

Should the Commission grant a certificate of need and site permit for the proposed solar project?

No. Allowing the proposed project to continue would be an unwise use of Minnesota resources and a violation of Minnesota Law. Prime farmland is an incredibly valuable resource that will only become more important as world food demand increases due to increased population and improved standards of living.

Many countries and states have realized the importance of prime agricultural land and have passed laws to prevent it being developed for other uses. Minnesota is no exception with Administrative Rule 7850.4400 (<https://www.revisor.mn.gov/rules/7850.4400/>) which prohibits large electric power generating plants from being developed on important lands in the state. Subparagraph 4 protects prime farmland and appears below:

Subp. 4. **Prime farmland exclusion.** No large electric power generating plant site may be permitted where the developed portion of the plant site, excluding water storage reservoirs and cooling ponds, includes more than 0.5 acres of prime farmland per megawatt of net generating capacity, or where makeup water storage reservoir or cooling pond facilities include more than 0.5 acres of prime farmland per megawatt of net generating capacity, unless there is no feasible and prudent alternative. Economic considerations alone do not justify the use of more prime farmland. "Prime farmland" means those soils that meet the specifications of Code of Federal Regulations 1980, title 7, section 657.5, paragraph

According to the environmental review conducted by the state as part of the permitting process for this project, the majority (>80%) of the proposed development site is already classified as prime farmland, and the remaining 18.6% would be classified as prime farmland with improved drainage. Therefore, the entire proposed site is protected by the statute quoted above.

Additionally, the proposed project fails to meet the land use limit 0.5 acres/MW of capacity described in the rule. The project proposes an 80 MW installation on 681.2 acres of land. This represents 8.5 acres/MW, or 17 times more land use per MW than the allowed amount. In fact, solar energy is particularly bad in this regard; traditional thermal power plants (coal, gas, nuclear) do not require a large amount of land area in comparison to solar, and wind power leaves the majority of the surrounding land available for agriculture. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5015902/>).

Further, solar power has a low capacity factor in comparison to traditional energy sources. Because the sun isn't always shining, an 80 MW installed capacity only produces around 22-24% of that amount when considered over time. Traditional plants (coal, natural gas) have about double the capacity factor, meaning the same 80 MW capacity of these plants would produce double the amount of electricity in a year that the proposed "80 MW" project would (<https://www.energy.gov/ne/articles/what-generation-capacity>). Solar energy's low capacity factor means even more prime farmland must be used to produce the same amount of electricity as other energy sources. Arguably, it would be very difficult to find another energy source that would violate the land use provision in 7850.4400 more than the proposed project.

The rule contains an exception if there is no feasible and prudent alternative site, and includes the provision that economic considerations alone do not justify the use of more prime farmland. If you

examine Geronimo Energy's primary reasons for choosing this site over other locations (detailed in the environmental assessment and other documents), you will find that they are all economically motivated.

- **Concentration of solar irradiation at the site:** Higher solar irradiance means more electricity to sell.
- **Proximity to existing infrastructure:** Not having to pay for a substation or additional power lines is an economic win for Geronimo.
- **Landowner Interest:** Geronimo chose this site because landowners were willing to sell / lease the land for less than what Geronimo can get for the electricity.
- **Minimal environmental impact:** It wouldn't be economically feasible to choose a site where significant environmental mitigation would be required to build.
- **Purchase agreement with Xcel for Renewable Connect Customers:** The location allows Geronimo to sell to Xcel for use in their renewables program. Xcel sells the electricity at a premium in this program, and it is likely there is an economic benefit to Geronimo as well.

This analysis of Geronimo's reasons isn't meant to cast them in a negative light. The bottom line is that every decision a company makes must be financially motivated. If it isn't, a competitor will find a cheaper way to do things and put them out of business. However, rule 7850.4400 stipulates that "Economic considerations alone do not justify the use of more prime farmland." I think Geronimo would be hard-pressed to come up with considerations for choosing this site that weren't economically motivated.

I will end by saying that I'm not an opponent of solar energy, though this comment may have made it seem that way. The Earth receives enough energy from the sun that we could meet both our energy and food needs well into the future by using agriculture and solar power. However, this does not justify covering prime farmland with solar panels. Instead, smart decisions must be made on where to deploy solar installations. The majority of Rock and Nobles county may be prime farmland, but there are areas of non-productive land in southwest MN, not to mention rooftops where solar could be installed. There are also different states with much more land that is not classified as prime farmland (South Dakota comes to mind) that may be a better alternative. Looking south, solar becomes even more economical due to more solar insolation. Geronimo should not be able to bypass these alternatives just because there are multiple economic incentives for them to build here. Preventing this sort of installation is the intent of 7850.4400 and good policy in general.

-Steven J. Schneiderman