimizing grading and other movement of topsoil, and monitoring compaction,³¹ • Require or recommend perennial vegetation ground cover, including deep-rooted native perennial plants which offer the greatest biodiversity and soil health benefits between panel arrays and, if needed, shade-tolerant vegetation under panels where native prairie species are unlikely to thrive, and • Require fencing that allows wildlife movement, in accordance with the DNR’s Best Management Practices for Solar Energy Projects. 		✓

³¹ Great Plains Institute, *Best Practices: Photovoltaic Stormwater Management Research and Testing (PV-SMaRT)* (2023), <https://www.nrel.gov/solar/market-research-analysis/pv-smart>.

Want to learn more? Check out these resources.

- [Best Management Practices \(BMPs\) for Solar Energy Projects](#), Wisconsin Department of Natural Resources
- [An Updated Life Cycle Assessment of Utility-Scale Solar Photovoltaic Systems Installed in the United States](#), Natural Renewable Energy Laboratory
- [Soil Health in Solar Development](#), Center for Rural Affairs
- [Energy Siting: Resources for Preliminary Siting Assessment](#), Renewable Energy Wildlife Institute (REWI), discusses wildlife considerations around large-scale siting
- [The Nature Conservancy Site Renewables Right Interactive Mapping Tool](#) provides spatial information on key wildlife and conservation values that can inform siting discussions
- [Principles of Low Impact Solar Siting and Design](#) by The Nature Conservancy

Section 6: Land Use

This section includes:

- Land use and visual implications of large-scale solar development,
- Information about the potential for dual use of large-scale solar projects,
- Potential leverage points, and resources to learn more about land use.

Community input summary: benefits, concerns, and questions about land use

Benefits

- **Siting:** Allows productive use of marginal or unused land
- **Agrivoltaics:** Enables dual-use options like sheep grazing and pollinator habitats
- **End of project:** Solar projects can be decommissioned, letting land return to agriculture

Concerns

- **Farmland:** Loss of prime agricultural land and growing capacity
- **Costs:** Rising land values and rental rates impacting farmers
- **Alternative sites:** Why not prioritize rooftops, parking lots, or non-arable land instead of prime farmland?
- **Visual impacts:** Changes the rural character of the area

Questions

- **Farming impacts:** How can solar be integrated without harming agricultural productivity?
- **Siting:** Where is the most suitable land for solar development?
- **Agrivoltaics:** Can solar installations coexist with grazing and crop production?

Green County contains significant agricultural acreage and relatively low-density development. As seen statewide, most utility-scale solar projects occur in counties with characteristics that include flat land, access to transmission, and utility infrastructure.

Many participants had comments about the potential land use impacts of large-scale solar. The top concern was that solar development would take good farmland out of production. There were also comments that solar development is more reversible than residential or commercial development, and that some agricultural production is possible in solar fields. There were several questions about alternative locations for utility-scale solar, and participants also had questions and concerns about the potential aesthetic impacts of solar development.

Farmland Loss

When considering large-scale solar's impact on Green County, participants expressed concern about loss of farmland leading to higher land prices, and a lack of places to spread manure.

Why are large-scale solar projects usually built on agricultural land?

Large-scale solar projects are most efficient and profitable on large parcels of flat land with deep soils and no trees or buildings, which means they often are sited on farmland. Applications for projects larger than 100 megawatts are required to address plans to minimize the impact on the long-term agricultural potential of the site, including practices to minimize damage to soils and tile drainage, and plans to restore the site.³²

Will solar development affect our food supply?

The Center for Land Use Education – UW Stevens Point estimated that for Wisconsin to meet its goal of net zero carbon emissions for electricity production will take between 240,000 and 340,000 acres of land for solar generation, which is roughly 3% of the land currently in field crops.³³ In comparison, Wisconsin currently grows more than 1 million acres of corn for ethanol.³⁴

Why not put solar on buildings, parking lots, or brownfields?

Utility-scale renewable energy projects are mostly built on farmland because it offers large parcels that are easy to connect, affordable, and ready to build.

Solar projects on buildings, parking lots, and brownfields are all viable and important for energy independence and grid resilience. However they are not able to replace utility-scale energy generation facilities because of the acreage required to generate the energy needed. Some limitations to the alternative sites are outlined below.

Buildings

Rooftop solar is an important component of sustainable electricity production, and can provide cost savings as well as environmental benefits. However, in most cases rooftop solar produces just enough electricity to meet the building's own needs, not large amounts for the wider grid. Commercial rooftop solar is usually tied to a customer's utility meter and managed through net-metering programs. You can learn more about net metering in Wisconsin on the Public Service Commission of Wisconsin's website.³⁵

Parking lots

Solar panels in parking lots are called solar car parks, and they create dual use opportunities for parking lots. There are benefits to the shade from sun or shielding from snow provided by the panels, as well as an opportunity to locate generation closer to demand and EV charging infrastructure. However, they are significantly more expensive than both rooftop and ground-mounted systems because they require extensive steel structures to elevate and support panels, concrete foundations, additional safety features for vehicle traffic, and considerations for snow loads, plowing, and maintenance. These added costs make carports one of the most expensive forms of solar per kilowatt installed.

³² Public Service Commission of Wisconsin and the Wisconsin Department of Natural Resources, "Solar Energy Projects Application Filing Requirements," 2022, <https://psc.wi.gov/SiteAssets/2022SolarPowerAFR.pdf>.

³³ Center for Land Use Education, UW-Stevens Point, "Utility-Scale Solar Suitability Modeling," 2022, <https://storymaps.arcgis.com/stories/532f59d04047449d920c068f99bb9d2b>.

³⁴ Clean Wisconsin, *Corn Ethanol vs. Solar Land Use Comparison*, March 2023, <https://www.cleanwisconsin.org/corn-ethanol-vs-solar-land-use-comparison/>.

³⁵ Public Service Commission of Wisconsin, "PSC Customer-Owned Electrical Generation: Net Metering," accessed January 6, 2026, <https://psc.wi.gov/Pages/ForConsumers/MoreResources/CustomerOwnedGeneration.aspx>.

Brownfields and degraded lands

Solar on degraded lands such as closed landfills, mines, or brownfields can provide an opportunity to generate power and economic benefit from a site that is not suited for other types of land use. New York and other states have successfully developed 1-5 MW projects on degraded land, but very few exceed this size, in part because most brownfields do not occupy much acreage. In addition, these sites often require special engineering, such as ballasted racking or protective soil caps, which increases costs. Developers may also face additional permitting and environmental regulations, and these projects often need incentives or financial support to be economically viable.³⁶

While these sites are valuable for community-scale solar projects, they cannot replace the land area required for utility-scale generation.

Visual Landscape

Participants value the beauty of Green County's agricultural landscape and rolling hills and do not want large-scale solar development to harm the county's scenic beauty or associated tourism revenue.

Can visual impacts be minimized?

There are ways to reduce changes to the viewshed. Developers can plant trees and shrubs around solar projects to reduce visibility of the project from neighboring properties. Evergreen trees can block views of the panels even in winter, and a mix of native evergreen and flowering trees and shrubs can provide habitat for wildlife as well as screening the solar facility. Other practices that can improve the aesthetics of solar facilities include planting the site with native flowering plants, sheep grazing, placing unattractive equipment such as inverters in the center of the site, and minimizing areas of bare soil such as roads and staging areas.

Dual Use Solar: Agrivoltaics and Pollinator Plantings

Green County community members were interested in using solar project land for agricultural or environmental production opportunities, and there were several questions about the options.

Large-scale solar projects have the possibility of supporting additional beneficial uses during the life of the solar installation. These other uses are usually either certain agricultural uses or establishment of diverse native species that support beneficial insects such as native bees and butterflies, as well as other small animals. In general, this strategy is called dual use, and when the second land use is agricultural it is also called "agrivoltaics" - a combination of agriculture and solar photovoltaics.

What types of agrivoltaics work in Wisconsin?

There are agrivoltaics projects that integrate solar power generation with a wide range of crops, from vegetables to grains to livestock.³⁷ For utility-scale projects it is not currently financially feasible to raise the panels high enough to allow large livestock like cattle easy access under them, or to space them far enough

³⁶ Center for the New Energy Economy, *Brownfields to Brightfields: State Policy Models to Facilitate the Reuse of Degraded Lands for Renewable Energy*, October 2024, <https://hdl.handle.net/10217/240102>.

