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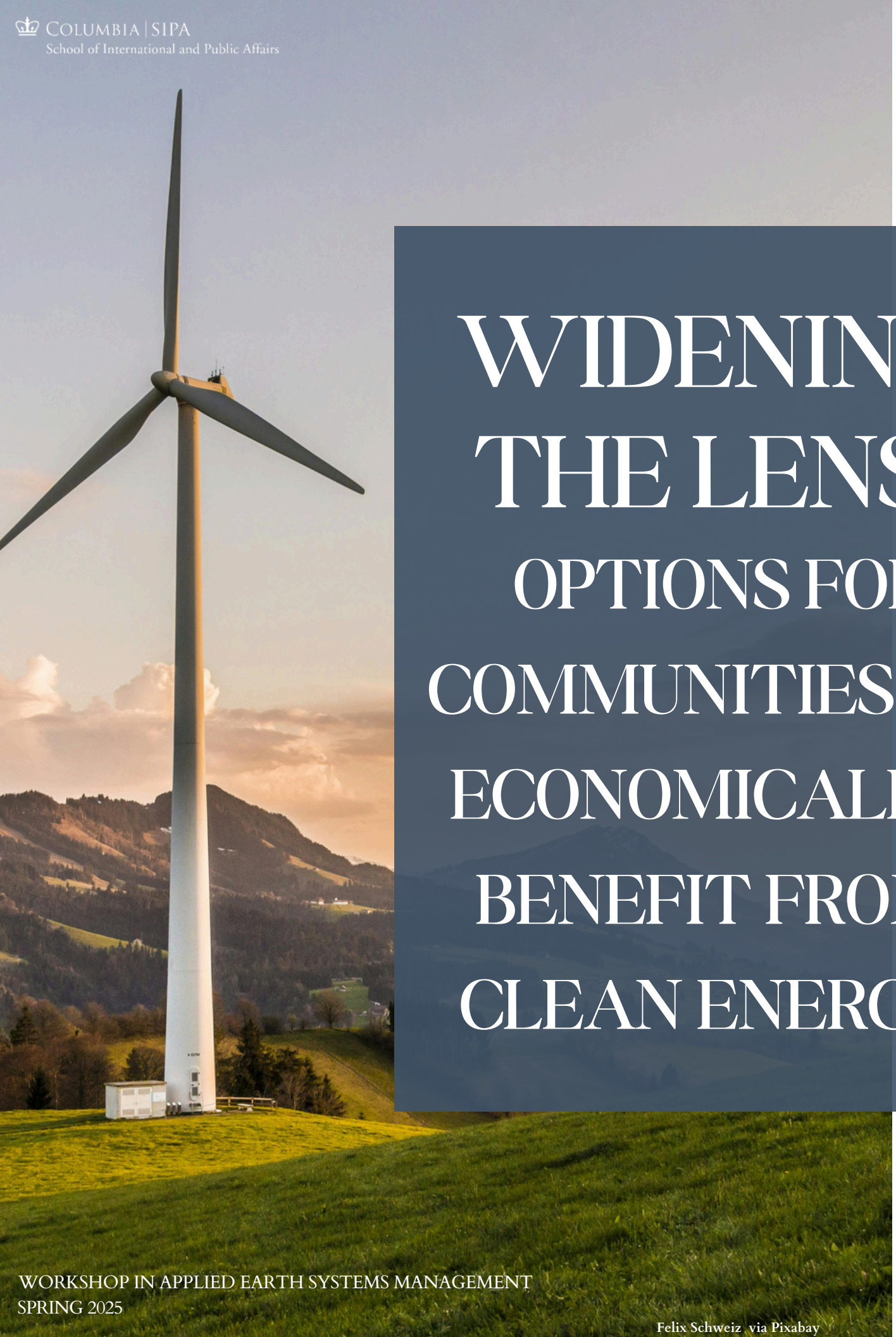

WIDENING THE LENS: OPTIONS FOR COMMUNITIES TO ECONOMICALLY BENEFIT FROM CLEAN ENERGY

WORKSHOP IN APPLIED EARTH SYSTEMS MANAGEMENT
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Felix Schweiz via Pixabay

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Clean Tomorrow is a nonpartisan organization that aims to advance policies that reduce climate emissions through policy action
Learn more at https://cleantomorrow.org/about-us/

Interviews

We'd like to thank all of the individuals who took time to speak with us for this report and helped inform our findings. For the full list of interviewees, please see Appendix A.

Tim Mossholder via Pexels

EXECUTIVE SUMMARY

The energy transition is underway in the United States, with more utility scale solar, wind, and battery storage capacity being built each year. Nationally, developers built 48.2 MW of new renewable energy capacity in 2024, up 47% from 2023. At the same time, local opposition to renewable energy deployment has become more common in rural and urban areas across the political spectrum.

In U.S. history, large-scale infrastructure deployment has often been followed by energy and environmental injustices. In order to maintain our current rates of renewable energy deployment and to ensure the energy transition is conducted with justice for local communities, it is critical to understand whether and how the benefits of these projects are shared with the hosting communities. Advocates and policymakers want to understand how the benefits from energy development can flow to hosting communities, and whether these mechanisms can create public buy-in. Several policies from the Biden administration highlighted this growing effort, and states are looking to leverage a more complete suite of policy tools in this space.

Benefits from renewable energy projects can flow back to communities in a number of ways. Policymakers could incentivize or require local hiring for construction, boosting local income and generating the associated indirect economic benefits. Developers may sign agreements outlining their responsibilities to be a good neighbor by, for example, repairing roads or paying individuals who lease their land to the project. Developers will typically pay multiple forms of local and state taxes, such as property taxes, sales & use taxes, or income taxes. Although there are numerous pathways for communities to benefit from renewable energy development, limited research has been done to understand how various mechanisms compare in their ability to provide benefits, nor how policies and results vary between states. This report is provided to Clean Tomorrow in an effort to fill this gap.

