

# SOLAR ENERGY SYSTEM DEVELOPMENT:

## DEVELOPMENT AND REGULATORY CONSIDERATIONS FOR WISCONSIN LOCAL UNITS OF GOVERNMENT



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# SOLAR LEASING: AN OPPORTUNITY FOR LOCAL UNITS OF GOVERNMENT?

Interest in solar as a renewable energy resource is rapidly expanding across Wisconsin as our state moves towards replacing energy from fossil fuels like coal and natural gas with wind and solar. Wisconsin's energy conversion creates a significant opportunity for Wisconsin municipalities to lease land, while also creating a potential challenge for local units of government to ensure solar energy facilities are properly regulated to maximize community value and minimize community conflict. This fact sheet focuses on both potential roles – as a landowner leasing land to a solar developer and as a

regulator – and provides guidance on how to maximize opportunity while minimizing risk.

Wisconsin law prioritizes renewable energy development. This can be seen in the language of Wis. Stat. Section 1.12(3) (b) which states as follows:

*[To] the extent that it is cost-effective and technically feasible, all new installed capacity for electric generation in the state be based on renewable energy resources, including hydroelectric, wood, wind, solar, refuse, agricultural and biomass energy resources.*





Photo Source: University of Wisconsin Platteville

Governor Evers announced in 2019 that Wisconsin was committing to be carbon neutral by 2050. Because Wisconsin energy production is so heavily dependent on coal and natural gas as a base energy source, this commitment – if it is to be achieved – requires Wisconsin utilities to invest heavily in renewable energy production.

In response, large investor-owned utilities such as We Energies, Alliant, Xcel, Wisconsin Public Service, and cooperatively owned utilities such as Dairyland Power Cooperative, along with private solar developers, are developing new solar arrays across the state. Solar arrays are a collection of multiple solar panels that generate electricity as a system. The photo above is of a solar array installed by the University of Wisconsin – Platteville.

Solar energy system development sites range from a few acres generating under five megawatts

of electricity to dozens of acres for solar arrays generating twenty megawatts (20) or more of electricity. One megawatt of solar energy will power an average of 750 homes and requires five (5) to seven (7) acres of land. Solar energy facilities in Wisconsin have a current estimated value of \$1.4 billion.

According to the Solar Energy Industries Association (SEIA), Wisconsin ranks 23rd in the nation for solar installation, with 1.71% of the state's electricity coming from solar as of December 31, 2022. See <https://dnr.wisconsin.gov/topic/Sectors/SolarInstallations> for more information.

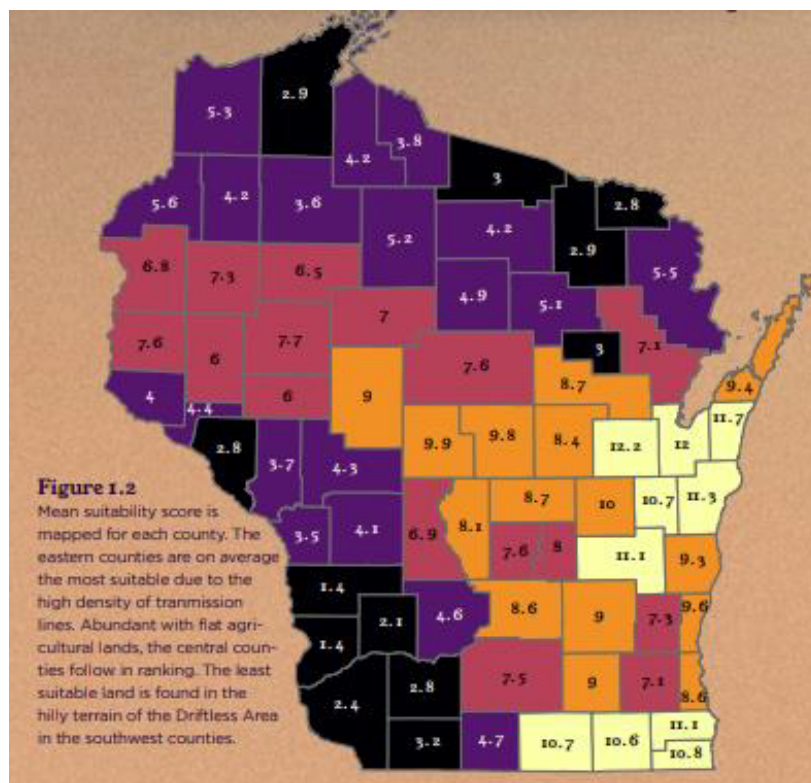
Renew Wisconsin's website contains a current map of where the state's more than 20 solar farms are located. See <https://www.renewwisconsin.org/solarfarms/> for more information.



