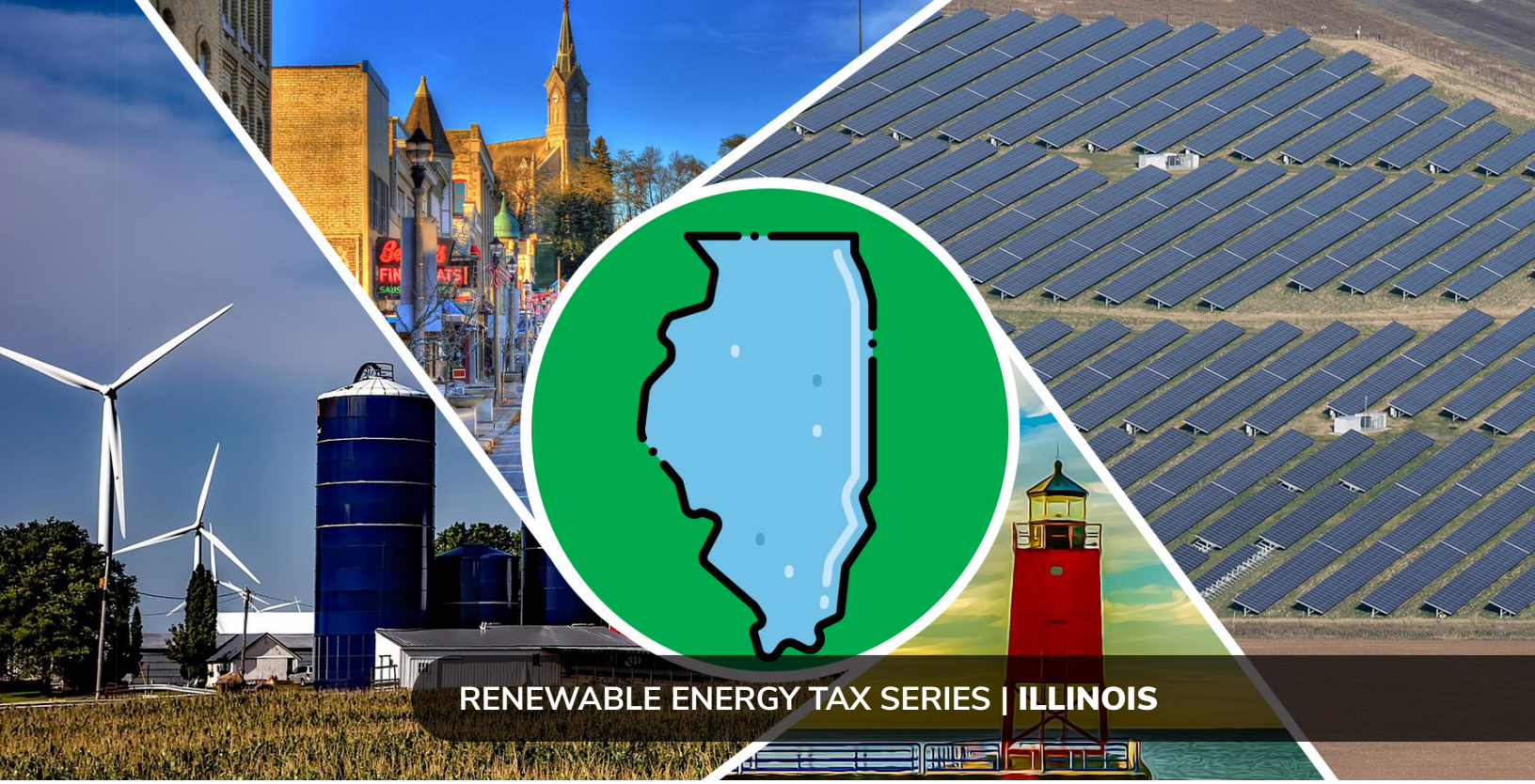

Local Property Tax Impacts of Large-Scale Wind and Solar Projects

Caroline Leland, Jade Prange, Hayley Sakwa, and Pete Schultz, advised by Sarah Mills. | *Center for EmPowering Communities, University of Michigan*

Renewable energy projects are expanding nationwide as governments and industries respond to climate change and advancing technology. This growth is expected to continue for projects of all sizes, especially utility-scale developments that power thousands of homes by feeding electricity directly to the grid. Spanning thousands of acres, these large projects are most often built in rural places and frequently on agricultural land.

