

Considerations for Siting Solar Power Facilities near Lakes and Rivers

Purpose

The purpose of this document is to help local governments determine how to regulate solar power facilities and minimize impacts to land in shoreland, Wild and Scenic River, and floodplain districts. The shoreland rules were developed in 1989, long before solar power became a feasible energy source, and thus do not directly address this land use. The following considerations are provided for communities exploring how to permit solar facilities in shorelands.

Applicability

This document addresses the following solar facilities, all of which are principal land uses that generate solar power for consumption off-site:

- Facilities generating 50 MW or more, which require environmental review and relevant permits from the Public Utilities Commission and may require a permit from the local government.
- Facilities generating between 25 MW and 50 MW, which require environmental review by the Environmental Quality Board (Minnesota Rules, part 4410.4300) and typically need a conditional use permit from the local government.
- Facilities generating between 1 and 25 MW, which are subject to discretionary environmental review by the local government (Minnesota Rules, part 4410.4500) and typically need a conditional use permit from the local government. These facilities include solar gardens pursuant to Minnesota Statutes, § 216B.1641.



This document does **not** address facilities that provide power primarily for on-site consumption where excess power may be sold back to the grid. These types of on-site power facilities are considered accessory uses or structures and should be regulated through a local zoning ordinance and permit. [See model solar ordinance](#) for ideas on how to regulate these facilities. These accessory facilities must also comply with shoreland rule (Minnesota Rules, parts 6120.2500 – 6120.3900) provisions in local zoning ordinances discussed below.

Natural Resource Impacts

While there are many positive benefits of using the sun's energy as a sustainable source of power, there are also a number of natural resource considerations in siting solar power facilities in shorelands and other sensitive natural resource areas. Solar power facilities require a large footprint and compete for space with natural areas. In the big picture, it is not sustainable to replace existing naturally vegetated areas (such as grasslands, wetlands, and wooded areas) with power generating facilities. It is best to locate solar facilities in areas already affected by humans and cleared of natural vegetation such as over parking lots, on rooftops, on old mining sites or previously altered sites.

Shoreland Rule Provisions Applicable to Solar Power Facilities and Structures

All facilities are structures and must comply with applicable shoreland rule (Minnesota Rules, parts 6120.2500 – 6120.3900) provisions in local zoning ordinances, including:

- Structure setbacks from the ordinary high water level and bluff lines
- Vegetation cutting and screening requirements
- Height limits

Considerations and Options for Siting Solar Power Facilities in Shorelands

The following considerations and options for regulating solar power facilities in shorelands can help communities minimize natural resource impacts.

1. Before deciding to allow solar power facilities in shoreland, communities should evaluate the potential impact of solar power facilities for each shoreland area/water body on the following:

- Natural existing vegetation
- Stormwater and nutrient runoff into lakes, rivers, and wetlands
- Scenic views from surface waters and existing/potential homes in shoreland.
- State-listed endangered or threatened species
- Other valuable resources important to the community as identified in comprehensive plans, water plans and mandatory or discretionary environmental reviews.



2. Communities should then explore available options for regulating these facilities based on the potential impacts.

Option 1: Allow with a CUP

If impacts are minor or can be managed through conditions, one option is to allow solar facilities as a conditional use. This approach allows communities to evaluate each proposal and address natural resource impacts with conditions. If a community chooses this option, the following conditions should be considered:

- No intensive vegetation clearing allowed to site solar facilities.
- No placement of structures and facilities on slopes over 12%
- Treatment of stormwater runoff should be consistent with [MPCA storm water manual guidance for solar projects](#).
- All structures and facilities must not significantly impact views from public waters through limits on structure height, use of vegetation or combination thereof.
- Native vegetation must be planted on the site wherever practical to provide habitat. See the [MNDNR Prairie Establishment & Maintenance Technical Guidance for Solar Projects. June 2018](#).
- Use best management practices for managing erosion control.
- Facility location and design must demonstrate that the facility will minimize impact on habitat and wildlife movement.

Communities are encouraged to contact the DNR for help in assessing impacts to these natural resources and in designing facilities that minimize impacts on natural vegetation and wildlife. [See the Minnesota DNR Commercial Solar Siting Guidance, May 2016.](#)

Option 2: Prohibit in Areas of Potential Significant Impact

If impacts are likely to be significant in some shoreland areas, particularly on lakes and rivers that are sensitive to development (such as Natural Environment Lakes), communities may prohibit solar facilities in these areas. In this case, communities should define solar power facilities and clearly list them as prohibited uses in the specified sensitive shorelands.

Option 3: Prohibit in All Shorelands

Communities may also choose to prohibit solar power facilities on ALL lakes and rivers in their jurisdiction.

DNR Review and Approval of Shoreland Ordinance Amendments

If a community elects to amend its shoreland ordinance to more clearly address solar power facilities, all shoreland ordinance amendments must be submitted to the DNR for review and approval to ensure substantial compliance with state shoreland rules. Communities are encouraged to engage their DNR Area Hydrologist as early in the amendment process as possible. Please note that DNR will continue to review shoreland ordinances on a case-by-case basis and no one option provided in this document is intended to provide a blanket approval in all instances.

Application to Wild & Scenic River and the Lower St. Croix Riverway Districts

Solar facilities are not allowed in the Lower St. Croix National Scenic Riverway (Minnesota Rules, part 6105.0370, subp. 2) and the six Wild and Scenic River districts (Minnesota Rules, part 6105.0100, subp. 3).

Solar facilities do not fit into any of the uses identified in the use table for Wild and Scenic River districts, and as such, are not allowed (Minnesota Rules, part 6105.0100, subp. 3).

Solar facilities do not meet the definition for “Essential Services,” which are intended for right-of-way uses, and are exempt from the setback standards (Minnesota Rules, parts 6105.0040, subp. 10 and 6105.0110, subp. 3).



Application to Floodplain Districts

Solar facilities are structures and are subject to the same standards for development in floodplains and are subject to local ordinance requirements including the following:

- No structures are allowed in the floodway. If the floodway is not shown on the official maps, an analysis is required to demonstrate the structures are outside the floodway.

- A permit is required for any solar structure and associated grading within the floodplain. Many communities require a conditional use permit.
- If grading is proposed in the floodway, the applicant must provide certification it will not cause any rise in the flood elevations (usually done with “no-rise” certificate).
- Grading in the floodplain must be evaluated to ensure it is not blocking drainage ways or tributaries, and is not altering drainage in a way that negatively impacts surrounding properties and water bodies.
- Structures in the floodplain (i.e., outside of the floodway) must be:
 - Anchored to prevent floatation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy; and
 - Constructed with materials and utility equipment resistant to flood damage.



The statements in this document do not have the force and effect of law. This document is informational only and should not be interpreted as creating new criteria or requirements beyond what is already established in the relevant statutes and rules. Whether a local ordinance or zoning decision complies with the relevant statutes and rules will be determined on a case-by-case basis. Nothing in this document should be considered legal advice. Local governments should consult their attorney for specific advice in adopting, amending, and administering ordinances.