SEIA reports 185 solar companies are operating in Wisconsin, including 44 manufacturers, 83 installers/ developers, and 58 classified as “others.” This includes installers who are installing solar panels on residential homes. SEIA estimates Wisconsin will add 4,435 megawatts of energy over the next five years. This would move Wisconsin up to 11th place in the nation.

Ryan Michalesko, A recent University of Wisconsin Stevens Point graduate, published

a map of the Wisconsin counties most favorable to solar energy production based on terrain, primary land use type and proximity to transmission lines with the lighter shading indicating greater suitability. See map at: <https://ww3.uwsp.edu/cnr-ap/clue/Pages/Student%20Research/Utility-Scale-Solar-Suitability-Modeling.aspx>.



Source: Ryan Michalesko — U.W. Stevens Point

As the map notes, the most favorable areas of the state for solar energy facility development are from Southeast Wisconsin and then north and west to West Central Wisconsin. The Driftless Region of Southwest Wisconsin and the Northern Woods are less favorable solar development regions because of topography and heavy vegetation. However, these regions still have some potential for solar development because, for example, Driftless Region ridge tops are often not covered by trees. Solar developers seek level sites free of trees, buildings, and other obstructions to the sun. Solar developers also prefer farmland located near roads and needed power transmission facilities, including three phase transmission hubs and power substations. All told, because Wisconsin has 14.2 million acres of farmland, our state is attractive to solar developers.

Michalesko’s study determined 896,137 acres of Wisconsin land is highly suitable for solar development based on key characteristics such as proximity to roads and electrical infrastructure.





According to the Center on Wisconsin Strategy (COWS) at the University of Wisconsin- Madison, 340,000 of these acres would need to be developed into solar energy facilities to meet the state's goal of 31% of energy coming from solar. See <https://cows.org/wp-content/uploads/sites/1368/2020/04/2019-Wisconsin-Opportunity-in-Domestic-Energy-Production-The-Economic-and-Health-Benefits-of-100-In-State-Energy-Production.pdf>. This compares, for example, to 156,000 acres of current state parkland.

## POTENTIAL MUNICIPAL FINANCIAL RETURN FROM LEASING LAND TO A SOLAR DEVELOPER

Many Wisconsin local units of government and school districts are sizeable landowners. Not all the land is used for municipal and school buildings, particularly parks and recreation land. Leasing local government-owned land for solar energy development could lead to a new income stream supplementing property and sales tax income.

Land lease rates for solar energy facility development vary per acre depending on the size of the land, soil quality (i.e., lower price if the ground is low and wet), its location and distance to the electric grid, and power purchase agreement price. Estimates on potential revenue can vary greatly. On the East Coast, for example, electric rates are considerable higher and, as a result, solar developers are willing to pay up to \$1,000 - \$2,000 per acre/month.



However, the more typical lease number seen in Wisconsin is a more modest \$500 and \$1,200 per leased acre, with the main variable being how close the leased land is to a power substation.

The Town of Two Creeks in Manitowoc County, for example, reports receiving \$400,000 per year in solar land lease payments. See <https://www.wpr.org/we-farm-sun-some-wisconsin-dairy-farmers-solar-energy-new-source-income>.

Generally, income potential primarily depends on property location to electric transmission infrastructure, the number of acres being leased, and the land's construction suitability.



