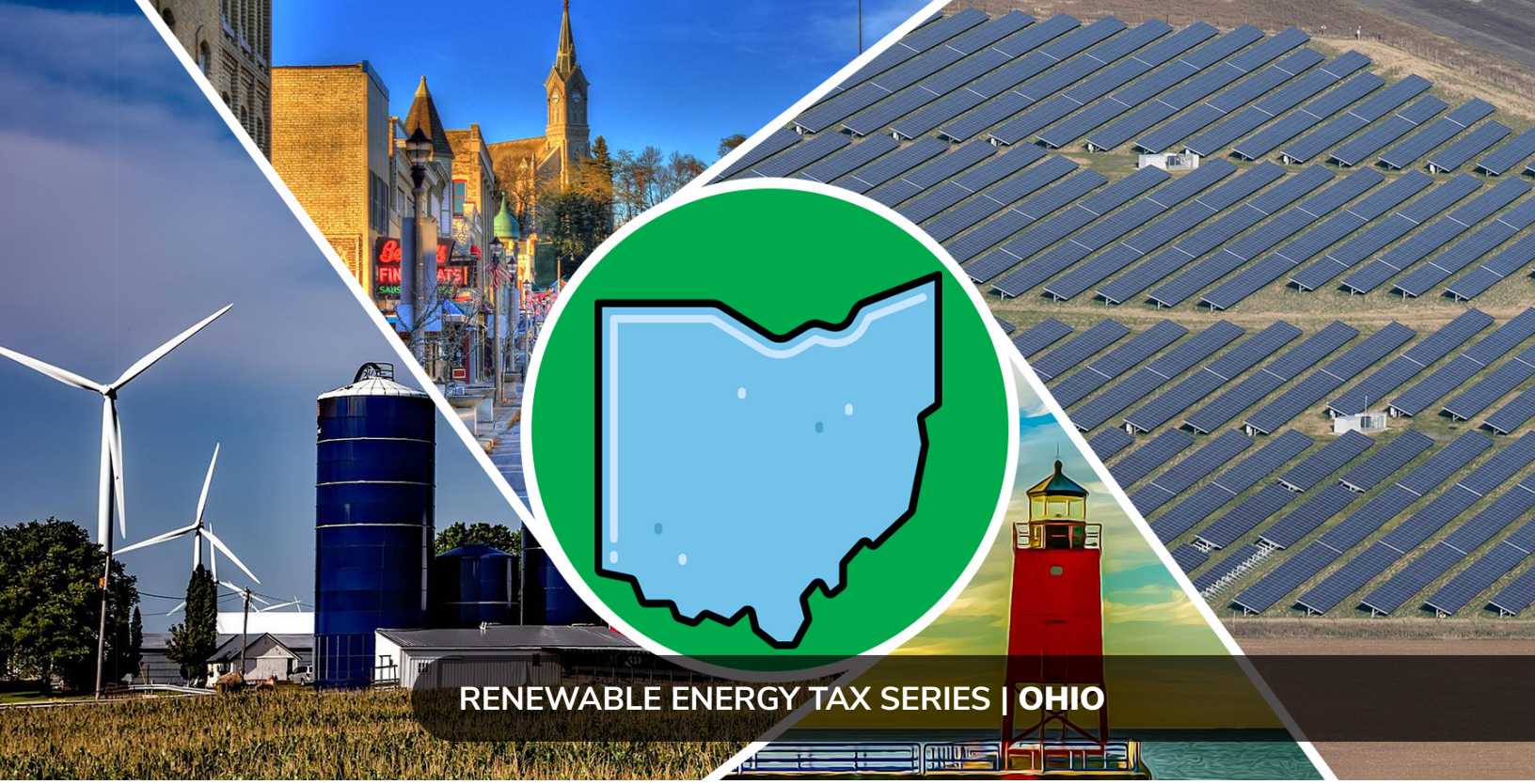

Local Property Tax Impacts of Large-Scale Wind and Solar Projects

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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.

