The Impact of Proximity to Solar Farms on Property Values

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Context

In response to stakeholder questions about the impact of solar farms on nearby property values (both farmland and homes) in Wisconsin, we searched both academic and non-academic literature for this brief report. We found several studies that examined impacts on home values, but only two papers that analyzed the impacts of solar farms on agricultural land values. We summarize the results and briefly discuss possible implications for Wisconsin. We then discuss the importance of public perception for these effects on property values.

Highlights

- For the research studies we found, results were generally mixed – studies found positive, negative or no statistical effect of solar farms on nearby property values or sales prices.
- We found no comprehensive study for Wisconsin.
- A study in Indiana found a small increase in farmland sales prices near solar farms, but this effect seems unlikely to be economically important.
- Larger effects seem likely in Wisconsin because more areas have specialized agricultural needs with more limited availability of land to replace losses.
- Public perception of large-scale solar farms plays a key role in these effects, while perceptions of community-scale solar farms remain unclear.

Primary Findings

The impact of proximity to solar farms is more studied for home values than for agricultural land. Research findings are generally mixed – some find positive effects, some find negative effects, or no statistically significant effect. Home and farmland values are highly variable because the specific context for each property matters, but regression analysis typically does not capture all these considerations, so results are often mixed.

The two academic studies we found on the effects of solar farms on farmland values were mixed. Kunwar (2024) evaluates the impact of solar farms on farmland prices in Indiana and has results consistent with expectations – solar farms increase nearby farmland values, but the estimated impact seems small – an average of 1.4%, with a range of 0.9% to 1.6% effect per mile. These effects suggest that though these estimates are statistically significant, they are not likely to be economically important for many farmland sales. If a similar study were conducted for Wisconsin, we expect larger effects because Wisconsin has more land used for specialized types of agriculture. Intensive dairy regions need land for manure, or crops like potatoes, vegetables, cranberries, and ginseng require special types of land. Loss of land to solar farms in these areas would likely have a larger impact on surrounding farmland values because alternative land to replace these losses is limited for these unique and high value uses.

The most comprehensive analysis of home values by Elmallah et al. (2023) has results consistent with expectations – solar farms decrease nearby home values because they are perceived by many people as a disamenity. Across six states (not including Wisconsin), they found that on average, homes within a quarter-mile of a solar farm experienced a 2.3% reduction in value, homes within a half-mile experienced a 1.5% reduction in value, with no statistically significant effect beyond a mile. Effects were larger in Minnesota, the only midwestern state examined, and for land that was previously agricultural, or in rural areas, with respective value reductions of 4.0%, 3.0%, and 4.2%. Based on these results, we anticipate declines in home value of around 3% to 4% in Wisconsin for being within half a mile of a large solar farm, but this is a hypothesis that has not been empirically evaluated.

We also note that public perception plays an important role. Whether real or perceived, farmers and homeowners near solar farms are concerned about actual or potential effects on the value of their land and perceptions of potential buyers. In rural areas, opposition to solar farms is often explained by the perception that the solar farm uses rural resources for the benefit of more urban areas and people – a phenomenon known as the "rural burden". However, differences exist among solar farms. Smaller, community-scale solar farms are built to serve a community or set subscriber base while larger, utility-scale solar farms are designed to provide electricity for cities or regions often further away. Most research analyses focus on large-scale solar farms and it is unclear how results would change and perceptions would differ for community-scale solar farms. In the context of the "rural burden", it is even plausible that community-scale solar farms could be seen favorably in rural and agricultural areas, as a source of pride for energy independence. Understanding these effects on property values would likely require survey or focus group work that is outside the scope of this assessment.

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Context

Renewable energy technologies, such as solar panels, wind turbines, and biofuel technologies have gained increased attention in recent years, but not all renewable energy technologies are the same. Installing a solar farm requires a fundamental land-use change compared to producing wind energy or biofuels (Geiger, 2025 Maguire et al., 2024), which has made solar more controversial. A common critique is the potential impact on nearby home and agricultural land values. For this brief report, we searched both academic and non-academic research to summarize what others have found. We found several studies that examined impacts on home values, but only two papers that analyzed the impacts of solar farms on agricultural land values. We summarize the results and briefly discuss possible implications for Wisconsin. Finally, we discuss the importance of public perception for these effects on property values.