Like other properties, these projects pay taxes to local government units, including towns, schools, libraries, and others. Energy property taxes are usually much higher than farmland taxes, though the size of the difference depends on state tax laws. Large-scale wind and solar projects are typically taxed in one of two ways: ad valorem (based on land and equipment value, taxed at local rates) or as a Payment in Lieu of Taxes or PILOT (often a flat rate tied to the project's electricity production capacity).

State policymakers determine which tax system applies and how it is implemented, balancing the trade-offs between lower taxes to attract developers and higher taxes to benefit host communities. These policies—from the broad structures to the tiny details—shape the size and distribution of tax payments over a project's 20- to 40-year lifespan. Sometimes units like counties and schools may be affected differently, and some local residents may benefit more than others. Policymakers must also plan for decommissioning to prevent "boom/bust" revenue cycles that can occur when major taxpayers enter and exit. With many of these policies newly established, state and local officials are still learning their applications and impacts.

About the Series

This state-specific series explores one key question: How do property taxes from large-scale wind and solar projects impact local government budgets?

Renewable energy projects can boost rural economies and fund community priorities, but assessing their tax impacts is often difficult. This series aims to provide stakeholders with clear, detailed, and accurate information.

This material is for informational purposes only and is not intended as legal advice.

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Overview: Wind and Solar Property Taxes in Illinois

Agricultural land values for Illinois property taxes are determined by the land's expected contribution to farm income based on the productivity of the soil.[1] In a parallel sense, Illinois bases the assessed value (property value for tax purposes) of large-scale renewable energy projects on their electricity-generating potential, called nameplate capacity. The assessed value for these projects is determined by a per-megawatt rate that is set at the state-level, which is then adjusted annually to account for inflation. The per-megawatt rate for solar energy is $218,000 per megawatt (MW) of nameplate capacity, while the rate for wind is $360,000 per MW. As the property ages, depreciation is also subtracted from the value.

In Illinois, most real property (land and buildings) is taxed at one-third of its assessed value, including renewable energy projects and agricultural land.[2] If a property is used for both agriculture and renewable energy, it is valued according to the proportion of each use.[3] Wind and solar projects then pay taxes to local government units—like counties, townships, and schools—according to local tax rates.

Example: 100 MW Project in Adams County, Illinois

A 700-acre, 100 MW solar project in Clayton Township, Adams County would increase the assessed value of converted farmland property by an estimated $8.33 million in Year 1. Due to its higher per-MW rate and fewer acres converted from farmland, a 100 MW wind project would have an estimated increase in assessed value of $17.5 million. Though projects typically span multiple jurisdictions, this example assumes

Table 1: Estimated Year 1 net impact for 700 acre, 100 MW solar and wind projects in Adams County.

Assessed Value Factors	Tax Rates	Electric Generation Tax
Per-MW Rate (adjusted annually by a trending factor)	0.62%	$32,000
Estimated acres no longer paying agricultural real property taxes	0.31%	$16,000
Estimated Net Assessed Value	**$8.33 million**	**$17.50 million**

Table 2: Estimated Year 1 net impact distribution for 700 acre, 100 MW solar and wind projects in Adams County

Unit Name	Tax Rates	Electric Generation Tax	Year 1 Tax Impacts from Wind Project
Adams County	0.765%	$64,000	$134,000
Clayton Township	0.332%	$28,000	$58,000
Camp Point School District	3.501%	$291,000	$613,000
All other special units	1.429%	$119,000	$250,000
Total	**6.027%**	**$502,000**	**$1,055,000**

Property tax law looks different in every state. Though states often use shared language, sometimes terms are used differently in different places. These shared terms are defined below according to Illinois's tax system.