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.

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Overview: Wind and Solar Property Taxes in Ohio

In Ohio, renewable energy developers typically contribute to local tax revenue through the state's **Qualified Energy Project (QEP)** program. Under this framework, eligible wind and solar projects are exempt from traditional property taxes and instead make annual Payments in Lieu of Taxes (PILOT) based on project capacity. These payments range from $6,000 to $8,000 per megawatt (MW), depending on the percentage of full-time Ohio-resident workers employed. Counties may also negotiate additional discretionary payments, allowing total contributions to reach up to $9,000 per MW. Mandatory payments are distributed to counties, townships, and school districts in the same proportions as property taxes, while discretionary payments go to the county's general fund.

Non-QEP projects are taxed as public utility properties based on land and equipment value. In these cases, the Ohio Department of Taxation treats wind and solar equipment as public utility equipment and assesses it based on type (production, transmission or distribution), and years of service. Land under solar panels is classified as commercial and valued according to market price. Land that remains in agricultural use, as is common between wind turbines, is assessed based on its expected agricultural income. and may qualify for additional tax reductions. Property tax revenue from non-QEP projects is distributed to local taxing units based on local tax rates.

Example: 100 MW Solar Project in Pickaway County, Ohio

A 700-acre, 100 MW solar project in Ohio is taxed either as a QEP or utility property. As a QEP, it would pay $7,000/MW annually, distributed proportionally to local taxing units. As a non-QEP, it would pay taxes on both the equipment and the land. In either case, previous farmland property taxes are removed to calculate net Year 1 tax impacts. Recoupment fees may apply.

Table 1: Annual net impact and distribution for 100 MW QEP solar project vs Non-QEP solar project in Pickaway County, Ohio.

Project Type	Impacts	Local Units				
		Pickaway County	Circleville City School District	Circleville Township	Special Districts (Combined)	Taxing District Total
Qualified Energy Project (QEP)	QEP Payments	$61,000	$516,000	$64,000	$59,000	**$700,000**
	Previous Farmland Property Taxes	($3,000)	($19,000)	($5,000)	($2,000)	**($29,000)**
	Year 1 Net Impact	**$58,000**	**$497,000**	**$59,000**	**$57,000**	**$671,000**
Non-QEP Utility Property	Land Taxes	$13,000	$91,000	$15,000	$10,000	**$129,000**
	Equipment Taxes	$211,000	$1,772,000	$220,000	$202,000	**$2,405,000**
	Previous Farmland Property Taxes	($3,000)	($19,000)	($5,000)	($2,000)	**($29,000)**
	Year 1 Net Impact	**$221,000**	**$1,844,000**	**$230,000**	**$210,000**	**$2,505,000**

Property tax laws vary by state. While states often use similar terms, their applied definitions can differ from place to place. Below, these shared terms are defined according to Ohio's tax system.

Property Tax 101

- **Depreciation:** The gradual loss of value of a property as it ages or gets used. If a property depreciates by 20%, then Taxable Value = Assessed Value x 80%
- **Fair market value:** The price at which a property is most likely to be sold in the current real estate market.
- **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) that a solar or wind farm could produce under perfect conditions. Sometimes called production capacity or installed capacity.
- **Payments in Lieu of Taxes (PILOT):** Payments made by tax-exempt entities as a substitute for property taxes.
- **Real property:** Land and permanent improvements to land, such as buildings.
- **Tangible personal property:** "In Ohio, moveable items, not permanently affixed to or part of the real estate.
- **Taxable value:** The value of a property set by a government for the purpose of taxation. In Ohio, sometimes referred to as the tax assessed value.
- **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.

Adapted from Lincoln Institute of Land Policy Property Tax Glossary.