Impacts on agricultural land prices

We found only two studies that specifically analyzed the effect of nearness to a solar farm on agricultural land values. Abashidze and Taylor (2023) examined agricultural land sales in North Carolina and found no direct effect of the distance from a solar farm on the sale price of agricultural land. They find some weak statistical evidence that agricultural land parcels nearer to transmission power lines may increase in value after a solar farm is built nearby. They propose that solar farm installation potentially creates a signal to solar farm developers of the suitability of adjacent agricultural land for future development as a solar farm.

An unpublished master's thesis (Kunwar 2024) analyzed the effect of the distance to a solar farm had on prices for farmland sales in Indiana. The study found that being one mile further from a solar farm decreased the price of farmland by 1.4% (implying that being nearer to a solar farm increased land prices). For higher value farmland (in the top 20%), the effect was larger – being one mile further away decreased the land price by 1.6%. For lower value land (in the bottom 20%), being one mile further decreased the land price by 0.9%. The implication is that land parcels closer to a solar farm have higher prices. The thesis did not discuss how far this effect extended before it dissipated. A likely reason for this price increase near solar farms is that land is a finite resource and a solar farm reduces the amount of land, and so the value of the remaining land increases, more so for higher quality land (Breese, 2025a). Additionally, once a solar farm is in place, the solar farm developers may want to expand and lease more land, putting upward pressure on prices for nearby land. We also note that the regression analysis explains about 18% of the variation in land prices, indicating that farmland values are highly variable and many other factors besides those included in their analysis affect prices. Despite this much variability, the analysis was able to statistically identify the relatively small effect of distance to a solar farm by using almost 39,000 observations.

Discussion of impacts on agricultural land prices

Surprisingly little research exists on the effects of solar farms on farmland values. Abashidze and Taylor (2023) conducted lots of analysis, but found no solid evidence of an impact in North Carolina. Though preliminary, Kunwar's (2024) results are consistent with expectations (solar farms increase nearby farmland values), but the impact seems small: an average change of 1.4% per mile, with a range of 0.9% to 1.6%. To give some idea of what these effects could mean here, we apply Kunwar's (2024) estimates to 2024 land values in Wisconsin.

The average value for agricultural land in Wisconsin in 2024 was $6,600/ac (USDA NASS 2025). Schlesser (2025) summarizes actual farmland sales data in Wisconsin in 2024. Her discussion and Figure 2 suggest that the lowest 20% had prices below about $3,000/ac and the top 20% had prices above about $9,500. Applying the 1.4% average effect gives $6,600 x 0.014 = $92. Applying the 1.6% average effect to the top 20% of land sales in Wisconsin in 2024 gives $9,500 x 0.016 = $152, and applying the 0.9% average effects on the bottom 20% of land sales gives $3,000 x 0.009 = $27/ac. Assuming Kunwar's (2024) analysis can be applied to Wisconsin, which is highly debatable, these result suggest that though these estimates are statically significant, these effects are not likely to be economically important for many sales.

Our overall assessment is that if Wisconsin farmland sales data were analyzed, small positive effects would be identified for farmland near solar farms. However, we anticipate larger effects than in Indiana because we believe that Wisconsin has more unique land used for agriculture, and loss of this land for production would carry a higher cost. For example, farmland around areas with intensive dairy production is needed for manure application, the Central Sands and Lower Wisconsin River Valley are used for intensive potato and vegetable production, and several areas of the state are used for important specialty crops like cranberry and ginseng production. Loss of land for production to solar farms in these areas would likely have a larger impact on surrounding farmland values because they are unique and high value uses and have limited availability of alternative land for replacement if lost. This hypothesis is just that, a hypothesis, and has not been empirically examined, and so should be interpreted as such.