³⁷ National Renewable Energy Lab (NREL), *The 5 Cs of Agrivoltaic Success Factors in the United States: Lessons From the InSPIRE Research Study*, August 2022, <https://www.agrisolarclearinghouse.org/the-5-cs-of-agrivoltaic-success-factors-in-the-united-states-lessons-from-the-inspire-research-study/>.

apart to safely allow large farm machinery access. The type of agrivoltaics that has seen the most success to date is sheep grazing.³⁸

Sheep grazing, also known as solar grazing, has the following advantages:

- Sheep are small enough that they do not damage the panels, and can easily graze under them,
- The vegetation they graze protects the soil year-round, unlike annual crops such as vegetables or grains,
- The grazing keeps the vegetation low so it does not shade the panels or interfere with airflow,
- As a result, the farmer can get paid by the solar operator for managing the vegetation,
- The panels can provide shade for the sheep in hot weather, and
- Solar sites have good perimeter fence that will keep the sheep in and may help keep out some predators.³⁹

In 2024 the US imported 73% of the lamb consumed, so there is potential for increased domestic production.⁴⁰

What about agrivoltaics with cattle?

At present, allowing cattle to graze in utility-scale solar systems is not economically feasible because of the risk that the animals will damage the panels. Raising the panels high enough that cattle cannot reach them is currently too expensive. However, research on cattlevoltaics is ongoing.

Production of alfalfa and other forages on agrivoltaic sites is likely to be both economically and technically feasible, and would integrate well with the existing dairy sector in Wisconsin. Like sheep grazing, this practice will require planning and accommodation on the part of both solar site operators and farmers, such as the use of small equipment.⁴¹

Pollinator plantings?

Many solar project operators plant a diverse mix of native grasses and flowering plants to hold the soil in place and provide environmental benefits. While the seed is more expensive and is likely to require more management than turf grass for the first year, the additional costs are not prohibitive, and the ecological benefits are significant.⁴²

While these plantings are not an agricultural crop, the pollinators and other beneficial insects supported by diverse native vegetation can benefit nearby agricultural crops.⁴³

³⁸ Institute for Energy Economics and Financial Analysis, "Agrivoltaics: An Economic Option for Farmers and Rural Development," November 2025, <https://ieefa.org/resources/agrivoltaics-economic-option-farmers-and-rural-development>.

³⁹ UW-Madison Extension, Solar Grazing Checklist, 2026, <https://go.wisc.edu/solargrazing>.

⁴⁰ American Sheep Industry Association, "Overview of Lamb and Mutton Imports," March 2025, <https://www.sheepusa.org/wp-content/uploads/2025/03/ASI-Trade-One-Page-on-Lamb-and-Mutton-Imports-final.pdf>.

⁴¹ Ohio State University Extension, "Farm Energy Management | Energize Ohio," accessed December 1, 2025, <https://energizeohio.osu.edu/farm-energy-management>.

⁴² Wisconsin Department of Natural Resources, "Wisconsin DNR Best Management Practices (BMPs) for Solar Energy Projects," Office of Energy Projects, 2025, <https://dnr.wisconsin.gov/topic/Sectors/Energy.html>.

⁴³ Environmental Science & Technology, "Examining the Potential for Agricultural Benefits from Pollinator Habitat at Solar Facilities in the United States," 2018, <https://pubs.acs.org/doi/10.1021/acs.est.8b00020>.

Land Use Leverage Points

Tools for individuals and local government

	Person / Landowner	Local Government
Alternative Locations		
Identify areas in comprehensive plan, such as closed landfills and mines, that the community would like to prioritize for renewable energy generation.		✓
Agrivoltaics (dual use)		
Include provisions in the lease allowing agrivoltaics and/or requiring maintenance of key agricultural infrastructure such as wells.	✓	
Include language in comprehensive plan and/or in an ordinance encouraging dual use of solar sites or following DNR best management practices for vegetation on solar sites.		✓
Include a provision allowing dual use in Joint Development Agreements (JDAs).		✓
Require following DNR best management practices for vegetation in an ordinance or as part of conditional use permits for projects under 100MW. See the Wisconsin Department of Natural Resources Best Management Practices (BMPs) for Solar Energy Projects , pages 6-7.		✓
Visual Impacts		
Negotiate practices with developers to minimize visual impacts as part of contracts, including JDAs, Good Neighbor Agreements, and individual landowner leases.	✓	✓
The comprehensive plan can recommend screening and siting practices to reduce visual impacts from energy facilities.		✓

Want to learn more? Check out these resources.

Agrivoltaics (dual use)

- [Solar Grazing Checklist for Farmers and Solar Site Managers](#), UW-Madison Extension
- [Solar Grazing Best Management Practices](#), American Solar Grazing Association
- [Agrivoltaics](#), Center for Rural Affairs
- [Agrivoltaics: An economic option for farmers and rural development](#), Institute for Energy Economics and Financial Analysis
- [Pollinator Habitat Aligned with Solar Energy \(PHASE\) Toolkits and implementation manuals](#)

- [Honey Bee Health Coalition Guidelines for Developing Pollinator-Friendly Utility-Scale Solar Projects](#)

Alternative sites

- [Community Planning for Solar: Conducting a Solar Resource and Infrastructure Assessment](#), pages 38-42, UMass Amherst Clean Energy Extension
- [Developing Solutions for Brownfield Renewable Energy in Michigan](#), University of Michigan
- [Brownfields to Brightfields: State Policy Models to Facilitate the Reuse of Degraded Lands for Renewable Energy](#), Colorado State University Center for the New Energy Economy

Section 7: Decommissioning

This section includes:

- Information about the physical and financial aspects of solar project decommissioning, and
- Decommissioning leverage points, and resources to learn more about best practices.

Community input summary: benefits, concerns, and questions about decommissioning

Benefits

- **Farmable:** Land can be returned to agricultural use after project life

Concerns

- **Soil impacts:** Potential contamination, loss, or compaction during equipment removal
- **Equipment disposal:** Limited recycling infrastructure for panels and system components
- **Regulations:** Insufficient planning for end of life processes
- **Costs:** Financial risks if companies dissolve or go bankrupt

Questions

- **Recycling:** Can all materials be effectively recycled?
- **Land restoration:** What practices ensure the land can be farmed again?
- **Regulations:** What financial guarantees ensure proper decommissioning?
- **Costs:** Who pays for equipment removal and site cleanup?

Green County residents had many questions about what happens to large-scale solar projects at the end of the project's life. They wanted to know who is responsible for removing equipment, what happens to the panels and system components, who will pay for it, and what will happen if the operator goes bankrupt. Here are some answers to the physical and financial questions around solar project decommissioning.

What happens at the end of a large-scale solar project's life?

Most land-leasing agreements for large-scale solar projects run 20–30 years, often with an optional 10-year extension. When the contract ends, two outcomes are possible, repowering or decommissioning. Repowering means replacing solar panels while reusing existing infrastructure such as racking and cabling. Decommissioning involves removing equipment and restoring the site for agriculture or other uses. Estimated decommissioning costs range from \$21,700 to \$56,300 per megawatt, though costs may change over time depending on labor, recycling availability, and inflation.⁴⁴

⁴⁴ Center For Rural Affairs, "Decommissioning Solar Energy Systems Resource Guide," June 2022, <https://www.cfra.org/decommissioning-solar-energy-systems>.

Can solar panels and equipment be recycled?

Because most solar facilities are still within their operating life, large-scale decommissioning is only beginning to occur in the United States. However, many components can be reused or recycled. Aluminum frames, wiring, and clean glass can be easily recycled. Specialized recycling facilities are required for silver, copper, or silicon wafers. Potentially hazardous components include lead, cadmium, or other metals.⁴⁵ Most modern panels pass federal tests and are not classified as hazardous waste at the end of their lifespan.⁴⁶

The Department of Natural Resources has a guidance document [Managing Used Solar Panels and Components](#).⁴⁷ The US Environmental Protection Agency has information about [Solar Panel Recycling](#),⁴⁸ and the Solar Energy Industries Association has an informational hub [SolarRecycle.org](#)⁴⁹ with information on topics like expanding recycling, material recovery, and manufacturer take-back options.