Cattle farm, OH. (Canva)

Ohio: Key Concepts

- **Current agricultural use valuation (CAUV):** CAUV assesses commercial farmland based on its expected use, sometimes called its *appraised value*,[1] rather than on its likely sale price as a potential development property (**fair market value**).[2] The appraisal process estimates the net income from the land's present agricultural use, based on state estimated soil productivity, crop prices, and interest rates. This often results in lower tax liability for farmers.[3]
- **Energy company:** A company that generates, transmits, or distributes electricity for use by others from an energy facility with a total **nameplate capacity** of more than 250 kilowatts (kW). An energy facility includes one or more interconnected wind turbines or solar panels owned by the same person.[4]
- **Qualified Energy Projects (QEP):** A certification granted by the Ohio Department of Development that exempts utility-scale renewable energy projects from real and personal property taxes in exchange for **Payment in Lieu of Taxes (PILOT)**.[5]
- **Recoupment fee:** A charge levied by taxing units when agricultural land is converted to a different use. The recoupment fee enables local governments to recoup some of the lost revenue from the tax discounts given to agricultural property.

Deeper Dive: Ohio Property Tax Assessment Guidelines

Qualified Energy Projects and Payments in Lieu of Taxes

Renewable energy projects certified as **Qualified Energy Projects (QEPs)** are exempted from real and personal property taxes and instead make annual **payments in lieu of taxes (PILOTs)**.

Size: Only projects that use renewable energy resources (including wind, solar, hydropower, battery storage, and others[6]) and have a **nameplate capacity** of at least 250 kilowatts (kW) can become QEPs.[7] Owners or lessees of renewable energy projects between 250 kW and 20 megawatts (MW) can apply for QEP status through the state-level Ohio Department of Development, while large projects over 20 MW require approval from the Board of Commissioners in each county in which they are located.[8]

Employment Requirements: To meet QEP requirements, projects must maintain a certain percentage of Ohio residents employed during construction in full-time equivalent positions. For solar projects, this ratio must be at least 70%, while for wind and other projects, it must be at least 50%.

Annual Payments: The mandatory minimum annual **PILOT** payments are different for solar and wind projects, and depend on the percentage of in-state employees for wind. Host counties may also require additional annual payments, which they often do.[9] For both wind or solar projects, mandatory and additional payments together cannot exceed $9,000/MW.

Table 2: Minimum and Maximum Renewable Energy Payments in Lieu of Taxes[10]

	Solar		Wind and Other Renewable Energy	
Mandatory Minimum Annual Payment (based on % of OH construction FTEs)	70%	$7,000/MW	50-59%	$8,000 / MW
			60-74%	$7,000 / MW
			75%+	$6,000 / MW
Optional Discretionary Payment	Up to $2,000/MW		Up to $3,000/MW	
Maximum Payment Allowed	$9,000/MW		$9,000/MW	

Distribution of Payments: As QEP **PILOT** payments are designed to mirror public utility personal property taxes,[11] mandatory payments from **Qualified Energy Projects** are distributed proportionally[12] to taxing jurisdictions where the project is located according to local gross tax rates for public utility personal property.[13] Any negotiated additional payments are deposited into the county general fund.[14]

Additional Requirements: In addition to employing in-state residents, to maintain their QEP status, projects must sell power or renewable energy credits to distribution utilities or electric service companies, called an *energy credit offer*.[15] Projects larger than 20 MW must satisfy additional conditions, including repairing infrastructure impacted by construction, training public safety departments on emergency response, and establishing apprenticeship programs.

Non-QEP certified projects

Renewable energy projects that are not eligible for QEP status are subject to real and **tangible personal property taxes**.