Property Tax 101

- **Ad valorem:** A tax based on the value of the item being taxed.
- **Assessed value:** The value of a property set by a government for the purpose of taxation.
- **Depreciation:** The gradual loss of value of a property as it ages or gets used.
- **Fair cash value:** The price at which a property is most likely to be sold in the current real estate market. Also called *market value*.
- **Levy:** The total amount of property tax revenue that a taxing authority is authorized to collect in a given year.
- **Market value:** The price at which a property is most likely to be sold in the current real estate market. Also called *fair cash value*.
- **Millage rate:** An expression of the tax rate. 20 mills is a rate of $20 per $1,000, or a 2% tax rate.
- **Nameplate capacity:** Maximum amount of electricity in megawatts (MW) a solar or wind farm could produce under perfect conditions. Sometimes called production or installed capacity.
- **Personal property:** Moveable items, not permanently affixed to or part of the real estate, like solar panels.
- **Real property:** Land and permanent improvements to land, such as buildings.
- **Taxing district:** A geographic area with a distinct set of overlapping taxing units. The total taxing district rate is determined by adding each of overlapping units' tax rates.
- **Tax liability:** The amount of taxes owed by a property owner to a government unit.
- **Tax rate:** A percentage at which a property owner is taxed on the value of their property.
- **Taxing unit:** Any government unit that imposes property taxes, such as counties, towns, school districts, and special districts.

The Bean, Chicago, IL. (Rock Lobes of Pixabay)

Illinois: Key Concepts

- **Trending factor and trended real property cost basis (TRPCB):** Trending factor is the number used to represent inflation for the purpose of assessing property tax for wind and solar projects. In 2025 that number is 1.28 for solar[4] and 1.56 for wind.[5] This number adjusts the set per-megawatt rate to value renewable energy projects, and the resulting value is called the trended real property cost basis (TRPCB). The TRPCB is then depreciated to reflect the age of the property, the result of which is considered the property's **fair cash value**. Lastly, like other real property in Illinois, the fair cash value is reduced to 33.33% to determined the **assessed value**.The equation is:

  Per-MW rate x Trending Factor = TRPCB

  TRPCB - Depreciation = Fair Cash Value

  Fair Cash Value x 33.33% = Assessed Value

Adapted from Lincoln Institute of Land Policy Property Tax Glossary.

Wind and solar property tax treatment

Solar property tax treatment

Illinois defines commercial solar as any ground-installed device or devices using solar energy to generate electricity for wholesale or retail sale, not primarily for on-site consumption.[6] In counties with fewer than 3 million residents (i.e., all counties except Cook County), the formula for the **assessed value** of utility solar property taxes is:

[($218,000 X MW of Nameplate Capacity X Trending Factor) - Depreciation] x 33.33% = Assessed Value

- The per-megawatt solar rate is $218,000 per MW of **nameplate capacity**.
- The **trending factor**, which is an annual inflation rate that adjusts the per-MW rate, is 1.28 in 2025 for commercial solar property.
- **Depreciation** is calculated as a straight line over 25 years of the project life (physical age of the plant / 25), with a 30% floor. In other words, the value of the system does not depreciate below 30% of its **trended real property cost basis** (per-MW rate x trending factor).[7]
- All **real property**, including solar property, is multiplied by 33.33%.

There is no separate property tax for buildings and substations associated with a solar project.[8]

Wind Property Tax Treatment

Illinois defines a "wind energy device" or a wind turbine as any device with a **nameplate capacity** of at least 0.5 megawatts that is used to turn wind energy into electric power for commercial sale.[9] The calculation for wind property is the same as for solar property, though the per-megawatt rate and trending factor are different:

[($218,000 X MW of Nameplate Capacity X Trending Factor) - Depreciation] x 33.33% = Assessed Value

- The per-megawatt wind rate is $360,000 per megawatt of **nameplate capacity**.
- The **trending factor**, which is an annual inflation rate that adjusts the per-MW rate, is 1.56 in 2025 for wind property.[10] This number is higher than the solar trending factor because the wind property trending factor was set in 2007, while the solar trending factor was not set until 2018, so they are adjusting for inflation over a different span of years.
- Consistent with solar property, **depreciation** is calculated as a straight-line over 25 years of the project life (physical age of the plant / 25), with a 30% floor.[11]
- All **real property**, including wind property, is multiplied by 33.33%.