Who is responsible for decommissioning?

Although Wisconsin law does not explicitly name responsible parties for solar projects, responsibility generally falls to the developer or site operator. Wind energy rules in [PSC 128.19: Decommissioning](#)⁵⁰ require wind developers to remove infrastructure and restore land for farming. While written for wind systems, these standards are often used as a reference for solar projects as well. No comparable statewide regulations for solar have been developed by the PSC.

Are there financial protections if the project owner goes bankrupt?

For wind energy systems, [PSC 128.19\(3\)\(b\)](#) allows local governments to require bonds, escrow accounts, or letters of credit to ensure decommissioning funds are available. Communities often apply the same approach to solar projects. From PSC 128.19(3)(b), “A political subdivision may require an owner of a wind energy system with a nameplate capacity of one megawatt or larger to provide financial assurance of the owner’s ability to pay for the actual and necessary cost to decommission the wind energy system before commencing major civil construction activities such as blasting or foundation construction at the wind energy system site. An owner may comply with this paragraph by choosing to provide a bond, deposit, escrow account, irrevocable letter of credit, or some combination of these financial assurances, that will ensure the availability of funds necessary for decommissioning throughout the expected life of the wind energy system and through to completion of the decommissioning activities.”

For projects under 100 MW, local governments can require a plan for decommissioning and financial assurance for utility-scale renewable projects through ordinances or permitting as part of a conditional use permit (CUP).

A complete decommissioning plan typically includes:

- How equipment will be dismantled and removed,

⁴⁵ Center For Rural Affairs, “Decommissioning Solar Energy Systems Resource Guide,” June 2022, <https://www.cfra.org/decommissioning-solar-energy-systems>.

⁴⁶ North Carolina State Extension Publications, *Health and Safety Impacts of Solar Photovoltaics* (2017), <https://content.ces.ncsu.edu/health-and-safety-impacts-of-solar-photovoltaics>.

⁴⁷ Wisconsin Department of Natural Resources, “Managing Used Solar Panels and Components: Guidance for Solar Panel Collection, Storage, Transportation, Recycling and Disposal (WA-2038),” 2024, <https://dnr.wisconsin.gov/topic/Waste/HWRResources.html>.

⁴⁸ US EPA, “Solar Panel Recycling,” Guidance (OMB), August 23, 2021, <https://www.epa.gov/hw/solar-panel-recycling>.

⁴⁹ Solar Energy Industries Association (SEIA), “Circular Economy,” SEIA, accessed January 6, 2026, <https://seia.org/initiatives/circular-economy/>.

⁵⁰ Wisconsin State Legislature, “Wisconsin Statute 196.378(4g)(b): Wind Energy Systems,” accessed November 1, 2025, [https://docs.legis.wisconsin.gov/document/statutes/196.378\(4g\)\(b\)](https://docs.legis.wisconsin.gov/document/statutes/196.378(4g)(b)).

- How materials will be reused, recycled, or disposed,
- How land will be restored,
- Estimated decommissioning costs,
- Required financial assurance mechanisms, and
- Transfer of decommissioning obligations to any new project owner.

Types of financial assurance:

- Letter of credit,
- Performance bond,
- Escrow account, or
- Other approved mechanisms.

It is important to specify that the decommissioning plan and responsibility must be transferred to any new owner of the project. The only exception is that public utilities regulated by the PSC are not required to provide separate financial assurance.

For solar projects 100 MW or larger, developers must meet the PSC’s [Solar Energy Projects Application Filing Requirements](#),⁵¹ which include:

- Demonstrating how land will be restored to agricultural use,
- Describing equipment removal and material disposal, and
- Providing decommissioning cost estimates.

Local jurisdictions may also negotiate Joint Developer Agreements, which can include financial assurance provisions.

Landowners

Landowners who lease their land for solar projects of any size may include decommissioning and land restoration requirements directly in their lease agreements. This can include specified restoration standards, required financial protections, and transferrable obligations if the project is sold.

Decommissioning Leverage Points Tools for individuals and local government	Person/ Landowner	Local Government
Under 100 MW		
Require a plan for decommissioning and appropriate financial assurance from developers to cover project decommissioning costs as part of conditional use permits. Note: Financial assurance can be in the form of bonds, letters of credit, or escrow accounts (Chapter PSC 128.19(3)(b): Wind Energy Systems)		✓
Communities may require developers to follow Wisconsin DNR guidance on recycling and disposal standards for solar equipment as part of conditional use permits for large-scale renewable energy projects.		✓

⁵¹ Public Service Commission of Wisconsin and the Wisconsin Department of Natural Resources, “Solar Energy Projects Application Filing Requirements,” 2022, <https://psc.wi.gov/SiteAssets/2022SolarPowerAFR.pdf>.

	Person / Landowner	Local Government
100 MW and Larger		
Local jurisdictions may negotiate Joint Developer Agreements with developers that include financial assurance provisions for decommissioning.		✓
Any Project		
Negotiate land lease provisions to: <ul style="list-style-type: none"> • Require restoration of soils and drainage tile • Guarantee decommissioning • Set timelines by which decommissioning funds must be secured • Specify financial protections if the project is sold or the developer goes bankrupt Note: Learn about Solar Land Leasing Contracts for additional guidance.	✓	

Want to learn more? Check out these resources.

- [Managing Used Solar Panels and Components: Guidance on testing, hazardous waste rules, collection, transport, storage, and disposal](#), Wisconsin Department of Natural Resources
- [Decommissioning Solar Energy Systems Resource Guide](#) from the Center for Rural Affairs
- [Town of Lyndon Decommissioning Plan](#) includes detailed decommissioning steps and financial assurances
- [Decommissioning Utility-Scale Solar Facilities](#) by the University of Virginia and consultants
Although state law around large-scale renewable energy is different in Virginia than Wisconsin, many of the considerations and tools described could still be useful in Wisconsin
- [Solar Energy Technologies Office Photovoltaics End-of-Life Action Plan](#). U.S. Department of Energy, Office of Energy Efficiency & Renewable Technology, March 2022.
- The US Environmental Protection Agency has information about [Solar Panel Recycling](#)
- [SolarRecycle.org](#) is the Solar Energy Industries Association’s information hub
- [Benchmarking Utility-Scale PV Operational Expenses and Project Lifetimes](#) from Lawrence Berkeley National Laboratory
- National Renewable Energy Laboratory Research Papers
 - [Best Practices at the End of the Photovoltaic System Performance Period](#)
 - [Solar Photovoltaic Module Recycling: A survey of U.S. Policies and Initiatives](#)
 - [A Circular Economy for Solar Photovoltaic System Materials](#)

Section 8: Health & Safety

This section includes:

- Health and safety information about large-scale solar projects,
- Federal regulations around fires and toxins, and
- Potential leverage points, and resources to learn more about health and safety.

Community input summary: benefits, concerns, and questions about health and safety

Benefits

- **Air:** Reduced emissions from fossil fuel generation
- **Water:** Improved water quality
- **Safer than alternatives:** When compared with coal or nuclear plants

Concerns

- **Fire:** Risks from battery storage systems
- **Stray voltage:** Possible electrical hazards from large-scale systems
- **Toxins:** Equipment damage and contamination concerns
- **Local capacity:** Emergency response challenges for local emergency service departments

Questions

- **Safety measures:** What mitigates fire and electrical risks?
- **Responses:** How will emergency services be equipped to handle solar-related incidents?
- **Responsibility:** Who covers costs for damage or accidents?
- **Insurance:** Who insures the systems?
- **Human health:** Do solar projects pose any noise or health concerns for nearby residents?

Green County residents were concerned about possible fires, toxic contamination, weather damage, and other health and safety issues related to large-scale solar projects. This section summarizes the fire and toxin risks associated with renewable energy systems and the standards used to mitigate them in Wisconsin.

Fires

Fire safety is a main concern for many communities when it comes to solar panels and battery storage systems. This section outlines the major risks, the standards that guide system design, and how local responders prepare for potential incidents.