In this report, we utilize a combination of desk research, interviews with experts on clean energy policy and deployment, and original analysis to investigate the tradeoffs between state-level policies for improving clean energy and community outcomes. We categorize policies and non-policy mechanisms into a Community Benefits Framework and analyze how mechanisms are used - or not used - across California, Michigan, Nevada, New Mexico, New York, Ohio, and Texas. Among these states, there was a wide range in the policy and political landscapes, and each state relied primarily on a different subset of Community Benefit Mechanisms to incentivize or mandate engagement between developers and communities. Across every state, we found that policies or mechanisms that were calibrated to the broader policy landscape and local values were most successful in enabling development while ensuring communities received significant benefits. Going forward, this information can be useful to policymakers seeking to understand the policy menu and how certain tools can be used to improve clean energy and community outcomes.

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Introduction

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INTRODUCTION

Across the United States, renewable energy is being deployed at breakneck speed. Developers built 48.2 MW of new wind, solar, and battery storage capacity in 2024, up 47% from 2023 and roughly 5x the annual deployment of a decade ago.[1] Rapidly falling prices and incentives at both the federal and state levels have made renewables extremely cost competitive, catalyzing this growth.[2] Behind the scenes, though, opposition to renewables deployment has been growing in both rural and urban areas.[3]

Historically, large-scale infrastructure deployment has often led to energy and environmental injustices across the U.S., which has sown seeds of distrust and fueled some of this opposition. To avoid repeating these mistakes and potentially alleviate public opposition, community advocates and policymakers want to understand how the benefits from energy development can flow to hosting communities, and whether these mechanisms can create public buy-in.[4] Several policies from the Biden administration highlight this effort, including the Justice40 Initiative, bonus credits awarded under the Inflation Reduction Act (IRA) for projects built in energy communities, and a requirement IRA- and Infrastructure Investment and Jobs Act-funded projects develop Community Benefit Plans.

Despite burgeoning efforts at the federal level, there was room for states to do more at the local level, and this gap has only become more important as the Trump administration works to roll back large swathes of Biden-era environmental policy.[5]

Benefits from renewable energy projects can flow back to communities in a number of different ways. During the permitting stage, developers may sign agreements outlining their responsibilities to be a good neighbor by, for example, repairing roads or making donations to local causes and events. While projects are being constructed, they could agree to local hiring and procurement requirements, boosting local income and generating the associated indirect economic benefits. And once projects become operational, revenues could be paid to individuals who lease their land to the project and to their neighbors. Developers will typically pay multiple forms of local and state taxes, such as property taxes, production-based taxes, sales & use taxes, or income taxes.

As efforts have begun to ensure local communities receive a fair share of benefits from developing renewable energy, a parallel effort is underway to understand the set of tools in the policymaker toolkit. Early efforts have focused on understanding the potential role of Community Benefit Agreements (CBAs)[6], but to our knowledge, limited research has been done to understand how various mechanisms compare in their ability to provide benefits and drive public opinion, nor how policies and results vary between states. This report is provided to Clean Tomorrow in an effort to fill this gap. In the report, we investigate the tradeoffs between state-level policies for improving clean energy and community outcomes within the states of California, Michigan, Nevada, New Mexico, New York, Ohio, and Texas.

Across these seven states, we examine a variety of mechanisms that can provide community benefits. In particular, the report provides insights in four key areas:

- A framework categorizing policy and non-policy benefit mechanisms
- Deeper understanding of how mechanisms improve public acceptance
- An estimate of the magnitude of benefits
- Comparisons of the policy landscape and the usage of mechanisms across states.

The remainder of the report is structured as follows. Section 2 outlines the methodology used to conduct our analysis. Section 3 provides an overview of the existing literature that our team reviewed. Section 4 introduces a community benefits mechanisms framework, categorizing individual agreements, community agreements, and tax structures that can be used to drive economic benefits to communities. In Section 5 we analyze the seven states listed above using the Community Benefit Mechanisms Framework. Section 6 discusses key themes, comparing and contrasting how common mechanisms are used across states. Section 7 concludes.

Thomas Reaubourg via Unsplash

Methodology

Kelly Lacy via Pexels

METHODOLOGY

Overview

This report investigates whether and how various mechanisms can improve clean energy development and community outcomes, particularly as it relates to ensuring that the benefits of new projects flow to the local communities. While a suite of benefits can stem from clean energy projects, it is not well known how effective state tax policies and incentives are at directing these benefits towards communities, nor how the magnitude of benefits differs between states. This research deepens our understanding of how state policy can enable renewable energy projects to benefit communities, developers, and the clean energy transition.

Literature Review

Our research process began with a literature review to develop a foundational understanding of existing policy and agreement frameworks and the existing evidence on their efficacy. The findings of this literature review, shared in the following section, informed the development of our Community Benefit Mechanisms Framework (Section 4) and selection of key states for our analysis.

State Selection

The centerpiece of this report is a comparative analysis focused on the use of key community benefit mechanisms across seven states. In selecting our states of interest, we focused on states with an active renewables policy landscape, aiming to create diversity across geography, politics, renewables adoption, and usage of our key community benefits mechanisms.

Using these criteria and in collaboration with Clean Tomorrow, we chose California, Michigan, Ohio, New Mexico, Nevada, New York, and Texas as our states of interest.

Desk Research

Within each of our seven states of interest, the research team conducted a thorough desk review to understand:

- Trends in renewable energy deployment
- Key legislation that has enabled or hindered deployment
- Local sentiment on renewable energy deployment and the drivers of that sentiment
- The most commonly used community benefits mechanisms in the state
- Recently introduced programs to encourage renewable energy projects and/or to incentivize greater adoption of community benefits mechanisms

The results of our research into each state of interest can be found in Section 5.