Buildings and substations for wind projects are assessed separately.[12]

Agricultural property tax treatment

In Illinois, if a wind or solar project is developed on previously farmed land, the land that is part of a wind or solar does not pay agricultural taxes during the life of the project. The year after a solar farm is decommissioned, it returns to being assessed as farmland, and its taxable value reverts to its most recent year being assessed and taxed as a farm.[13] [We assume the same is true for a wind project, though have been unable to confirm this.]

Agricultural land in the state is assessed based on its use value, or the value it contributes to the farm's income, rather than its **market value**.[14] A state technical advisory board calculates an *agricultural economic value*: an expected use-value for each soil type based on estimated net income (5-year average of gross income minus production costs). Soil quality is measured via a productivity index (a number between 82 and 130), with the highest number corresponding to the most productive soil. Like other **real property** in Illinois, including renewable energy, the *agricultural economic value* is multiplied by 33.33% to determine the **assessed value**,

called the equalized assessed value. Lastly, Illinois further limits the growth of *equalized assessed values* for farmland by capping it compared to previous years. As such, the final *certified value*, which includes this assessment cap, is the per-acre assessed value that is used to determine local property taxes.[15]

Personal Property Replacement Tax

Since 1976, there has been no tax on **personal property** in Illinois for corporations, partnerships, and other business entities. Eliminating personal property taxes decreased the tax base for local government, which negatively impacted schools. To make up for some of that lost revenue, the state implemented the Personal Property Replacement Tax (PPRT).[16]

Individuals do not pay this tax, but corporations, utilities, and trusts must pay it. For example, public utilities pay a 0.8% tax on invested capital while corporations pay 2.5% replacement tax on their net Illinois income.[17] Depending on the business status of the project owner, these taxes may account for additional revenue distributed amongst the state. Since the taxes do not stay local, they are not accounted for in this brief and accompanying calculator.

Chicago, IL. (Bridgette Werner, Pixabay)

Discussion of Impacts

Impacts of an Ad Valorem System

While a renewable energy project's **nameplate capacity** is used in calculating its property taxes, the tax structure in Illinois functions as an **ad valorem** system. The capacity of the energy project is used to assess its taxable value, unlike in other states which may use the installed capital costs or other methods.

Ad valorem systems typically factor inflation into a project's annual taxable value. In Illinois, this is done through the trending factor, which is updated annually to reflect changes in the consumer price index. This allows revenues to respond to inflation, and not lose value during periods of high inflation.

Impacts on School Districts

Units that tax the most have the most new revenue to gain. In Illinois, school districts typically have the largest tax rate of any unit in a given jurisdiction. Accordingly, they receive the largest proportion of property tax revenue and are therefore particularly impacted by the construction of renewable energy projects in their jurisdiction.

Impacts of Wind Projects

For renewable energy projects of equal **nameplate capacity**, tax revenues from wind are substantially larger than revenues from solar. The **fair cash value** per MW in 2025 dollars (per-MW rate x trending factor) is $561,600 for wind projects and $279,040 for solar projects. Additionally, wind projects also convert fewer acres away from farmland per MW of capacity, so more farmland property taxes continue to be paid (though this impact is small relative to the difference in fair cash value). All totalled, wind often generates more than twice the amount of tax revenue per megawatt as solar.

OBSERVATIONS ON IMPACTS ACROSS STATES

- **Closer neighbors benefit more:** Because projects pay taxes to overlapping **taxing units** (e.g., county, township, and school), those living nearest—who use all these public services—see the greatest economic impact.
- **Less populous areas benefit more:** Since tax benefits are distributed within the project's **taxing units**, counties and townships with fewer residents receive a higher per-capita benefit.
- **Tax revenue becomes more concentrated:** A large taxpayer like a wind or solar farm shifts the tax base, increasing reliance on a single source. When the project is decommissioned, local units may struggle to replace the lost revenue.
- **Wind project revenue is more dispersed:** Wind farms retain most farmland, converting only 0.5 to 1 acre per turbine use. With turbines spread over many more acres than solar panels, less agricultural tax revenue is lost and and benefits are shared across more **taxing units**.