What are the fire risks and regulations with photovoltaic (PV) solar panels?

Solar panel fires are rare. Most fire concerns stem from electrical components like wiring, connectors, and inverters. Codes and regulations can help manage these risks through design and installation standards.

Wisconsin follows NFPA 70, also known as the [National Electrical Code \(NEC\)](#).⁵² The NEC protects people and property from electrical hazards through proper inspection and installation. Sections 690 and 691 outline the requirements for the safe design and installation of PV systems.

How can local emergency responders prepare for solar (PV) related fires?

Firefighters can prepare by completing solar-specific trainings like [Solar PV Safety](#) from the International Association of Fire Fighters,⁵³ which uses online simulations to teach crews how to handle PV-related incidents.

Local governments can also negotiate for additional emergency services training and equipment with developers during the permitting process if applicable.

What are the fire risks and regulations with battery energy storage systems (BESS) ?

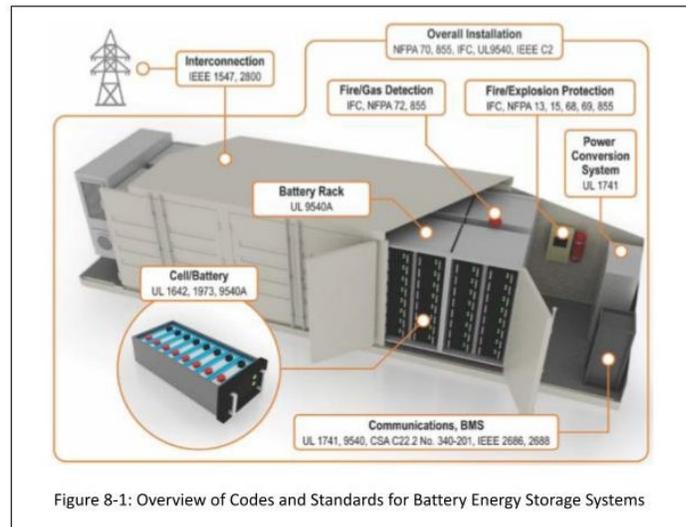
While the risk is low, battery energy storage systems (BESS) pose a higher risk than solar panels. The primary concern is thermal runaway, which occurs when a battery cell generates uncontrollable heat. Modern codes require specific gaps between battery units to prevent a fire in one cell from spreading to others.

The [Energy Storage in Local Zoning Ordinances report](#) includes an overview of codes and standards for BESS projects, as well as a survey of local zoning ordinances (Figure 8-1).⁵⁴

The current Wisconsin legislation follows the [2021 International Fire Code \(IFC\)](#), which includes references to [NFPA 855](#),⁵⁵ the standard for installation and fire suppression in energy storage.

UL 9540 and 9540A are testing standards within

NFPA 855 that ensure system controls can prevent or contain thermal runaway. However, it is up to local jurisdictions to fully implement NFPA 855.



How can local emergency responders prepare for BESS-related fires?

Wisconsin does not currently mandate BESS-specific training statewide. However, NFPA 855 recommends that local departments:

- Coordinate emergency operation plans with developers,
- Conduct pre-incident planning to understand shutdown procedures, and
- Develop strategies to mitigate harm to personnel and prevent total system loss.

⁵² National Fire Protection Association, "NFPA 70, National Electrical Code (NEC) (2026)," 2026, <https://www.nfpa.org/product/nfpa-70-national-electrical-code-nec/p0070code>.

⁵³ "Solar PV Safety Training," April 6, 2020, <https://www.iaff.org/solar-pv-safety/>.

⁵⁴ Pacific Northwest National Laboratory, "Energy Storage in Local Zoning Ordinances," Pacific Northwest National Laboratory, November 2023, <https://www.pnnl.gov/publications/energy-storage-local-zoning-ordinances>.

⁵⁵ National Fire Protection Association, "NFPA 855: Standard for the Installation of Stationary Energy Storage Systems," 2026, <https://www.nfpa.org/codes-and-standards/nfpa-855-standard-development/855>.

Toxins

This section addresses common community concerns regarding potential toxins in solar panels, and the contamination risks for soil, water, and human health.

What toxic materials are in solar panels, and are they a health risk?

Solar panels do not pose meaningful toxicity risks to human health. The lead in crystalline silicon modules (the majority of solar panels in production) is less than 0.1%, and the cadmium and tellurium in Cadmium telluride modules is also less than 0.1%.⁵⁶

In addition to being small amounts, solar panels have an annual breakage rate of ~0.04%. When panels are damaged or cracked, the exposure point concentrations are still “several orders of magnitude below USEPA health screening values for soil, air, and groundwater.”⁵⁷ Most modern panels also pass federal “leachate” Toxic Characteristic Leaching Procedure (TCLP) tests, meaning they are not classified as hazardous waste at the end of their lifespan.⁵⁸

What toxins are in batteries, and are they a health risk?

Lithium-ion batteries can release a wide range of hazardous materials into the air if a fire occurs, which can cause health hazards to workers, fire responders, and nearby residents. Strict adherence to fire safety codes like UL 9540 (the testing standard for BESS) is the best way to prevent these chemical releases. The potential air and water borne contaminants from fighting a battery fire are discussed in the article [Air emissions & firewater runoff contamination from lithium-ion battery fires in rubbish trucks](#).⁵⁹

Stray Voltage

Is stray voltage a concern, and how is it prevented?

Stray voltage is a low-level electrical discharge from grounded metal objects. While a concern for livestock, solar projects do not usually create stray voltage. NEC 690 is the wiring and grounding standard designed to eliminate the risk. The Public Service Commission of Wisconsin (PSC) has a [stray voltage testing protocol](#), and they require developers to “discuss any plans to conduct stray voltage testing pre- and post-construction” in their [Solar Energy Projects Application Filing Requirements](#).

⁵⁶ National Renewable Energy Laboratory (NREL), “Unfounded Concerns about Photovoltaic Module Toxicity and Waste Are Slowing Decarbonization,” *Nature Physics* 19, no. 10 (2023): 1376–78, <https://doi.org/10.1038/s41567-023-02230-0>.

⁵⁷ International Energy Agency, *Human Health Risk Assessment Methods for PV Part 2 – Breakage Risks* (IEA PVPS, 2019), <https://iea-pvps.org/key-topics/iea-pvps-t12-15-human-health-risk-assessment-methods-for-pv-part-2/>.

⁵⁸ North Carolina State Extension Publications, *Health and Safety Impacts of Solar Photovoltaics* (2017), <https://content.ces.ncsu.edu/health-and-safety-impacts-of-solar-photovoltaics>.

⁵⁹ Environmental Pollution, “Air Emissions & Firewater Runoff Contamination from Lithium-Ion Battery Fires in Rubbish Trucks,” *Environmental Pollution* 389 (January 2026): 127437, <https://doi.org/10.1016/j.envpol.2025.127437>.

Extreme Weather Events

Green County community members had questions about what type of weather damage can happen to solar projects, and who covers the costs.

Does extreme weather damage solar panels, and who pays for repairs?

Solar panels are built and tested to withstand major weather events including storms, hail, and snow. Hail damage is the largest extreme weather risk and cost to plant operators, and a combination of thinner panel designs and more extreme weather events are increasing the annual damage rates.⁶⁰

The equipment owner is financially responsible for repairs and typically carries insurance for these risks.

Landowners should ensure their lease agreements clearly state that they are not liable for weather damage to the system, and include any site cleanup requirements.

Health and Safety Leverage Points Tools for individuals and local government	Person/ Landowner	Local Government
Toxins		
Require battery systems to be UL 9540 compliant to prevent fires and chemical leaks as part of a conditional use permit.		✓
Stray voltage		
Require pre- and post-construction testing as a condition of the project's approval as part of a conditional use permit for projects less than 100 MW.		✓
Emergency response training		
Coordinate with local Emergency Management Services on emergency response training, especially for battery energy storage systems (BESS). Payment for this training can be included as part of a Joint Development Agreement.		✓

⁶⁰ kWh Analytics, *Solar Risk Assessment* (2024), <https://kwhanalytics.com/wp-content/uploads/2025/02/Solar-Risk-Assessment-2024-1.pdf>.