## LOCAL GOVERNMENT CONSIDERATIONS BEFORE LEASING LAND FOR A SOLAR ENERGY SYSTEM

Negotiating a lease with a solar developer may be challenging because the developer typically has an advantage due to their longer experience researching, drafting, and negotiating solar lease agreements. This means the lease agreement may benefit the solar developer more than the local unit of government. Counties, cities, villages, towns and school districts interested in leasing land should do their homework up front, including consulting experienced legal staff or outside counsel.

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## DO YOUR HOMEWORK

Solar leases are often a welcome new source of income for landowners, and this includes local units of government. However, don't just focus on the rental money being offered. Rather, counties, cities, villages, towns and school district need to do their homework first. Many solar companies are seeking to sign up Wisconsin landowners for leases. The first offer you receive may not be the best. Below are recommendations on what local officials should think about when negotiating with a solar developer.

## PRESSURE TO CONTRACT

First, is the solar developer using a “take it or leave it” attitude? Are they applying pressure to sign the agreement right away and without the opportunity to read it first? If so, this is usually a warning sign the agreement might not be what it seems. Local units of government should only negotiate with solar developers who patiently explain the terms of the lease agreement to local elected and appointed officials.

## LEASE PAYMENTS

Is the lease payment fixed or based on electric rates or production expectations? A local government budget may expect some fee and licensing income variability from year-to-year. However, are you better off with a more assured income stream or with a more variable income stream?

## PROMISES MADE OUTSIDE OF THE AGREEMENT

Is the solar developer making promises not included in the written lease terms? If so, the promises are most likely unenforceable. Lease contracts typically include a provision towards the end of the lease saying the written lease agreement “constitutes the sole and entire agreement of the parties and supersedes all prior and contemporaneous understandings, agreements, representations and warranties, both written and oral.” In short, anything promised outside of the written lease agreement is not actually included in the lease agreement. To make a promise enforceable, it needs to be included in the written lease terms.







## LOCAL GOVERNMENT SOLAR LAND USE REGULATIONS AND SOLAR DEVELOPMENT

The State of Wisconsin recognizes solar energy development provides potential benefits to both the environment and the hosting community, but can also lead to undesirable outcomes if not planned well. The Wisconsin DNR cites potential considerations for local units of government, including appropriate zoning; impacts on wetlands, waterways, and floodplains; risk of introducing invasive species; erosion and sediment control; impacts on endangered species; and end-of-life disposal, among others. See <https://dnr.wisconsin.gov/topic/Sectors/SolarInstallations> for more information.

Wis. Stat. Section 66.1001 provides municipalities with the authority to develop comprehensive plans. Eight different planning “elements” are identified by the statute, including “Utilities and Community Facilities,” “Agriculture,” and “Land-use.”

Local units of government may plan for solar energy facility development under these elements. However, local government's potential regulatory role is narrow compared to the broad discretion local units of government have in regulating other types of development.

## LEASE LOCATION

Before signing an agreement local units of government should think about the best location for the solar energy production facility. While the solar developer will want the solar panels to be placed closest to roads, near transmission facilities -- and away from trees

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and buildings that could block the sunlight -- the land to be leased might make the best future community park or street/road to a new subdivision. Local units of government will want to think about potential issues in advance and make sure the right lease language is included. For example, you may have other less productive land that might also work for a solar energy production facility.