Key Informational Interviews

As part of the research process, the team identified experts who could provide more detail on the history and evolution of key policies or trends identified in our desk research, shed light on the dynamics driving regulatory and project development decisions, as well as provide insights into ongoing developments in the space. The team conducted 23 interviews with 26 experts on renewable energy deployment and the impact of Community Benefits Mechanisms, either at the national level or within a state(s) of interest. We identified academic researchers, consultants, local officials, regulators, reporters, and solar developers who could provide a diverse set of perspectives on the life cycle of planning, negotiating, and developing renewable energy projects through to the disbursement of benefits to the local communities. For more information on the experts interviewed by the research team, please see Appendix A.

Literature Review

Tom Schönmann via Pexels

LITERATURE REVIEW

Introduction

This review examines the existing policy landscape, how agreement- and tax-based mechanisms deliver benefits to communities, and how siting policy incentivizes developer-community engagement. These findings informed the Community Benefit Mechanisms Framework (Section 4) and the specific mechanisms we examined in more detail throughout the rest of the report.

Clean Energy Project Siting

Since the passage of the Inflation Reduction Act (IRA) in 2022, 358 major clean energy projects have been announced in 41 states and Puerto Rico, representing approximately $125 billion in new investments and creating over 100,000 new jobs, with around 97,000 of them in the manufacturing sectors.[1] In the US, clean energy project sitting is influenced by various regulations and considerations, varying at state and local levels. As of 2024, 37 states (73%) give either primary or conditional control to the local governments, with 14 states providing state requirements as either maximum or minimum standards, while 10 states give full control to state entities.[2] This local control means counties or municipalities can impose specific requirements like setback distances, restrict locations through zoning, or enact moratoria on new projects. Local intervention can effectively prevent projects in some cases, especially when state-level coordination is lacking. The result is that more than 300 counties have banned renewable energy projects.[3] This type of local flexibility has led to inconsistent permitting timelines, project moratoria, and zoning restrictions.[4,5] Clear, standardized permitting processes that are managed by the state can streamline project review and approval compared to fragmented, locally controlled processes. To combat these challenges, California, Michigan, and New York, among other states, have introduced state-level reviews for large scale renewables projects.[6,7,8] However, these measures can remove local control in some cases and for that reason, have met resistance.[9]

Renewable Energy Community Benefit Policy Mechanisms

Community Benefit Agreements

Community Benefit Agreements (CBAs) are legally binding contracts that aim for mutually beneficial outcomes for both the local communities and renewable energy project developers.[10] As large-scale renewable energy projects have become more common in new geographies, local resistance has also become more common.[11] In light of this, CBAs have emerged as a potentially promising tool to build community trust and secure local buy-in. Still, enforceability is often an issue when there are no clear terms and penalties.[12] To combat this challenge, CBAs should include transparent adaptable benefits that can be tailored to each community, and they should draft sections for tax alignment, environmental monitoring, compliance enforcement, and infrastructure restoration.[13] Meanwhile, developers can start engaging with communities from an early stage, prioritize transparency, and frame CBAs as mitigation-oriented deals.[14] For example, one study found that communities prefer citizen panels and public hearings to gather information and provide feedback on projects.[15]

Local communities may hire legal and technical counsel to support transparency demands from the developers,[16] but it is important to consider that many communities will not have the resources or capacity to take this approach. Though we have evidence on how CBAs can be successfully negotiated using these binding and transparent processes, there is limited evidence on their long term success in directing tangible benefits back to impacted communities.

Host Community Agreements

Host Community Agreements (HCAs) are similar to CBAs in that they are binding agreements in which the developer commits to provide benefits to the community, usually in exchange for support of their project. Monetary compensation is typically the only or primary benefit a HCA provides. One distinguishing feature is that HCAs are typically signed between the developer and local government, whereas CBAs often involve a community organization or coalition.[17] The process for negotiating these agreements is often mandated by state policy - for example, New York's Accelerated Renewable Energy Growth and Community Benefit Act[18] requires developers of large-scale projects to pay set fees based on the size of the project[19] - which reduces the flexibility of local officials but ensures towns receive similar benefits for hosting projects.[20]

Good Neighbor Agreements

Good Neighbor Agreements (GNA) can serve both as community engagement tools and mechanisms for local benefit-sharing. GNAs are typically negotiated between an energy developer and landowners who will be compensated for hosting a project on their private land, or neighboring landowners who are compensated for the disruption to their property during construction or operation of the project. Further, GNAs may fund specific community benefits such as impact mitigation (e.g. easement contracts) for landowners in close proximity to the project.

Renewable Energy Tax Structures

Taxes can be used to incentivize renewable development that in turn provides additional jobs, tax base, and economic activity benefits to local communities. Most existing property tax legislation falls into two categories: "exemption or abatement" and "exemption and replacement."

An exemption or abatement scheme—used in 16 states —abates assessed costs of a project or exempts property tax liabilities. Some states have eligibility requirements on project size and scope, while others are broad and all-inclusive. North Carolina, for example, grants an 80% exclusion of the appraised value of any solar system.[21,22]

There are 12 states that use exemption and replacement schemes, exempting projects from ad valorem property taxes but replacing them with other structures such as payment in lieu of taxes (PILOT), nameplate capacity excise taxes, or a solar production tax. These forms of taxation all aim to replace a declining set of payments based on depreciating assessed property values with a more regular set of payments. The rates and taxing authorities for these forms of payment differ state by state, where some reduce the cost of taxes and others primarily regularize payments without necessarily reducing development costs.[23,24]

Payment in Lieu of Taxes

Payment in Lieu of Taxes (PILOT) programs are designed to provide financial stability for both developers and municipalities by replacing property tax revenue, which declines over time, with a more stable set of cash flows.[25] However, the implementation and impact of PILOT programs varies across states. For example, in New York State, local governments can negotiate PILOT agreements with energy developers, or opt out of the state-granted exemption and level property taxes on the full value of renewables systems.[26] Meanwhile, the amount of payments usually varies case by case, depending on utility service territory, project costs, and the electricity compensation structure, which can have a substantial impact on public perception.