Want to learn more? Check out these resources.

Fires

- The [Alliant Energy Battery Energy Storage System Wood County Solar Project](#) provides breakdown information of what Alliant Energy did to ensure safety for their BESS in Wood County.
- [NC Clean Energy Technology Center- Health and Safety Impacts of Solar Photovoltaics](#) is a general source on the health and safety impacts of solar projects.

Toxins

- [NREL Unfounded concerns about photovoltaic module toxicity and waste](#) compares waste generated by PV to other energy sources.

Stray Voltage

- The PSC's website has information about [stray voltage](#), including Wisconsin's policies, procedures, and testing protocol.

Extreme Weather Events

- [Severe Weather Resilience Solar PV System Design](#)
The USDOE provides a guide on how to best prepare for severe weather, and includes an interactive [National Risk Index](#) map to determine the highest weather risks associated with the construction site. From there, the website recommends technical specifications to include in contracts and solicitations.
- [NREL Preparing Solar Photovoltaic Systems Against Storms Factsheet](#)
A storm-preparation checklist that aims to increase the chances that solar PVs will be able to survive major storms.

Section 9: Leverage Points

This section includes:

- A summary of types of action local governments, individuals, and groups can take to engage with large scale renewable energy siting.
-

As covered in previous sections of the report, Green County residents have identified many potential benefits and costs associated with large scale solar energy. This section will discuss possible leverage points, or ways communities and individuals may be able to influence the siting and design of large-scale renewable energy projects so they better align with community values and needs, maximize benefits, and minimize negative impacts.

Before seeking to pass regulations or negotiate with a developer, it is important for a community to have a good understanding of local questions, concerns, and goals for renewable energy. This report summarized the input received from Green County residents and leaders during the community engagement process conducted in 2025, and the full list of comments received is included in Appendix 1: Green County Community Engagement Comments.

This input provides a good starting point for action that local government or individuals might take regarding siting of large-scale solar projects.

These actions fall into four categories:

- providing comments during the Public Service Commission of Wisconsin (PSC) review process for projects 100 MW or greater;
- passing an ordinance outlining requirements for a conditional use permit for large solar projects up to 100 MW;
- updating the comprehensive plan to identify areas slated for residential or commercial development, areas of critical habitat, and areas suitable for solar development; and
- negotiating contracts with solar developers, including land leases and Joint Development Agreements or other memoranda of understanding.

Section 3, Laws, Policy, and Planning, outlines the process and considerations for providing comments to the PSC. Ordinances, comprehensive plans, and contracts are discussed below.

Ordinances

Under [Wisconsin Statute 66.0401: Regulation relating to solar and wind energy systems](#), local governments (counties, towns, cities and villages) may not place any restriction on the installation or use of solar or wind energy systems unless the restriction:

- serves to preserve or protect public health or safety,
- does not significantly increase system cost or efficiency, or
- allows for an alternative system of comparable cost and efficiency.

Local governments may not prohibit solar projects.⁶¹ See [Solar Regulation Guidance for Wisconsin Counties, Cities, Villages, and Towns](#)⁶² for more information on what can and cannot be legally included in a local ordinance.

However, within those constraints local ordinances can set out application requirements for conditional use permits, such as construction Best Management Practices (BMPs), decommissioning plans, financial guarantees for decommissioning, and protection of public health and safety. Green County’s current ordinance for large scale solar requires a decommissioning plan and financial assurance for decommissioning, but it does not provide as much detail for those requirements as the wind ordinance does. In addition, the language around health and safety is unclear. The County may wish to review the solar ordinance and add more detail to the sections relating to large projects, such as addressing site fencing and security, responsibility for damage to roads and other public infrastructure during construction, insurance, emergency response plan cooperation, and decommissioning plan requirements.

Comprehensive Plans

The Public Service Commission of Wisconsin will consider local environmental, safety, and planning concerns that are set forth in comprehensive plans or ordinances, including areas identified for residential or commercial development. The comprehensive plan can also help solar and wind developers understand and address community priorities and concerns as they consider where and how to site projects.

Planning documents that are published before the project application is submitted are more likely to influence the PSC. See [Wisconsin Statute 196.491\(3\): Certificate of public convenience and necessity](#)⁶³ for more guidance.

Contracts

While the ability of a community to regulate utility scale renewable energy is limited by Wisconsin state law, local government, community organizations, and landowners can negotiate with renewable energy developers before their projects are permitted for special provisions that address local concerns. Developers may be willing to accommodate reasonable requests to build good will in the community or simply in order to gain access to land.

What kind of contracts exist around large-scale solar projects?

Landowners, including farmers, can negotiate special provisions in land leases with developers.

Local governments can negotiate directly with a solar developer to approve a contract, in which the developer agrees to meet specific standards, providing greater certainty for the local governments and developers about how the project will unfold if built. These contracts go by several names, including joint development agreement, local operating agreement, memorandum of understanding, or roads and revenue agreement.

Nonprofit and other community organizations may be able to negotiate Community Benefit Agreements (CBAs) with renewable energy developers.

⁶¹ Wisconsin State Legislature, “Wisconsin Statute 66.0401: Regulation Relating to Solar and Wind Energy Systems,” accessed November 1, 2025, <https://docs.legis.wisconsin.gov/statutes/statutes/66/iv/0401>.

⁶² UW-Madison Extension. 2026. Solar Regulation Guidance for Wisconsin Counties, Cities, Villages, and Towns. <https://economicdevelopment.extension.wisc.edu/reset/solar-regulation-guidance-for-local-government/>.

⁶³ Wisconsin State Legislature. “Wisconsin Statute 196.491(3): Certificate of Public Convenience and Necessity.” Accessed November 1, 2025. <https://docs.legis.wisconsin.gov/statutes/statutes/196/491/3>.

What should a landowner consider before signing a solar land lease?

Before a solar project can be constructed, the developer must secure the land. Large-scale solar projects often lease land from rural landowners and farmers. Before signing a lease, landowners may be able to negotiate for provisions that provide them protection or address concerns. After the lease is signed it is unlikely that the solar developer or operator will be willing or able to agree to new conditions.

Land leasing for solar projects can provide guaranteed income, but there are important items to consider when negotiating with a solar developer. Questions include who is the developer and what is their track record, agreement length, what are payments during the permitting, construction, and operational phases, and many others. Make sure all agreements are documented in the lease.

UW-Madison Extension offers a guide for landowners considering leasing their land, [Learn about Solar Land Leasing Contracts](#), and a companion worksheet to help document important information when meeting with developers.⁶⁴ These documents are not substitutes for hiring legal counsel.

What is a Good Neighbor Agreement, and why is it important?

Good Neighbor Agreements can be requested by landowners participating in leasing to compensate non-participating neighbors. These could include vegetative screenings so the neighbor's view shed is not impacted, set-backs from the property line of panels or electrical equipment, or monetary benefits. This can help neighbors avoid conflict if one is benefitting financially and the other feels inconvenienced by the land use change.

What are Joint Development Agreements?

Joint Development Agreements (JDAs) are contracts that local governments negotiate with solar developers. These contracts may allow the community and solar developer to address community concerns that cannot be regulated through ordinances, either because the project is 100 MW in size or greater, or because the concerns go beyond the health, safety, and environmental provisions allowed by Wisconsin statute. These agreements can have different names, including Local Operating Agreement (LOAs) or Memorandum of Understanding (MOUs), but there is no legal distinction between these terms. If a project spans multiple jurisdictions it may be helpful for counties, towns, and villages to coordinate on contract negotiations, both to increase negotiating power and to save on costs for professional services.

Contracts may cover a wide range of topics including road use and repair, setbacks, noise restrictions, and decommissioning procedures, as well as financial assurances from the project owner. Often contracts also secure conservation and environmental commitments related to land, water and wildlife.

People who oppose a solar proposal may not like the idea of signing an “agreement” with a project developer. It can be called a “contract” instead and accomplish the same things. Signing a contract or agreement does not make the solar project happen or not happen. It does set standards that need to be met by the developer and local governments if the solar project goes forward.⁶⁵

Wisconsin examples of joint development agreements include:

- [Vista Sands Solar Joint Development Agreement](#) by Vista Sands Solar LLC, a subsidiary of Doral Renewables LLC, Towns of Grant and Plover, and Portage County

⁶⁴ UW-Madison Extension, “Learn about Solar Land Leasing Contracts,” 2025, <https://go.wisc.edu/solarguide>.