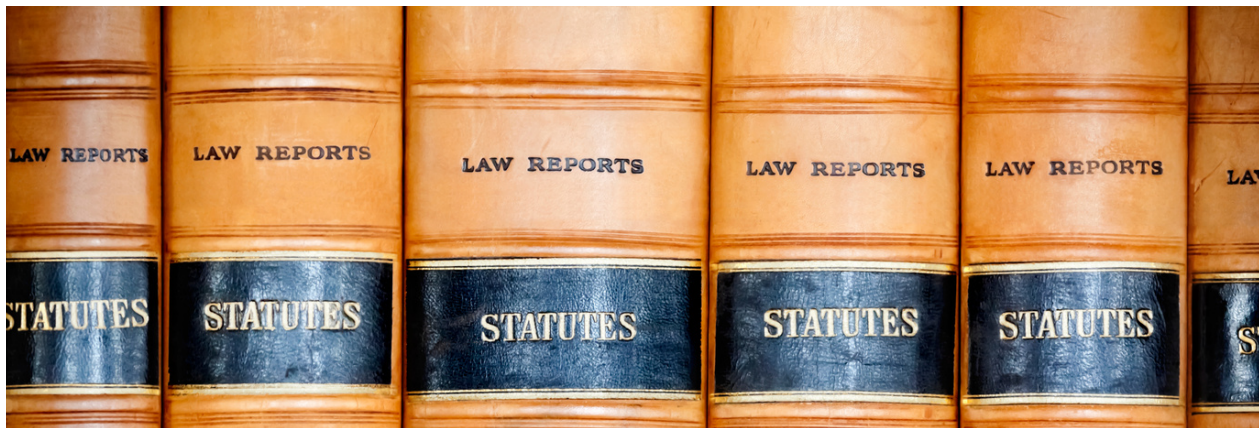
## USE OF LAND

Local units of government should negotiate whether the leased land may still be used for another purpose and, if so, what land use is permitted. For example, could leased land be used for livestock grazing? Sheep, for example, could keep the vegetation trimmed. Other questions to ask are how high must the grass grow beneath the solar panels before it must be cut? Is the local government or school district landowner required to cut the grass or is that the responsibility of someone else? If it is the local unit of government or the school district, will you be compensated for equipment, fuel, and time? Can you apply herbicides to control vegetation? If the solar developer is responsible for vegetation trimming, will their contractors be able to access the leased site? Will they be able to apply herbicides even if you receive citizen complaints?

If the project is delayed, does the local unit of government have a right to use the land for agricultural or other purposes in the interim? Have you discussed a right of entry on the leased land to ensure you retain a right to access adjacent land? If the land is near or includes woodlands, does the solar developer have a right to cut down those trees?







How deep will the electrical lines be buried? Will they obstruct any future development in your county, city, village, town or school district??

In summary, counties, cities, village, downs and school district may have a significant potential to earn substantial income from leasing land to a solar developer. This would help offset the local tax burden. At the same time, local units of government are considering whether solar land leases, installation, and operation should be regulated.

## WISCONSIN HAS A STRONG STATUTORY PREFERENCE FOR SOLAR DEVELOPMENT AND RESTRICTS LOCAL REGULATION

Wisconsin law includes a strong preference for allowing -- rather than restricting -- solar development. This preference can be seen in Wis. Stat. Section 66.0401(1m):

- (1m) Authority to restrict systems limited. No political subdivision may place any restriction, either directly or in effect, on the installation or use of a wind energy system that is more restrictive than the rules promulgated by the commission under s. 196.378 (4g)*
- (b). No political subdivision may place any restriction, either directly or in effect, on the installation or use of a solar energy system, as defined in s.13.48 (2) (h) 1. g., 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.*



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Other state statutes also demonstrate a strong state policy preference for solar energy system development. For example, Wis. Stat. Section 66.0401 authorizes municipalities to enact an ordinance requiring vegetation trimming if the solar array pre-existed the planting of the vegetation. Wis. Stat. Section 700.41 then authorizes a solar energy system owner to seek compensation for any sunlight obstruction from a neighbor neighboring building built after the solar energy system was constructed. Moreover, the obstruction may be considered a nuisance under Wis. Stat. Section 844.22. Meanwhile, Wis. Stat. Section 700.35 protects sunlight access through easements:

*700.35 Renewable energy resource easements. In this section, "renewable energy resource easement" means an easement that limits the height or location, or both, of permissible development on the burdened land in terms of a structure or vegetation, or both, for the purpose of providing access for the benefited land to wind or sunlight passing over the burdened land. Every renewable energy resource easement shall be in writing and shall be subject to the same conveyancing and instrument recording requirements as other easements.*

*Renewable energy resource easements shall run with the land benefited and burdened unless otherwise expressly stated therein.*

Wis. Stat. Section 236.292 voids all covenants or other platted land deed restrictions seeking to prevent or restrict solar energy system construction while Wis. Stat. Section 60.61(2)(i) specifically authorizes towns to zone for the purpose of "[p]rovid[ing] adequate access to sunlight for solar collectors and to wind for wind energy systems."