As of June 2021, 3 states that replaced traditional property taxes with PILOT programs including Maryland, North Dakota, and Oregon, provided no local control over whether local governments can opt out from tax.[27] However, each state has their own rules regarding the amount of payments developers need to pay, ranging from $500 per MW of nameplate generation (for solar in New York and for energy project that are not wind or coal in North Dakota) to $9,000 per MW AC nameplate capacity (for some solar projects in Ohio).[28] This large discrepancy has also contributed to different public attitudes toward renewable energy projects across different regions. For states with relatively high requirements for PILOT payments, these payments can provide local-term financial stability and growth for local communities.[29]

Green Job Creation from Renewable Energy Development

Policymakers often emphasize job creation as a primary consideration in climate policy. Though it is difficult to measure the direct impact of policy on creating jobs, this is a key mechanism that policymakers try to leverage to drive benefits to communities. For example, a report on the impact of the Inflation Reduction Act (IRA) across 52 rural counties across the United States found the IRA had created 67,000 jobs in these counties, yielding a total of $2 billion in benefits annually. Importantly, approximately 21,000 of these jobs were considered permanent.[30] At the state level, one study looked into two initiatives in the United States—Clean Energy Works Portland/Oregon and SustainableWorks Washington—building out green energy jobs. The report found, in Clean Energy Works Portland/Oregon, the program met its goal of creating close to 400 temporary workers, and provided energy efficiency skills across the jobs created. With SustainableWorks, this program created 35 family-wage jobs and 2,000 hours of training programs.[31] While these results tie the programs to benefits, there is no solid evidence we are aware of demonstrating whether these results would have been achieved without their respective policies.

Mike Blake via Reuters

Community Benefit Mechanisms from Oil and Gas Development

Oil and Gas Leasing Revenues

Revenues from energy production are an essential funding source for public resources in some states. If the clean energy transition is to maintain public support and avoid harming local communities, it will be important to mitigate the impact of losing this funding. These revenues come from multiple sources, such as state revenues from severance taxes and state leasing royalties, federal disbursements from leasing and production on public land, and local property taxes.

Severance taxes are levied on the extraction of energy resources.[32] In general, severance taxes account for less than 1 percent of a state's general revenue, but some states heavily rely on these funding mechanisms. In 2021, severance taxes accounted for 14 percent of North Dakota's state and local general revenue, followed by New Mexico (6 percent), Wyoming (4 percent), and Alaska (3 percent).[33] These revenues are highly variable, reaching a peak of $20 billion in 2012 and a low of $9 billion in 2016, and were $11.8 billion in 2021, the most recent year for which data are available.[34] Because of this volatility, states that depend on fossil fuel severance taxes generally have higher budgetary risks.[35]

States and local governments receive approximately $2 billion from the leasing and production of minerals and energy on federal lands and waters. New Mexico and Wyoming received approximately 72 percent of all federal disbursements to states in FY 2020, making up 3 percent and 9 percent of their state's expenditures, respectively.[36] These states allocate most of their federal disbursements to state expenditures (e.g. public schools, higher education budgets).[37]

Local property taxes are the third main channel for distributing energy production revenues to local governments. They also provide a pathway for renewable energy to benefit local communities.[A] One study sampled 79 counties that are leading energy producers and found that, across many of those counties, the energy system contributes more than half of total property taxes.[38] Per unit of total primary energy production, local revenues from wind and solar can exceed those of fossil fuels in some cases. For example, in New Mexico, Ohio, and Texas, the highest levels of local revenue per unit of primary energy production come from wind and solar. In many counties, solar could replace fossil fuel revenues but would require an unfeasibly large share of available land.[39] Still, in counties with lower dependence on fossil fuel revenues, wind and solar development could replace those revenue streams.[40] Although there are many counties where renewables could feasibly replace fossil fuel revenues, the wide variety of tax mechanisms and revenue allocation policies state-by-state create a challenging environment for renewable revenues to become more widespread.

Alaska Permanent Fund Revenues

Our research focused on how revenues from the Alaska Permanent Fund (APF) have been used and the resulting impacts on local communities, as well as the model's potential to be replicated using renewable energy revenues.