Impacts on home prices

Elmallah et al. (2023) provide the most comprehensive analysis of the effect of solar farms on home prices. They analyzed prices for individual home sales in six US states and found that, on average, homes within a quarter-mile of a large-scale solar farm experienced a 2.3% reduction in value, homes within a half-mile experienced a 1.5% reduction in value, and beyond one mile, no evidence of a reduction in home value was identified. Importantly, these values are averages and the results are highly variable with respect to state, prior land-use, size, and urbanicity. For example, home prices in California, Connecticut and Massachusetts were not impacted by proximity to the solar farm, while homes within a half-mile of a large-scale solar project in Minnesota, New Jersey, and North Carolina experienced value reductions of 4.0%, 5.6%, and 5.8%, respectively. Furthermore, the average across all six states for homes within a half-mile of solar projects that are considered large, are on land that was previously agricultural, or in rural areas experienced value reductions of 3.1%, 3.0%, and 4.2%, respectively.

Specific to the Midwest, a real estate impact study in Illinois by McGarr and Lines (2018) compared sales of single-family homes adjacent to solar farms to sales of comparable homes not adjacent to solar farms. They found no consistent negative impact on home sales prices or other influential market indicators attributable to adjacency to solar farms. Hao and Michaud (2024) used aggregate data to examine the impact of 70 Midwest solar farms on average home values in the same zip code, finding a 0.5% to 2.0% increase in average home values in zip codes with a solar farm. They test no hypotheses, but they propose as a mechanism that solar farms increase tax revenues that are used to build better amenities, such as better schools and public services, that then increase nearby home values. Specific to Wisconsin, the market analysis of MaRous and Company (2021) examined the potential impacts of a proposed solar farm in Dane County

and found that the market data indicated that there would be no negative impact on rural residential property values. This study also found that data did not substantiate local landowners' concerns about noise and visual impacts from an existing solar farm on land values.

The findings of Elmallah et al. (2023) are consistent with expectations – solar farms decrease nearby home values because they are perceived by many people as a disamenity, and their analysis nicely quantifies this effect. However, the results were highly variable, suggesting that the specific context for each home matters. The fact that the smaller studies did not find an effect is not surprising housing values are highly variable. Identifying an effect with such high variability is statistically difficult with a small sample size. Hao and Michard (2024) admit their results are counter to what most research finds; we have developed an academic critique beyond the scope of this report that would explain their unusual results as a statistical issue.

The role of public perception

The evidence put forth in these studies is mixed, with the high variability in land values and home prices indicating that the specific context of each sale matters. The implication is that public perception plays an important role in how the proximity to solar farms impacts residential home prices and farmland values. Whether real or perceived, land and homeowners adjacent to solar farms are concerned about potential buyers passing on their home and land because of its proximity to a solar farm (Breese, 2025a; Breese, 2025b). In rural areas, specifically, there is opposition to solar farm development that is best explained by the perception of the development being extractive of rural natural resources (i.e., land) for the benefit of urban areas and people – this phenomenon is known as the "rural burden" (Nilson and Stedman, 2023). Public perception can and will influence the acceptability of solar projects and citing ordinances and should be taken into consideration.

Not all solar farm projects are the same – there are notable differences between utility-scale and community-scale solar. Smaller-sized community-scale solar projects are usually established to service a particular community or set subscriber base, while utility-scale solar projects are significantly larger and designed to provide a significant amount of electricity for cities or regions (Geiger, 2025). Most of the studies reviewed in this report were for utility-scale solar farms, so it is not entirely clear how their results would differ for a community-scale solar farm. However, considering the root of the rural burden and the main concerns associated with solar farms such as change in land-use and visible disamenities, community-scale solar projects could plausibly be perceived more favorably in rural and agricultural areas. As a result, we believe that the distinction between community-scale and utility-scale solar projects is likely quite important in many contexts.

Caveats

Note that the results summarized in this review do not address longer-term effects of solar farms – it is unclear how long these effects persist. The potentially positive impact that proximity to a solar farm has on farmland values may diminish with time. Also, as public opinion shifts, the impact that proximity to a solar farm has on home values and agricultural land values will likely also shift. Finally, we emphasize that extrapolation of some of these findings to Wisconsin is predicting out of sample and can imply serious errors. We found very few studies specific to Wisconsin and suggest that additional research to examine these effects in the unique Wisconsin context may be warranted to address this issue.

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