Finally, the strong statutory preference for solar energy system development can be seen in Wis. Stat. Section 66.0403. This provision authorizes local units of government to issue "solar access permits."

As noted in the Wisconsin Court of Appeal's *Ecker* decision cited on the next page, these permits are intended to "benefit and protect" solar energy systems "from impermissible interferences, not to restrict them."

All told, Wisconsin law contains multiple provisions demonstrating a clear legislative policy preference favoring solar energy system development.

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# MAY MUNICIPALITIES REGULATE SOLAR ENERGY SYSTEMS THROUGH ZONING?

Given the clear statutory preference for facilitating solar energy system development, there is a question about what room may be left for municipal regulation. While Wisconsin law authorizes counties (Wis. Stat. Section 59.69), cities (Wis. Stat. Section 62.23(7)), villages (Wis. Stat. Section 61.35) and towns (Wis. Stat. Section 60.62) to engage in zoning, there is a relatively narrow regulatory lane for solar energy systems.

First, the Public Service Commission of Wisconsin (PSC), rather than local units of government, is responsible for siting solar systems generating more than 100 megawatts.

The primary state regulatory requirement is that the solar energy system developer obtain a certificate of public convenience under Wis. Stat. Section 196.491(2). Local units of government are then provided with limited regulatory authority over systems of less than 100 megawatts. Again, for reference, one megawatt powers an average of 750 homes.

As noted earlier, Wis. Stat. Section 66.0401(1m)'s limits municipal zoning of solar energy to only where the zoning regulations: (1) preserve or protect public health or safety, (2) do not significantly increase system cost or decrease efficiency; or (3) allow for an alternative system of comparable costs and efficiency.

These three conditions create a narrow regulatory lane for local units of government and for local ordinances regulating solar development.





Local units of government may only regulate solar energy projects on an individualized basis. Said differently, like the conditional use process, the local unit of government may only enact restrictions following a review of the specific solar energy proposal. Again, the restriction must meet one or more of the Section 66.0401(1m)'s limitations listed above.

The Wisconsin courts have reviewed local renewable energy regulations under Wis. Stat. Section 66.0401(1m). In *Ecker Bros. v. Calumet County*, 2009 WI App 112, the Wisconsin Court of Appeals reviewed a county ordinance regulating wind turbines through minimum setback, height, and noise requirements.

The Court struck down the Calumet County solar ordinance under Wis. Stat. Section 66.0401(1m) because the Court found the restrictions did not fit into one or more of the three exceptions.

The Court reasoned a “one size fits all” scheme violates the legislative idea that localities must look at each wind system on its own merits and decide, in each specific case, whether the wind system conflicts with public health or safety.” A similar judicial decision would be likely in a solar regulation challenge because Wis. Stat. Section 66.0401(1m) equally applies to solar.

In addition, the Wisconsin Court of Appeals in *State ex rel. Numrich v. City of Mequon Board of Zoning Appeals*, 2001 WI App 88, 242 Wis. 2d 677, 626 N.W. 2d 366 (2001), held a solar energy system developer may begin construction even without municipal approval if there are no municipal zoning restrictions that, again, comply with Section 66.0401(1m).



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# ENACTING MUNICIPAL SOLAR ORDINANCES

To begin, any solar energy system ordinance should be carefully reviewed by knowledgeable legal counsel given the relative narrow regulatory window allowed by state law.

The Town of Sherman in Sheboygan has adopted a solar ordinance available at: [https://shermanshebcowi.gov/wp-content/uploads/2021/12/2021-07-SIGNED-Ordinance-to-Add-Solar-Energy-Systems-to-Zng-Ord\\_2021.pdf](https://shermanshebcowi.gov/wp-content/uploads/2021/12/2021-07-SIGNED-Ordinance-to-Add-Solar-Energy-Systems-to-Zng-Ord_2021.pdf).