⁶⁵ Lynn Markham at the Center for Land Use Education (CLUE) at UW-Stevens Point provided information for this section.

- [Badger State Solar Joint Development Agreement](#) by Badger State Solar, LLC, an affiliate of Ranger Power LLC, the Towns of Jefferson and Oakland, and Jefferson County
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Want to learn more? Check out these resources.

- [Supporting Community-Centered Solar Development: A Guide to Hosting Community Conversations About Large-Scale Solar Development](#), University of Michigan’s Graham Sustainability Institute, has a template for how communities can host their own conversations and identify priorities.
- [Site Renewables Right](#), The Nature Conservancy, is a mapping tool that can help communities identify areas suitable for renewable energy, as well as areas to avoid for environmental or other reasons.
- [Learn about Solar Land Leasing Contracts](#), UW-Madison Extension, offers a guide for landowners considering leasing their land, and a companion worksheet to help document important information when meeting with developers.
- [Empowering Rural Development through Community Benefit Agreements](#), Center for Rural Affairs

Section 10: Conclusion

Green County's participation in the RESET process lays the foundation for proactive, community-driven planning for large-scale renewable energy development. Through interviews, focus groups, mapping workshops, and public conversations, community members identified both benefits and concerns for renewable energy and its long-term impacts on land use, economics, and community character. These discussions revealed clear priorities: protecting farmland, ensuring transparency in contracts, addressing decommissioning responsibilities, and maximizing local benefits through revenue sharing and dual-use opportunities such as agrivoltaics and pollinator habitat.

The engagement process underscored that successful renewable energy siting requires more than technical feasibility. It requires clear communication and alignment with local values. By incorporating community feedback into ordinances, comprehensive plans, and developer agreements, Green County can set expectations for best practices in construction, operation, and end-of-life management. Leveraging tools such as Joint Development Agreements, vegetation standards, and financial assurance for decommissioning, will help balance economic opportunity with environmental stewardship.

As Wisconsin moves toward a clean energy future, Green County is positioned to lead by example. Continued collaboration among local governments, landowners, developers, and residents will be essential. This report provides a roadmap for informed decision-making and community engagement, which are critical steps toward a sustainable energy landscape.

Appendix 1: Green County Community Engagement Comments

Community members identified benefits, concerns, and questions regarding large-scale solar projects.



This is a full listing of the benefits, concerns, and questions shared. They have been organized into themes, with the recognition that benefits, concerns, and questions are relevant across multiple themes.

Note: The themes and comments are not listed in any specific order. Notes are identified as a benefit, concern, or question based on the color of the post-it note it was written on by the community member.

Electricity and Large-Scale Solar

■ Benefits

- “Renewable energy service”
- “Creates energy”
- “Sun is freely available”
- “Renewable - the sun shines for free”
- “Energy savings”
- “Solar very efficient cost-wise if sited close to end use”
- “Power during peak hours”
- “Shows grid connections - more ideal”
- “Identifies areas that action could be focused”
- “Could identify best locations for solar”
- “Updated electric grid”
- “Additional energy production”
- “Moving towards/serve other fuel alternatives/community independence”
- “Not dependent upon another country (aka locally produced)”
- “Less dependent on non-renewables”
- “Energy independence”
- “Clean energy”
- “Alternative energy source - clean energy”
- “Replacing fossil fuels”
- “Not producing CO2 (once installed)”
- “Possible creation of storage and a means of reducing power outages?”
- “Improve local grid resilience”
- “Makes grid less susceptible to large-scale issues? I think?”
- “Decentralized power production equals more resilient”
- “Takes load off grid”
- “Cheaper energy”
- “Electrical cost per kWh goes down for residential customers (hah hah)”

Concerns

- “Likely increase in transmission lines, and associated costs to ratepayers, eminent domain”
- “Grid upgrades may be needed - rate payer costs and eminent domain”
- “Power going elsewhere”
- “Demand too high to be solved by solar alone - data centers etc”
- “More transmission lines”
- “Infrastructure - ie power lines, substations, property owner + township + roads etc”
- “Local control”
- “What if investor won't comply with requests, owner wants to do anyway”
- “Neighbors”

Questions

- “Where is energy going and has the potential to go?”
- “Where does the energy go”
- “Does the power stay local?”
- “Is battery storage siting happening in conjunction with siting”
- “Grid upgrades to connect to the projects - not on my land? (new line poles) - What is needed? cost?”
- “What impact will increased renewable energy have on substation infrastructure?”
- “Is a lack of substations going to inhibit solar installs in my area?”
- “Will solar farms reduce consumer utility charges”
- “Do we know if there are any cooperative / community initiatives being considered in Green County or SW Wisconsin?”
- “How can a community become self-sufficient versus how a utility makes solar happen?”
- “Why not community or coop ownership”
- “How much profit do solar developers make on a 50 MW installation?”
- “Reliability of solar energy - number of days of the year generating energy vs maintenance requirements”
- “Useful life of solar panels - how many years before need for replacement?”
- “Cost of production and use of fossil fuels, actually saving money”
- “Will batteries be available to further generate money? What will happen to excess power if not?”
- “How can we ensure local utilities use the power?”
- “Data centers - impact to Business as usual energy use projections (2050 net zero doesn't apply any more)”

Laws, Policy, and Planning

Benefits

- “Known standards of what needs to be done for each site”
- “If the plan with the end in the mind include decommissioning process and cost as part of siting process”
- “Possible co-op solar options?”
- “Leases for landowners”
- “Good neighbor agreements”
- “Could all the local governments and NGOs buy in? Solar Share Coop”
- “Co-op option for solar farms?”
- “More support to projects - non profits in the community”

- “Utility aid payments to towns and county”
- “Pre-planned site”
- “Long term planning”

Concerns

- “The complicated nature of these contracts”
- “Education for landowners before signing contracts - how?”
- “Payment for all energy produced - not happening with current net metering laws”
- “Lack of transparency”
- “5-10 year plans by utility”
- “Litigious nature of Invenergy versus municipalities in Minnesota or Iowa”
- “Regulations”
- “Permitting with state - how does it work and where can we participate”
- “Do people have to sign a gag order?”
- “Sign NDA = gag order”
- “It's not for everybody”
- “Local government doesn't have money for legal fees with any developer issues”
- “Upfront investments with no guarantees of payoffs”
- “Possible legal issues for farmers/land owners”
- “Local government is not prepared to work on project permitting requirements”
- “Township cannot enforce regulations - county-level zoning needed”
- “How not to impact land values if your neighbor is renewable”
- “Lower property values mean people don't want them”
- “Will the community understand who is funding it”
- “County financials and fiscal responsibility?”

Questions

- “Jurisdictions can't effectively enforce?”
- “Current legislation in Wisconsin?”
- “What real impact can local government make?”
- “Can bonds be required?”
- “What if laws or regulations change? How are companies held accountable?”
- “Why can't they put these on roofs?”
- “Is it better for government entities to move forward”
- “What is the total government subsidy”
- “Are there regulations that make green energy development companies host public meetings before landowners sign contracts?”
- “How enforceable are concerns like the needs of the neighborhood? What is happening to the land?”
- “What happens to the legal obligation to clean up - if the original contract assignor sells to another?”
- “Natural disaster - who's responsible to fix or remove panels?”
- “Can developer or energy company tell land owner what to do or not to do?”
- “Who will update and maintain?”
- “How will it be shared?”
- “Who covers the cost of defective panels?”
- “What other maps are being developed”
- “Rural lifestyle ordinance?”
- “Utility needs to be public”
- “I don't understand why someone would decommission - why replace the solar farm?”