Real property

Classification: **Real property** refers to land and certain improvements that are permanently attached to the land (like buildings).[16] Agricultural land is Class I. Land that is converted from agricultural use – such as for a solar installation – is classified as business and commercial real property (Class II). If farming continues under wind turbines, as is typical, the land remains classified as agriculture.[17]

Taxable value: In Ohio, the **taxable value** of all **real property** equals 35% of its **fair market value**.[18] While land market values typically increase over time with inflation, Ohio limits how quickly a property owner's tax bill can rise, which are included in net tax rates. The state reimburses local units for this revenue. After these **tax rates** are applied, additional rollbacks based on property type may be added.[19]

Personal property

Classification: **Tangible personal property** includes property that is not attached to the land and that can be touched or moved.[20] Solar, and wind installations are classified as Public Utility Tangible Personal Property. Ohio levies these taxes on all tangible personal property belonging to "public utilities."[21] This property pays standard local tax rates. Ohio tax law identifies multiple categories of public utilities. Commercial wind and solar projects are considered energy companies, not electric companies, for tax purposes.[22]

Taxable value: Public utilities assess the true value of their personal property according to methods prescribed by the state and submit an annual report to the Ohio Department of Taxation.[23] The true value is determined by the initial installed cost (called capitalized cost) and its loss in value over time from age and use (often called **depreciation**). Ohio refers to this prescribed loss of value over time as a *composite annual allowance*. The **taxable value** is then determined by taking an assessment percentage of the true value, which changes depending on the type of equipment.[24]

Table 2: Ohio personal property terminology and calculation.

Capitalized Cost		**Composite Annual Allowance**		**Assessment Percentage**	
Installation cost	**x**	Depreciation per set schedule	**x**	Tax Adjustment	**= Taxable Value**

Personal property categories: Equipment for energy companies is categorized as: production, transmission, distribution, general, or other. The majority of wind and solar project costs are considered production equipment, including solar panels, wind turbines, and electric cables. Each type of property has a prescribed depreciation schedule with different set useful lifes, though none fall below 15% of its initial cost. Each category also has a set assessment percentage. Production equipment is adjusted to 24% of its value after **depreciation**, while other types are valued at 85%.

Millage rates and distribution of tax payments

Real and personal property tax revenues are collected by counties and distributed to local government units – like counties, townships, school districts, and other **taxing units** – according to the **millage rates** set by each unit.[25] Local millage rates vary significantly across the state.

Agricultural Property Taxes

Taxable value: Eligible commercial farmland is assessed via the **Current Agricultural Use Valuation (CAUV)** program. Like all **real property**, agricultural land **taxable value** equals 35% of its CAUV value, minus any applicable reductions. CAUV eligibility criteria are:[26]

- A minimum of 10 acres of land must be devoted to commercial agriculture for at least 3 years
- OR, if the parcel of land is less than 10 acres, landowners must show an average gross income of $2,500 or more from the sale of agricultural products in the preceding three years.

Commercial Farmland Taxable Value = CAUV Value x 35%"

Recoupment Fees: When agricultural land is converted to a different use, **taxing units** charge a **recoupment fee** equal to the owner's CAUV property tax savings for the prior 3 years due to CAUV eligibility (i.e. the difference between what the property would have paid if it was assessed at **market value**, rather than based on its agricultural use). However, wind and solar projects developed on a portion of a larger plot are exempt

from paying recoupment fees if the rest of the plot continues to be devoted exclusively to agricultural use.[27] While wind projects typically remove just an acre under each turbine from farmland, solar projects typically convert all or most of the property. As such, wind projects are clearly exempt from recoupment fees,[28] while there is some discrepancy about solar. These charges can be significant[29] but vary widely based on land value. Developers should consult county officials to determine if recoupment fees will be charged for specific projects.

Discussion of Impacts

Impacts on School Budgets

The State of Ohio subsidizes local school district budgets to ensure that funding per pupil meets an annually determined "base cost" across the state.[30] As such, when local property tax revenues increase to a school district, it does not always result in an equal increase in its budget, because local tax revenue might simply offset the state subsidies. This applies when wind and solar projects pay property taxes as traditional public utilities. However, the state school funding formula excludes **PILOT** revenue, as it is not considered property taxes. Therefore, when a wind or solar project qualifies as a QEP, school districts receiving PILOT payments are able to capture the full added revenue without reducing state aid.[31]

Air Quality Tax Exemptions[32]

Because they reduce air pollution, renewable energy projects can be financed through bonds from the Ohio Air Quality Development Authority (OAQDA) and become exempt from real and personal property taxes. This exemption lasts until the bonds are paid off. To make up for lost revenue, counties and local governments can work with OAQDA to negotiate compensation payments with developers.