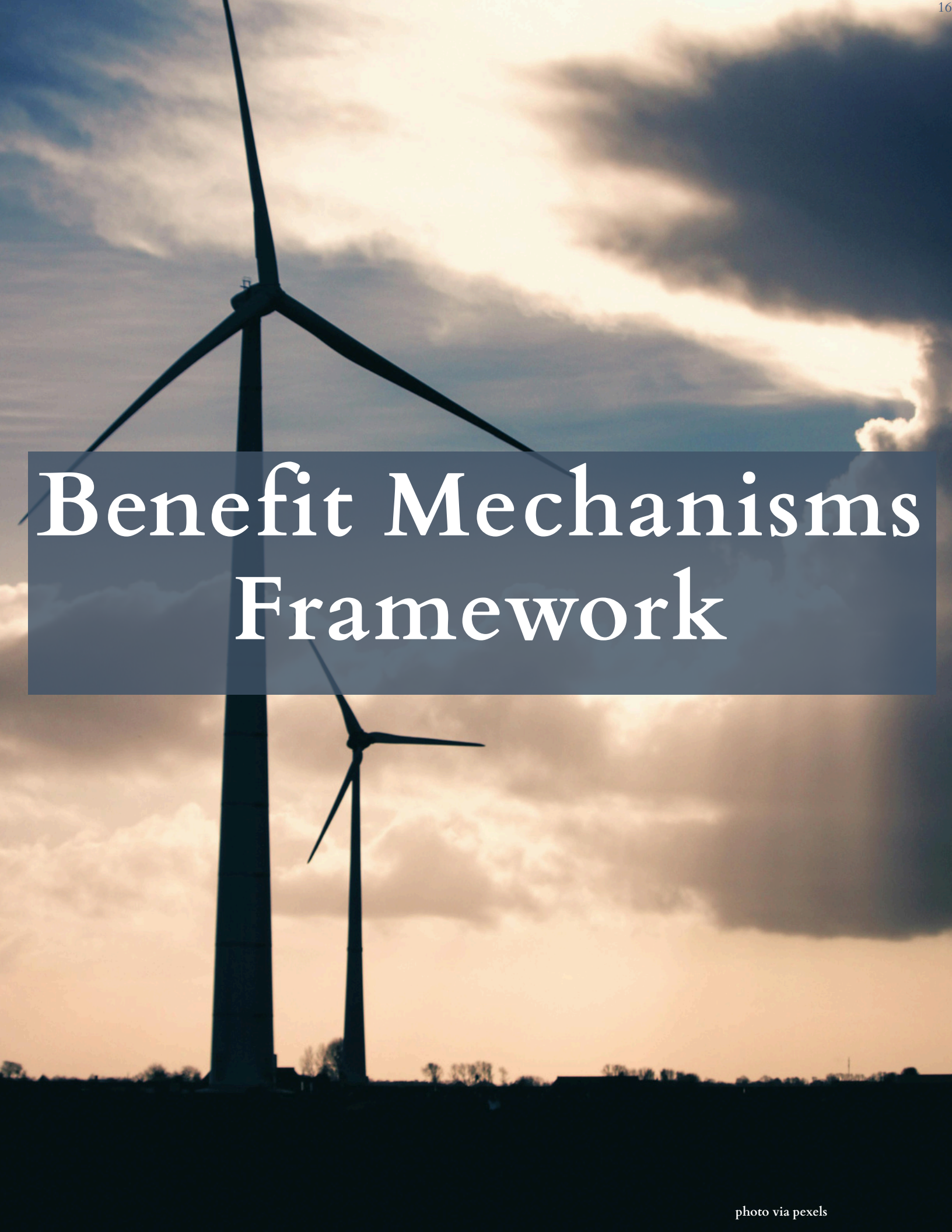
[A] Given the granularity and multiple tax structures at play, research to date has often struggled to distinguish which energy-related revenues (including those from federal, state, and local tax structures) flow directly to local governments. Additionally, data from state and local authorities regarding property taxes vary significantly in their availability. See Raimi et al. (2024) for additional details

Established in 1976 to preserve Alaska's oil wealth, the APF comprises a non-spendable principal and a spendable earnings reserve. Its investment strategy, largely U.S.-based, targets a 5% average annual return.[41] APF revenues are distributed as annual cash dividends to all Alaskan residents, averaging around $1,600 per person depending on investment performance. As of 2024, the fund managed over $80 billion in assets.[42]

The APF is estimated to have reduced poverty by 5–12% in rural Indigenous communities, with these redistributions particularly benefiting low-income households. Despite minimal effects on overall employment rates, APF dividends are associated with a 1.8% increase in part-time employment. However, unconditional cash transfers have also been linked to short-term spikes in substance abuse, pointing to social vulnerabilities inherent in such universal dividend schemes.[43]

However key structural differences would likely prevent the APF model from being replicated with renewable energy-derived revenue. Renewables lower profit margins and slower return profile compared to oil fields challenge the scalability of dividend distributions.[44] Therefore, without diversified revenue streams or additional mechanisms, renewable-based funds may struggle to emulate the APF's scale.

Although the APF is widely seen as successful—79% of Alaskans consider it an important income source—its model, heavily reliant on extractive industry windfalls and conservative investment practices, contrasts with cap-and-invest systems like Washington's, which aim for environmental and social reinvestment.[45] Further research is needed to evaluate the long-term social effects of APF-style models and to develop policy adjustments that would enable renewables-based funds to deliver sustained, equitable dividends across jurisdictions.



Benefit Mechanisms Framework

photo via pexels

BENEFITS MECHANISM FRAMEWORK

Leveraging information from our literature review and prior work from the University of Michigan,[1] we identified a suite of community benefit mechanisms that appeared most common and most promising for delivering positive impact to communities. We have categorized these mechanisms as either Individual Agreements, Community Agreements, or Tax-Related Structures.