- “Can there be a new housing fund - i.e. 100 MW project could have approximately 2 MW investment carveout (as an example)?”
- “How can we spread the wealth?”
- “How does rounding up for renewable energy work for low-medium income (it's a LIHEAP supplemental investment)?”
- “Public benefit - local utility fun examples?”
- “Township involvement - how much rights does the landowner have?”
- “Where do townships find their limitations on setting solar "restrictions"? How is this controlled?”
- “How does change in federal policy or benefits affect these large-scale solar projects?”
- “What should be included in comprehensive plans?”
- “Changes in property values for neighbors?”
- “Increase land rental for neighbors?”
- “Where are the panels produced?”
- “What should we add to the county plan?”
- “Land usage change? Rezoning?”
- “How to control where it is placed? Can the municipality provide guidance?”
- “County plan?”
- “How to make RESET relevant to the local AHJs?”
- “How is renewable taxed? Property values assessments?”
- “How do we protect land values? All municipal owners, especially direct neighbors?”
- “How does it impact assessment - does it stay in agriculture?”

Economics

Benefits

- “Help townships and towns by splitting revenue - roads, schools, reduce climate change”
- “Lower taxes - benefit county and towns, money to roads and schools”
- “Revenue to expand services is obvious money”
- “Revenue for town, village, city, and county”
- “Lower taxes - more road funding”
- “Grant money”
- “Diverse income for farmers”
- “Revenue to farm owners, benefits local economy”
- “Money for communities and landowners”
- “Another revenue stream for farmers”
- “Funds to county revenue”
- “Income for townships and county”
- “Revenue source for landowner”
- “Long term income possible”
- “Revenue source for township (taxation)”
- “New / alternative income for farmers”
- “One time cost / no fuel cost / little or no maintenance cost”
- “Less money going out of the county and state”
- “Money staying local - not sent to other states for fossil fuels”
- “\$5,000 per MW to the county”
- “Income for farmers”

- "Income for our communities"
- "Better money return on investment for landowners"
- "Additional income for local governments"
- "Increased business from solar workers - short term"
- "Pays well"
- "Money generated for the landowner and local communities"
- "Income for farmer - farmer is able to stay on land"
- "Farmers might be able to keep farm"
- "Stable income"
- "Consistent income for farmer"
- "Income for less work"
- "Stacking income streams for landowners"
- "Steady income"
- "Money for farmers"
- "Benefit of money to local communities"
- "Broad base of financial gain by landowners"
- "Income for landowner - a way to keep the farm?"
- "Keep land and farm in the family"
- "Tremendous/stable long-term income for landowners"
- "Passive income for landowner"
- "Money to landowners"
- "Potential to supplant loss of farm income from price volatility"
- "Good financially for the landowner"
- "Supplemental income to farm, community, neighbors, towns and county"
- "Potentially generate incremental income for municipality"
- "More tax money"
- "Tax help for town/county roads"
- "Helps town and county budget"
- "Less tillage"
- "Ability to use farmland for solar (clean energy)"
- "Utility payment \$5k/MW/year to county & township"
- "Income for the county to do as seen fit"
- "Higher commodity prices"
- "Do other businesses move in knowing/thinking they can produce their product with renewable energy, as a marketing strategy?"
- "Drone work opportunities"
- "Local install jobs"
- "Encourage community to build or support local/resident uses"
- "Less reliance on fossil fuels (homegrown energy)"
- "Local "producer" more local control"
- "Solar most "equitable" form of power generation"
- "Able to sell back energy"
- "Lower electric rates?"

Concerns

- "Not lowering electric costs"
- "Local munis can't tax utilities"
- "Tourism in Green County"

- “True costs - with and without federal, state, and other subsidies”
- “Economic benefit of solar vs lost opportunity benefit of next best use”
- “Overall cost? cradle to grave”
- “Cost of creating panels and batteries”
- “Education about the project's costs and benefits - private vs public”
- “Upfront costs being deferred due to construction being elevated over lots”
- “I'm concerned that we're overselling agrivoltaics - there's almost no market for lamb etc”
- “Higher rent cost for farmers”
- “Inflow of money”
- “Will local bills go down”
- “Barrier to entry for young or beginning farmers?”
- “Non-participating landowners' property value - does it go down? If so for how long, by how much? Local examples please!”
- “Are costs being deferred to farmland due to higher upfront cost of building on development land?”
- “Funding for incentives may disappear”
- “Sellback is bad and limited - on a home solar net metering deal - how to pay people appropriately for generating electricity?”
- “Are my taxes paying for this? Transparency!”
- “County financials and fiscal responsibility?”
- “Road use during / after development - repairs and cost?”
- “Maintenance and natural disaster cleanup?”
- “What happens with large-scale malfunction or damage?”
- “Who pays for damages to roads/panels/lands/etc and decommissioning”
- “Traffic during construction - road and air quality”
- “Increased traffic on local roads during construction”

Questions

- “How quickly will the income generated be more than the cost of implementation?”
- “Cost per kW for solar?”
- “How finance rates impact these economics?”
- “Not using local labor?”
- “How is the property taxed by local governments”
- “Tax incentives for developers/investors?”
- “What happens if the company goes bankrupt?”
- “Is the pay day better than actual crop farming?”
- “Relative income from solar lease versus grain farming? Can we see the numbers?”
- “Where does the electricity get used that would be produced here?”
- “What about snow cover and energy generation?”
- “What have been the economic benefits of the broadhead project?”
- “Why does power buy back prices reduce when the kWh cost increases for the consumer?”
- “Are there programs or grants for individual solar installations versus industrial development?”
- “County financials and fiscal responsibility?”
- “How to make it financially beneficial for the municipality?”
- “What does the community need to accept a project? Money, noise, hidden, ??”

Environment

■ Benefits

- "If sited thoughtfully groundwater protection / improved groundwater recharge"
- "Human health vs fossil fuels"
- "Decrease in nitrogen application leads to decrease in groundwater nitrates"
- "We have the opportunity to be active participants in reducing greenhouse gases and improve air quality"
- "Do something to reduce climate change"
- "Water quality improvements"
- "Could locate on land not suitable for any other use"
- "Diversity of plants beneath panels supports more diverse insect life"
- "Increased biodiversity"
- "Pollinator planting biodiversity"
- "Potential pollinator habitat"
- "More trees, natural habitat, based on rules set by officials"
- "Environment / co2 emissions down"
- "Reduce carbon greenhouse gases"
- "Life of system - decreased soil erosion equals decreased runoff equals decreased leachate (?)"
- "Can provide energy if natural disaster or grid down"
- "Safer than atomic power plants with less hazardous waste"
- "Land not being farmed (potential soil loss and nutrient pollution"
- "Less tillage"
- "Localized lower humidity from transpiration of corn crops"
- "Decreased soil erosion during lifetime of system"
- "Perennial plant opportunities"
- "Food for pollinators"
- "Potential increase in pollinator habitat (prairie planted underneath)"
- "Riparian area pollinator area"
- "When seeded down to natives pollinators benefits - we benefit - ecological islands"
- "Use of land in the winter"
- "Green County active participant in climate change solutions"
- "Green County actively being part of the solution"
- "Because we have lots of land suitable for large scale solar, we have a chance to be a leader at implementing climate change solutions"
- "Large-scale solar can be a good land use option for areas susceptible to nitrate contamination. they've done this in portage county."