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-person 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

These examples calculate the total tax impacts when 700 acres of commercial agricultural land is converted to a 100 MW solar project in Pickaway County. In the QEP PILOT Example, Ohio residents make up at least 70% of full-time employees during construction, which qualifies the project for QEP payments. In the Public Utility Property Tax Example, the project does not qualify and pays real and personal property taxes as an energy company. For simplicity, both projects are assumed to reside entirely in one taxing district (Circleville Twp, Circleville City School District). Net tax rates below include tax reduction factors that limit impacts of inflation on tax liability, but exclude additional rollbacks. Tax data is from 2024. Recoupment fees are excluded. Numbers are rounded.

QEP Payment in Lieu of Taxes: 100 MW Solar Project

Step 1: Calculate Annual QEP Payments

A. Determine megawatt-based payments

- Annual solar PILOT base payment: $7,000/MW
- Annual additional discretionary payment: None
- Project capacity: 100 MW

$7,000 x 100 = $700,000

B. Calculate proportion of Annual QEP payments allocated to each unit

- Unit-level gross tax rates: As follows
- Unit Tax Revenue = (Unit Tax Rate ÷ Total District Tax Rate) × Total Tax Revenue

Unit	Gross Unit Tax Rates	Proportion of Total District Rate	Portion of QEP Payment Allocated to Each Unit
Pickaway County	0.70%	8.76%	$61,000
Circleville City School District	5.89%	73.72%	$516,000
Circleville Township	0.73%	9.14%	$64,000
Special Districts (Combined)	0.67%	8.38%	$59,000
Taxing District Total	**7.989%**	**100%**	**$700,000**

Step 2: Subtract Previous Farmland Taxes

A. Calculate farmland taxable value

- Farmland qualifies for CAUV? Yes
- Average CAUV value (Pickaway County): $2,687/acre
- Acres converted: 700 acres
- Real property statewide adjustment: 35%

$2,687 x 700 x 35% = $658,000

B. Calculate farmland taxes

- Previous farmland taxable value: $658,000
- Total taxing district agricultural rate (Class I Net Rate): 4.36%

$658,000 x 4.36% = $29,000

C. Subtract previous farmland property taxes for each unit

- Unit-level agricultural tax rates (Class I Net Rates): As follows

Unit	Class I Net Unit Tax Rates	Previous Farmland Property Taxes Taxable Value x Unit Rate
Pickaway County	0.50%	$3,000
Circleville City School District	2.84%	$19,000
Circleville Township	0.73%	$5,000
Special Districts (Combined)	0.29%	$2,000
Taxing District Total	**4.36%**	**$29,000**

Step 3: Calculate Year 1 Tax Distribution Across Local Units

A. Determine Net Impact in Year 1

- Annual QEP payments: $700,000
- Unit-level gross tax rates: As follows

Unit	QEP Payments	Previous Farmland Property Taxes	Year 1 Net Impact*
Pickaway County	$61,000	($3,000)	**$58,000**
Circleville City School District	$516,000	($19,000)	**$497,000**
Circleville Township	$64,000	($5,000)	**$59,000**
Special Districts (Combined)	$59,000	($2,000)	**$57,000**
Taxing District Total	**$700,000**	**($29,000)**	**$671,000**
*Add recoupment fees if applicable			

Traditional Utility Property Taxes: 100 MW Solar Project

Step 1: Calculate Year 1 Solar Land Taxes

- Average market value on agricultural land (Pickaway County): $8,520/acre
- Acres converted: 700 acres
- Real Property Statewide Adjustment: 35%
- Taxing district total commercial rate (Class II Net Rate): 6.21%