Mechanism	Definition	Administered By	Risks	Financial Benefits	Public Opinion	Job Creation
Individual Agreements						
Land Owner Lease Payment	Developers pay landowners directly for use of their lands	Energy developers, landowners	Disapproval from neighbors or community	Direct payments to landowners,	Generally positive, particularly among landowners	No impact
Community Agreements						
Discounted Electricity*	Municipal utilities provide discounted electricity to customers who contribute land for energy development	Utility	Can exclude low income populations	Increased savings for customers	Generally positive sentiment	No impact
Local Employment & Procurement Agreements	Energy developers commit to using local employment and procurement	Energy developers	Limited jobs available; most in construction	Stimulate local economy; procurement can increase tax revenue for community	Generally positive sentiment	Directly grows jobs
Individual, Org, Co-Ownership*	Community members or organizations act as investors or own a cooperative to fund a development	Energy developers and community organizations	Not available to low income residents; low repayment	Community captures financial upside	Insufficient evidence	No impact
Community Enhancement Fund*	Developer establishes fund for community initiatives, financed through donation or development profits	Local government or community organization	Need well-informed working group	Investment into a community initiative	Generally positive sentiment	No impact
Community Wholly Owned*	An entire community acts as investors or join a cooperative to fund a development	Local government	Difficulty financing, community inexperience	Community captures financial upside	Insufficient evidence	No impact
Community Benefit Agreements	Funding for specific benefits or programs, typically negotiated with community coalitions or organizations	Local government or community organization	Limited transparency; developer inability to identify the right group to negotiate with	Can include money for community programs or new infrastructure	Generally positive if negotiated with representative group(s)	Can include job training or local hiring provisions
Host Community Agreements	One-time or recurring monetary compensation, usually negotiated with and managed by local government	Local government	Insufficient compensation to the local government	Typically include payments to local government	Generally positive sentiment	Typically no impact
Good Neighbor Agreements	Funding for specific community benefits or payments to landowners who are leasing their land to a project	Community representative or individual landowner, and energy developers	Disapproval from neighbors; do not usually contribute to the broader community	Direct payments to landowners	Generally positive, particularly among landowners	Typically no impact
Road Agreements	Specify the responsibilities of the developer to improve or repair roads it uses for construction	Energy developers	Disagreements around which roads were impacted	May offset spending by local governments	Generally positive sentiment	No impact
Electric Bill Offset Agreements	Developers pay into a fund which is used to offset the electricity bills of local ratepayers	Utility	Limited utility capacity; benefits may not be salient	Lowers energy bills for host communities	Insufficient evidence	No impact
Tax Structures						
State/Local Sales and Excise Taxes	Taxes levied on the sales and profits of businesses	State & local government	Incentives for development may lead to lower overall tax revenue	Funding for local priorities	Mixed; depends on the tax policy	May create construction jobs
Property Taxes	Taxes assessed on the value of the land where the project is located	Local government	Incentives for development may lead to lower overall tax revenue	Depends on the property tax policy	Mixed; depends on the tax policy	May create construction jobs
Payment in Lieu of Taxes (PILOTs)	Fixed payments to local governments in replacement of property taxes	State & local government	Potentially lower revenue than property taxes; high inflation can erode value	Predictable cash-flows; in some cases, can increase total revenue	Generally positive sentiment but low salience	Eligibility may require local hiring, otherwise no impact
Severance Taxes*	Taxes levied on the extraction of energy resources	Federal or state government	Difficult to replace with renewable energy in areas dependent on severance taxes	Raise revenue for the affected community	Insufficient evidence	Insufficient evidence
Leasing Revenues	Money paid for the right to develop on public land	Energy developers, landowners, state or federal government	Revenues can be volatile	Local revenues are typically modest but can be substantial	Insufficient evidence	Insufficient evidence

**These mechanisms do not appear to play a major role in utility-scale solar, wind, or battery storage projects. Because of this, we do not address them in greater detail throughout the report.*

INDIVIDUAL AGREEMENTS

Land Owner Lease Payments

Description: A traditional form of payment (leases) directly to landowners for use of their lands, as well as lump-sum or recurring payments to those in proximity to the development. These payments are used in most solar, wind, and battery storage projects that are located, at least in part, on private land.

Administered By: Developer's and individual landowners, though local zoning laws can restrict the use of land in some cases.

Risks: Neighboring landowners may become disgruntled if they do not economically benefit from these agreements. Compensating landowners may improve attitudes towards development. However, if only a subset of neighboring residents receive payments it can create negative sentiment.[2] Further, because developers have more information than individual landowners, there is the potential for some landowners to be unfairly compensated relative to their neighbors or other landowners with similar properties.

Financial Benefits: Direct payments to landowners make up the entirety of financial benefits through this mechanism. Annual payments typically range from $500-2,000/acre for solar and $3,000-15,000/turbine on wind farms,[3,4,5] though factors such as the size of the property, the energy production potential, proximity to transmission, and more can affect these values.[6] In some locations these lease payments are common enough to broadly increase property values and provide indirect economic benefits to the region.[7]

Public Opinion: Most landowners have a positive view of these payments, and in some extreme cases, landowner payments have become common enough to increase general acceptance of renewables projects.[8,9] However, when neighboring landowners are not able to benefit but feel like the character or aesthetic of the community has been affected, there can be backlash. Towns in Michigan, Ohio, and Texas have all passed ordinances blocking renewables development after individual landowners had signed easements on their properties.[10]

Job Creation: There is no evidence that individual landowner lease payments have an impact on job creation.

States	CA	MI	NV	NM	NY	OH	TX
Usage	✓	✓	+	+	✓	✓	✓

✓ Often Used + Sometimes Used ✗ Rarely Used

Case Study: Isabella Township

Isabella Wind farm via Quinn Kirby

Landowner payments can, in some cases, also help overcome opposition. Bob Walton, who has been an elected trustee for Isabella Township in Michigan since 2016, recalls that when Apex Clean Energy first approached the town about building wind farms, "Our first thought was, how can we stop this?"[11] However, after a steering committee spent a year researching wind power and visiting wind farms, Walton and other trustees changed their minds, calling wind energy "the best crop you're going to have and the most profitable crop you could ever raise." Although anti-wind activists tried to prevent the town from moving forward, Walton and other township officials who backed the wind farm won three recall campaigns, demonstrating the broad popularity of wind energy in the region.[12] The Apex Wind project, now complete, is projected to pay $30 million in local taxes and $104 million in lease payments to roughly 400 leaseholders over the 30 year life of the project. That translates to roughly $8,000 annually to each leaseholder, though the actual amount each leaseholder receives will vary based on how many turbines are located on their property.[13]

Case Study: Nolan County

Sweetwater Texas, Nolan County via Logan Harrison

Nolan County, Texas has installed ~2,400 MW of wind capacity, and sizable landowner payments for wind turbines have helped boost taxable property values in the county from $608 million to $2.2 billion over a 20 year time period. In some cases, these payments are large enough to keep the land profitable. Miesha Adames, the Executive Director for the Sweetwater Enterprise for Economic Development Municipal Development District (Sweetwater, TX is the seat of Nolan County) said, "I wouldn't have been able to keep my land in the family if it were not for the landowner payments associated with the wind farms and their supporting infrastructure."[14]

COMMUNITY AGREEMENTS

Discounted Electricity

Description: Municipal utilities provide discounted electricity to customers who contribute land or capital for energy development. Customers either own or invest in renewable sources, receiving discounts on their electricity that those sources generate.

This mechanism is particularly relevant for community solar projects. We have included it in this framework for completeness, but do not discuss it further in the report because it is rarely used in utility scale projects.

Administered By: Utility

Risks: The use of discounted electricity can exclude low income populations that are unable to contribute to land or resources to aid in energy development.