The ordinance states in the “Purpose” section that “all regulations contained herein are adopted to preserve and protect public health and safety” and separates “large scale” solar systems of 100 MW or more, “mid-scale” solar energy systems of less than 100 MW but more than 30 kilowatts (kW), and “small-scale” solar energy systems of 30 kW or less. The ordinance restricts solar energy system development to certain zoning districts and includes provisions, among others, regulating setbacks, height, and glare.

The ordinance also requires a conditional use permit to be issued.

Given the *Ecker* decision, this town ordinance may be vulnerable to legal challenge.

The Great Plains Institute (Great Plains) based in Minneapolis, Minnesota has drafted a “Wisconsin Solar Model Ordinance” available at: <https://www.growsolar.org/wp-content/uploads/2020/08/WI-Solar-Ordinance-2020.pdf>.

A standardized permitting template is included. The model ordinance includes ordinance components intended to be consistent with the Wisconsin statutory preference favoring solar energy system development.

## GREAT PLAINS RECOMMENDED MUNICIPAL SOLAR ENERGY STANDARDS:

- 1 Acknowledge state law favors solar system installation by creating a clear path for solar development consistent with state law
- 2 Limit regulatory barriers to developing solar resources by not unduly using height, setback, or coverage standards to limit development unless the standards are consistent with the three permissible regulatory standards in state law;

- 3 Define appropriate aesthetic standards, but do not restrict installation or use;
- 4 Address cross-property solar access issues by making certain access is protected within a subdivision process;
- 5 Address principal solar uses by defining where solar land use is appropriate as a primary or principal use);
- 6 Consider “solar-ready” design; and
- 7 Consider including regulatory incentives such as density bonuses.

### THE GREAT PLAINS MODEL SOLAR ORDINANCE INCLUDES THE FOLLOWING PROVISIONS:

- 1 Scope

- 2 Purpose
  - Comprehensive Plan Goals
  - Climate Change Goals
  - Wisconsin Smart Planning
  - Infrastructure
  - Local Resource
  - Improve Competitive Markets
- 3 Definitions
- 4 Permitted Accessory Use
  - Height
  - Setback
  - Visibility
  - Coverage
  - Historic Buildings
  - Plan Approval Required
  - Approved Solar Components
  - Compliance with State Plumbing Code
  - Utility Notification
- 5 Principal Uses
- 6 Restrictions on Solar Energy Systems Limited



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7 Renewable Energy  
Condition for Certain  
Permits

- 8 Solar Roof Incentive
- Density Bonus
  - Financing
  - Solar-Ready Buildings
  - Solar Access Variance

Great Plains' model solar ordinance is written to comply with Wis. Stat. Section 66.0401(1m) and the other statutory provisions favoring solar energy system development.

## ADDITIONAL INFORMATION SOURCES

The Great Plains Institute has also developed a "Grow Solar: Local Government Solar Toolkit" that is available at: <http://www.growsolar.org/wp-content/uploads/2017/10/WisconsinSolarToolkitOCT2017.pdf>.

The toolkit focuses on solar planning, zoning, and permitting and includes the model ordinance.

Portage County Planning and Zoning includes a list of solar resources on its website at: <https://www.co.portage.wi.us/services/solar-resource-development>.

Helpful information includes (1) finance, incentive, and installer resources, (2) solar mapping and production value resources, (3) local energy information and resources, (4) and a Q&A.





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Solar energy system development information is also available from Wood County and the local University of Wisconsin-Madison Extension Office. Portage and Wood Counties are members of SolSmart, a national program focused on helping counties, cities, villages, and towns become solar energy leaders.

## ACKNOWLEDGEMENTS

*Solar Installations*, Wisconsin Department of Natural Resources

*Municipal Regulation of Solar Energy Systems*, Attorney Eric B. Hagen, Municipal Law Newsletter, September/October 2022

*Grow Solar, Local Government Solar Toolkit: Planning, Zoning and Permitting*, Great Plains Institute

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