$8,520 x 700 x 35% x 6.21% = $130,000

Step 2: Subtract Previous Farmland Taxes

- Farmland qualifies for CAUV? Yes
- Average CAUV Value (Pickaway County): $2,687/acre
- Acres converted: 700 acres
- Real Property Statewide Adjustment: 35%
- Taxing district total agricultural rate (Class I Net Rate): 4.36%

$2,687 x 700 x 35% x 4.35% = $29,000

Step 3: Add Public Utility Personal Property Taxes

A. Calculate production equipment taxable value

- Installed cost: Estimated $1/watt x 100 MW = $100 million
- Production equipment: Estimated 90% of installed cost = $90 million
- Production equipment assessment percentage: 24%

$90 million x 24% = $21.6 million

B. Calculate other equipment taxable value

- Other equipment: Estimated 10% of installed cost = $10 million
- Other equipment assessment percentage: 85%

$10 million x 85% = $8.5 million

C. Determine tax liability

- Total taxable value: $21.6M + $8.5M = $30.1 million
- Taxing district total equipment rate (Gross Rate): 7.99%

$30.1 million x 7.99% = $2,405,000

Step 4: Calculate Year 1 Tax Distribution Across Local Units

- Year 1 solar land taxable value: $8,520 x 700 x 35% = $2.1 million
- Year 1 solar equipment taxable value: $30.1 million
- Previous farmland taxable value: $658,315
- Unit-level tax rates: As follows

Tax Rate x Taxable Value = Year 1 Tax Payments
Solar Land + Solar Equipment - Previous Farmland = Net Impact

Unit	Solar Land Class II Net Taxes	Solar Equipment Gross Taxes	Previous Farmland Class I Net Taxes	Year 1 Net Impact*
Pickaway County	$13,000	$211,000	($3,000)	**$221,000**
Circleville City School District	$91,000	$1,772,000	($19,000)	**$1,844,000**
Circleville Township	$15,000	$220,000	($5,000)	**$230,000**
Special Districts (Combined)	$10,000	$202,000	($2,000)	**$210,000**
Total	**$129,000**	**$2,405,000**	**($29,000)**	**$2,505,000**
Add recoupment fees if applicable				

Step 5: 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 RECOUPMENT FEES

Wind projects are exempt from recoupment fees. Solar projects that convert most or all of farmland may be responsible. County auditors determine fees. To estimate, calculate tax savings due to Commercial Agricultural Use Valuation (CAUV) over 3 preceding years.

(Market value x 35% x Class II Net Tax Rate) - (CAUV value x 35% x Class I Net Tax Rate)

CALCULATIONS FOR LARGE-SCALE WIND PROJECTS

To calculate the total impacts for a 100 MW wind project, follow the steps above but reduce the farmland acres converted to 33 acres (approximately 1 acre per 3 MW turbine, or 33 turbines for a 100 MW project).

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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Other contributors include Caroline Leland, Alexandra Haddad, Pete Schultz, Vamika Jain, and Fatimah Bolhassan.

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30. See e.g., Caitlin Forsha, Highland County Press, "County Invoicing $373K in Recoupment for Land Taken Out of CAUV Due to Solar Development" (Jan. 24, 2024), LINK.
31. See Aaron Churchill, "Ohio's New School Funding Formula: An Introduction," Thomas B. Fordham Institute (Jan. 26, 2023), https://fordhaminstitute.org/ohio/commentary/ohios-new-school-funding-formula-introduction.

32. Michaud et. al., Chambers for Innovation and Clean Energy, IMPACT ANALYSIS OF THE OHIO PILOT PROGRAM, 2024 https://static1.squarespace.com/static/56a8596376d99c0164fc16bd/t/67238431ed32fc4f30c7f56a/1730380856677/V2+Final+Full+Report_Impact+Analysis+of+the+Ohio+PILOT+Program+2024.pdf.
33. County Commissioners Association of Ohio, "Commissioners' Manual For Renewable Energy Generation Facilities: Siting And Taxation Of Certain Wind And Solar Projects" (Dec. 2021), https://ccao.org/aws/CCAO/pt/sp/manuals-handbooks.