Calculation Steps

The two examples below calculate the net tax impacts when 700 acres of agricultural land in Clayton Township, Adams County is converted to a 100 MW solar project and a 100 MW wind project, respectively. In addition to Camp Point Community Schools, special districts include districts for roads, library, fire, and a community college. While projects typically span multiple jurisdictions, this example assumes a single taxing district to simplify calculations. Most recent available tax rates in Adams County are from 2023. Numbers are rounded.

100 MW Solar Project

Step 1: Calculate Increase in Assessed Value from Solar Project

A. Find the trended real property cost basis.

- Per-MW rate (Solar): $218,000/MW
- Project nameplate capacity: 100 MW
- Trending factor for inflation (solar, 2023): 1.24[18]

$218,000 x 100 x 1.24 = $27.03 million

B. Subtract depreciation.

- Depreciation rate (Age ÷ 25): 1 ÷ 25 = 0.04
- Depreciation (Installed Cost x Rate): $27.03 million x .04 = $1.08 million

$27.03 million - $1.08 million = $25.95 million

C. Determine project's assessed value.

- Fair cash value of project: $25.95 million
- Assessment rate: 0.3333

$25.95 million x 0.3333 = $8.65 million

D. Subtract Previous Farmland Assessed Value

- Average soil productivity index (Adams County, 2013): 110
- Certified assessed value for soil PI (110, 2023): $459.30
- Project acres: Estimated 700 acres

$459.30 x 700 acres = $322,000

Increase in Assessed Value: $8.65 million - $322,000 = $8.33 million

Step 2: Calculate Year 1 Property Tax Impacts and Distribution

- Increase in assessed value: $8.33 million
- Local unit tax rates (Adams County, Clayton 002 District, 2023)

Unit Name	Tax Rate	Year 1 Tax Impacts from Solar Project
County	0.765%	$64,000
Township	0.332%	$28,000
School District	3.501%	$291,000
All other special units	1.429%	$119,000
Total	**6.027%**	**$502,000**

Wind Example: 100MW

Step 1: Calculate Increase in Assessed Value from Wind Project

A. Find the trended real property cost basis.

- Per-MW rate (Wind): $360,000/MW
- Project nameplate capacity: 100 MW
- Trending factor for inflation (wind, 2023)[19]: 1.52

$360,000 x 100 x 1.52 = $54.72 million

B. Subtract depreciation.

- Depreciation rate (Age ÷ 25): 1 ÷ 25 = 0.04
- Depreciation (Installed Cost x Rate): $54.72 million x .04 = $2.19 million

$54.72 million - $2.19 million = $52.53 million

C. Determine project's assessed value.

- Fair cash value of project: $52.53 million
- Assessment rate: 0.3333

$52.53 million x 0.3333 = $17.51 million

D. Subtract Previous Farmland Assessed Value

- Average soil productivity index (Adams County, 2013): 110
- Certified assessed value for soil PI (110, 2023): $459.30
- Estimated acres converted (1 acre per 3 MW wind turbine): 33 acres

$459.30 x 33 acres = $15,000

Increase in Assessed Value: $17.51 million - $15,000 = $17.50 million

Step 2: Calculate Year 1 Property Tax Impacts and Distribution

- Increase in assessed value: $17.50 million
- Local unit tax rates (Adams County, Clayton 002 District, 2023)

Unit Name	Tax Rate	Year 1 Tax Impacts from Wind Project
County	0.765%	$134,000
Township	0.332%	$58,000
School District	3.501%	$613,000
All other special units	1.429%	$250,000
Total	**6.027%**	**$1,055,000**

Step 3: Determine Total Tax Impacts and Distribution over Project Lifetime

A. Include supplemental tax revenue tools

- Contact the jurisdiction to find out if economic development agreements, tax abatements, or other considerations apply.

B. Extend calculations to other taxing units and years

- Use our published calculator for complete multi-year analysis across all units.

CALCULATIONS FOR MULTIPLE TAXING DISTRICTS

This example assumes the project is entirely within one **taxing district** for simplicity. To determine benefits for a project spanning multiple taxing districts, repeat these steps for each portion of the project (either by megawatts or acreage, depending on the step) within each taxing unit.

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