Financial Benefits: Allows for increased savings for customers receiving discounted electricity. Certain clean energy programs (i.e. community solar) can include requirements for the inclusion of low-income customers that opt in for shared solar.[15]

Public Opinion: There is a positive perception for discounted electricity stemming from community solar projects, but few utility scale projects appear to offer discounted electricity. There is not sufficient evidence to conclude whether they impact public opinion.

Job Creation: Discounted Electricity does not appear to impact local job creation.

Case Study

Shallow Basket Project, Rio Arriba County via Aaron J Levin

While discounted electricity is commonly associated with community solar, there are other instances of utilities partnering with developers to deliver cheaper renewable power. Within New Mexico, PNM's Solar Direct program built a 50 MW solar facility via a third-party PPA in Rio Arriba County, allowing the City of Albuquerque and others to buy solar power at a fixed low rate for 15 years. The fixed prices insulate the city and other customers from price fluctuations. Prospective customers are only eligible to subscribe to the program if they meet the aggregate load demand requirement of 2.5MW or greater. The credit will appear on the utility bill depending on their level of subscription.[16]

States	CA	MI	NV	NM	NY	OH	TX
Usage	⊗	⊗	⊗	⊗	⊗	⊗	⊗

✓ Often Used ⊕ Sometimes Used ⊗ Rarely Used

Benefits Mechanism: Community Agreements

Local Employment and Procurement Agreements
Description: Energy developers commit to using local employment and procurement for an energy development project, or offer electricity discounts in exchange for labor. Local procurement can mean buying from local suppliers, or simply using a local P.O. box to take delivery of supplies and equipment, ensuring that sales tax is paid locally.[17]

Administered By: Developer

Risks: Because most jobs related to energy development are in construction, the majority of the benefits are often temporary.

Financial Benefits: Local hiring and procurement contracts provide financial benefits to those who secure jobs or whose goods are purchased. In most cases, wages for renewable energy construction are higher than local averages. Local hiring also generates indirect economic benefits for the local community, as higher wages drive local spending and increase sales taxes.

Public Opinion: Communities are generally more accepting of projects with positive impacts on the local economy, as this combats the perception that cheap power and profits are extracted from rural communities and delivered to urban populations and out-of-state developers.

Job Creation: Local employment agreements directly lead to local job creation, though most are temporary construction jobs.

Case Study

Old Mineral County Courthouse via Douglass Halvorsen

The Libra Solar project, currently under construction, will be the largest solar and battery project in Nevada with 700 MW of both solar and battery storage capacity. The project is located in Mineral County, which has Nevada's highest unemployment rate,[18] and will employ roughly 1,100 International Brotherhood of Electrical Workers (IBEW) union workers. In total, the developer will pay over $250 million in direct wages, and the project is expected to generate $170 million in personal property and sales taxes over its lifetime.[19]

States	CA	MI	NV	NM	NY	OH	TX
Usage	✓	✓	✓	✓	+	✓	✗

✓ Often Used + Sometimes Used ✗ Rarely Used

Community Agreements

Description: Agreements that provide funding for specific benefits, programs, or services to support a community. There are three primary types of Agreements used in the energy development space: Community Benefit Agreements (CBAs), Host Community Agreements (HCAs), and Good Neighbor Agreements (GNAs).

The three types of agreements similarly create obligations for the developer to provide the host community economic benefits, usually in exchange for supporting the project. However, there are differences in how they're negotiated and what benefits they entail:

- CBAs: Benefits often include direct payments, funding for specific community services, or support for local organizations
- HCAs: Typically involve monetary compensation and do not involve other community services or benefits
- GNAs: One-time or recurring payments to landowners who are leasing their land to a project and/or neighboring landowners who may be affected by it.[20]

Administered By:

CBAs: Local government, community organization, and/or community coalition

HCAs: Local government

GNAs: Typically individual landowners and the energy developer

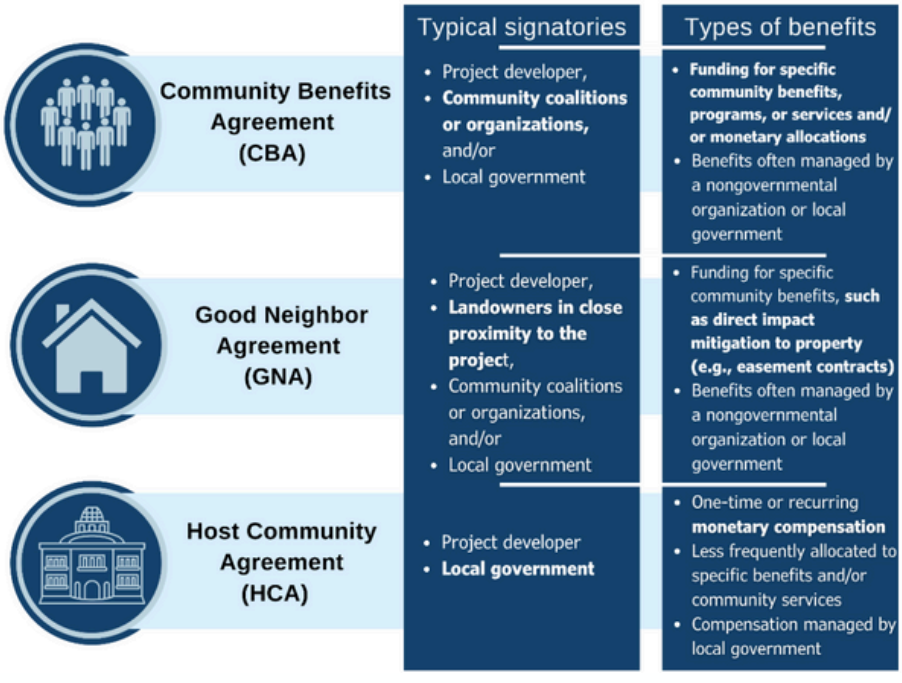
Risks: Limited transparency in the process or having the wrong stakeholders negotiate can prevent communities from receiving the benefits they want or need. This can occur when developers cannot identify the right groups to speak with, local organizations with the capacity to negotiate do not exist, or multiple coalitions purport to represent the community.