■ Concerns

- "Impact to soil, wildlife, plants"
- "Long term damage to soil or land"
- "Soil impacts"
- "Effects on wildlife and plants"
- "Loss of native habitat"
- "How deep are foundation posts buried? concern for contaminated well water"
- "Amount of additional heat produced versus not having solar panels"

- “Though no environmental impact of operation, but concerns about the manufacturing process”
- “Leakage of toxic material into ground”
- “Raw materials to manufacture solar panels - environmental concerns”
- “Environmental impact of panels and disposal after useful life”
- “Impact of batteries, production and disposal”
- “Wildlife issues with panels - does it impact migration, or trap them to die?”
- “What are long-term effects of panels on soil?”
- “Build these on highways, causeways, parking lots, non arable public land, not farmland”
- “Soil loss and productivity loss”
- “Removing soil”
- “Habitat disruption / continuity”
- “Water contamination risk with/without a catastrophic event”
- “Fencing limits wildlife movements”
- “What if the vegetation established is not pollinator friendly? What does it mean for soil and water quality?”
- “Glare”
- “The look of the project - panels versus green spaces”
- “Visual impact on landscape is not welcomed”
- “Landscape appeal and aesthetic views are impacted”
- “Ugly af”
- “Visual”
- “Detriment to landscape, poor visual impact”
- “Opposition to panels from surrounding landowners - can create community issues”
- “Risk on tourism”
- “Construction best practices are needed - top soil and water management”
- “Will developer ensure the contractor does what is promised?”
- “Subcontractors do whatever - what keeps them honoring the developer's agreement”
- “Land erosion during development and beyond”
- “Water contamination risk with/without a catastrophic event”

■ Questions

- “Risks of contamination if the system breaks?”
- “Native plant and animal response - quantify?”
- “Does it increase the temperature of the surrounding area?”
- “Will solar panels reduce atmosphere temperatures?”
- “What will happen to deer habitat?”
- “Are there any other harmful effects that solar emits or effects?”
- “I've heard of concerns of the solar equipment leaching into the soil - is that true? What are the impacts on the soil?”
- “Have studies been done on wildlife mortality? Loon study, etc”
- “How to protect the environment? Water, soil, plants, wildlife”
- “Is it actually net positive for the environment? Full life cycle analysis”
- “Do they have an environmental impact study?”

Land Use

Benefits

- “Productive use of unused land”
- “Some multiple-use projects for the land - sheep, bees, floral?”
- “Is reversible so land can return to production”
- “The land is covered in vegetation, not concrete or asphalt”
- “Can still be used for grazing”
- “Possible multiple uses - what are they?”
- “Multiple crops in one area”
- “Agrivoltaics different crops/higher value”
- “Sheep grazing potential”
- “Increased grazing opportunities”
- “Can be shared with ag / agrivoltaics”

Concerns

- “Private farmland is where it's supposed to be more suitable for solar”
- “The current maps are too difficult to read. it's too difficult to discern why the current locations are most suitable”
- “Raising land values and rental rates for farmers”
- “Upward pressure on cropland rent (financed by federal grant money?)”
- “Rising land values make it hard for farmers to afford for agricultural production”
- “Upward pressure on crop rental prices”
- “Increase in land value may make it harder for new people to buy land”
- “Devalue nearby property value”
- “Decreased property values for neighbors”
- “Making land unusable under the panels”
- “Unknown consequences of land use”
- “Loss of cropland, integration”
- “Loss of farmland”
- “Loss of agriculture land and animal grazing”
- “Pays more than crop rent, so could hurt production”
- “We can do far better farming, reduce cropping”
- “Are land owners limited to uses other than solar?”
- “Loss of prime farmland”
- “Taking production crop ground from farmers”
- “Limiting flexibility of future land use”
- “Not ever returning to farmland”
- “Visual impact on bucolic landscape”
- “Ugly landscape / visible panels”
- “Development abusing privilege of using farmland”
- “Soil leaving the farm?”
- “Nutrient management planning acreage”
- “Where does suitable land exist for solar in Green County?”
- “Driving up local land rent rates”
- “Increasing barrier to entry for young and beginning farmers”
- “Land restoration plan”
- “Land owners important - difficult to maintain”
- “Have any other animals been grazed”

- “What other ag than sheep has been successful”
- “How does loss of ag land impact access for farmers to spread manure”
- “How does it affect neighbor nutrient management plans”
- “Landowners understanding exactly what is signed”
- “Can solar be put on sides of skyscrapers”

Questions

- “Large-scale projects benefits utilities rather than how to best meet needs. What about repurposing or co-purposing existing sites and buildings instead of using prime farmland?”
- “If 3% of land goes to solar, what will impact be given shortage of flat land?”
- “How much land is viable? eg hills, streams...”
- “How to integrate with agriculture and protect farm land?”
- “Can we put them over parking lots? Shade and rain cover?”
- “Better place? Can we better use parking lots and business parks?”
- “Why not on barns, machine sheds, malls, shopping centers, parking lots instead?”
- “Why farmland - not parking lots, buildings?”
- “Who decides what land exactly?”
- “What aspects of land use are relevant to solar?”
- “Does land return to original state?”
- “Lose farm land? Is it bad or good - increases the land rent?”
- “Upfront costs being deferred for using farmland?”
- “Where does suitable land exist for solar in Green County?”
- “Loss of farmland?”
- “Use of farmable land for solar installations?”
- “Losing productive agricultural land”
- “What kind of land would solar become? Mixed-use or single-use?”
- “When did you last eat lamb?”
- “Who will know how to use it?”
- “Can you graze under them?”
- “Willingness of developers to allow additional ag uses?”
- “Agrivoltaics - who will process the lamb, and will we flood the market?”
- “Who decides the secondary land use? The farmer or the developer?”
- “Why can't we make them taller so cattle can graze?”
- “Why can't we float them on water?”

Decommissioning

Benefits

- “Returning the land to safe and usable condition”

Concerns

- “End of life removal”
- “Is the land returned to its original state? Are old panels recycled?”
- “Who oversees the decommissioning to make sure it's done correctly?”
- “Soil structure - residual chemicals from building and removal?”
- “Lack of recycling for safe disposal and removal”

- “Lack of funding for proper decommissioning?”
- “Are all the materials recyclable?”
- “How will efficiency improvements in solar energy impact the siting and decommissioning process?”
- “How will all the materials be recycled?”
- “Cost of decommissioning - who bears it? What is it?”
- “What happens if the company files bankruptcy?”
- “What if companies go out of business or bankrupt?”
- “Who bears the decommissioning/cleanup cost if the company goes under?”
- “Life expectancy of solar system”
- “Long term costs of decommissioning”
- “Who pays the decommissioning costs”
- “Decommissioning”
- “What happens to panels after use”
- “End of life of panels”
- “What happens to the panels at the end of life?”
- “Contracts end - now what?”
- “Lack of recycling infrastructure for panels”
- “Decommissioning labor costs”
- “There is no money in towns for decommissioning costs or legal challenges”
- “Decommissioning? How does it work, does it work, who pays for it?”
- “Decommissioning issues - money cost paid by whom? Citizens? What if they go bankrupt?”
- “End of useful life options - what will happen to the land? Can it really go back to farming?”
- “Decommissioning - financially, mechanically, agriculturally - what is possible, are there studies?”

Questions

- “Who enforces the contracted decommissioning?”
- “Who is responsible for infrastructure removal?”
- “Fence around panels - leave or remove?”
- “Are solar panels recyclable?”
- “Can solar panels be recycled?”
- “Who takes it all down and who pays for it at the end of the project life?”
- “Are solar panels usable for something after the end of life?”
- “Disposal of the wire, concrete, etc, balance of system at end of life?”
- “Will landowner be compensated or made whole when the site is decommissioned?”
- “Are there currently viable recycling factories?”
- “How can it be efficiently decommissioned back to farmland?”
- “What happens with batteries?”
- “Is the land healthier at end of life?”
- “Does the soil get removed?”
- “Who pays for decommissioning of solar?”
- “Underground cable - leave or remove?”
- “Substation - leave or remove?”
- “New panels on same infrastructure?”
- “Contract ends - now what?”
- “Who is responsible for decommissioning?”
- “When solar panels degrade, what sluffs off?”
- “Panels broken - who cleans up mess - liquids / glass in ground?”
- “Solar equipment leaching?”

- “What sluffs off solar panels when they break down?”
 - “What happens to land after the project is done? Costs to return to farmland?”
 - “How to return land to original use if farm is "20 years" - death / bankrupt / change of ownership?”
 - “System life span?”
 - “How does the bond money work for decommissioning?”
 - “End of life disposal? Hazardous waste?”
 - “Decommissioning costs - who will pay?”
-

Health & Safety

■ Concerns

- “Health and safety of battery systems - fire”
- “Battery storage fire protection”
- “Create possible danger for neighbors? stray voltage, erosion”
- “Stray voltage”
- “Fire department issues fire in grid arson”
- “Weather concerns - who pays for damage from snow, hail, extreme events”

■ Questions

- “Do solar panels make noise?”
- “Who pays for damage? Landowner or panel owner?”
- “Who pays for needed increased fire control at these solar farms?”
- “Insurance available? And costs?”
- “Who provides insurance on panels etc?”

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