Further, communities may not understand what is negotiable or how much they can ask for; developers have more experience and information, and thus the upper hand in many negotiations for community agreements.

Conversely, including an overly broad set of stakeholders can create bottlenecks in negotiations which delay or prevent an agreement.[21]

Figure 1: Differences among types of Community Agreements

Source: Schomburg et al.



Benefits Mechanism: Community Agreements

Financial Benefits: Community Agreements can provide economic benefits ranging from direct financial payments to individuals (GNAs) or local governments (CBAs and HCAs) to job training programs, new infrastructure investments in the community, and community services (CBAs).

Public Opinion: Community Agreements tend to create local buy-in, both because they can ensure the community receives additional benefits from energy projects, and because they provide the community with agency in the decision making process.

Although Community Agreements generally lead to greater acceptance of projects, they can create tension or dispute when individuals or groups feel excluded from the process. This is a particular risk with neighboring landowners that are not included in GNAs.[22]

Job Creation: Community Agreements come in many shapes and sizes, and because of this it is difficult to point to evidence of their effect on local job creation. However, specific CBA provisions, such as funding for job training programs or local hiring requirements, can be tied to job creation.

Locals touring Detroit, MI solar installation via Clean Energy Resource Teams

States	CA	MI	NV	NM	NY	OH	TX
Usage	✓	✓	✗	✗	✓	✓	✗

✓ Often Used ⊕ Sometimes Used ✗ Rarely Used

Case Study: California CBA

Wright Solar Project in Merced County, California via Kimley-Horn

The Wright Solar Park (WSP) is a 233 solar PV project located in Merced County that came online in 2020.[23] Approximately 400 local union workers from the surrounding area were employed for its construction.[24] The developer also agreed to local procurement provisions, bringing between $4.2 and $6.1 million in sales tax to the county.[25]

Case Study: New York HCA

Morris Ridge Solar project is a 177 MW solar farm that became operational in Q4 2024 and will pay surrounding municipalities roughly $14 million over 20 years. The project's HCA requires the developer to conduct environmental, noise, and health analyses, hire local workers, maintain infrastructure, and ensure agricultural compatibility. Roads and local infrastructure were either maintained or improved during construction, and the HCA commits the developer to the same standards when decommissioning the project.[26]

Road Agreements

Description: Road Use Maintenance Agreements (RUMAs) or Road Use Agreements (RUAs) specify the responsibilities of the developer (versus the county) to improve and repair public roads it uses before and after construction. The agreements account for the potential damage associated with project construction. The road agreements may minimize risk of extensive road damage by creating designated roads for transporting construction materials.

It is uncommon to see RUMAs or RUAs signed as standalone agreements; typically similar provisions are included in any Community Agreements associated with the project.

Administered By: Developer

Risks: In the event that the conditions of the roads were not recorded prior to the construction of a solar project, there could be disagreements on the degree of impact caused by transportation vehicles. There may also be disagreements on which roads were impacted by construction.

Financial Benefits: RUAs could help offset spending on road repairs and by the local government. Modifications and damages to the roads would be managed by the developer and not at the expense of the larger community.

Public Opinion: Road agreements do not appear to impact public opinion. It is unclear whether this is a matter of public indifference or a lack of awareness. Road repairs appear to be valued by communities, as they are one of the most common requirements negotiated into CBAs, HCAs, and GNAs by local officials and the most common use of funds awarded under Michigan's Renewables Ready Community Awards.[27]

Job Creation: Road agreements do not appear to impact local job creation.

Case Study

Montgomery, NY, Town Hall via Daniel Case

Mohawk Solar, a potential 90.5 MW solar project, proposed a road agreement with Montgomery County, NY. The agreement would give Avangrid, the developers of Mohawk Solar, permission to transport construction materials such as PV modules and string inverters over designated highways and roads, while making Avangrid responsible for any necessary road improvements and for repairing any roads they damage during construction.[28]

States	CA	MI	NV	NM	NY	OH	TX
Usage	✗	✗	✗	✗	✗	✗	✗

✓ Often Used + Sometimes Used ✗ Rarely Used

Electric Bill Offset Agreements

Description: Developers, by requirement or agreement, pay into a fund which is used to offset the electricity bills of ratepayers in the area where a renewable energy project is built.

Administered By: Utility and state regulator

Risks: Utilities may have limited capacity to manage the process, as the administrative processes needed to track eligible recipients, collect fees from developers, and apply bill credits will need to be developed, often from scratch; many of these processes will be run manually to begin with.

Additionally, the benefits may be relatively small on a per household basis, limiting their salience and impact in the community; until programs begin making payments, this is inconclusive.[29,30,31] Further, increased costs to the project may lead to higher electricity prices for consumers outside the host community.[32]

Financial Benefits: This mechanism directly lowers energy bills for local ratepayers.

Public Opinion: We do not yet have data to determine whether electric bill offsets affect public perception. In a filing on the design of the HCBP, the New York State Department of Public Service wrote "The knowledge of the estimated bill credit may increase social acceptance of the proposed Facility's location and may increase support of the Facility during permitting, construction, and operation."

Although this is plausible, it is still unclear whether the benefits will be large enough to be both salient and meaningful to the public once payments begin.

Job Creation: Electric Bill Offset Agreements do not appear to impact local job creation.

Case Study

New York's Host Community Benefit Program (HCBP) is the only active program identified by the report team. It requires developers building projects larger than 25 MW to pay $500/MW of solar and $1000/MW of wind into a fund which is used to provide utility bill credits for electric utility customers in the host community.[33] To date, no projects have been completed under this process and paid into the HCBP fund.[34] However, roughly 30 projects have been permitted and are expected to contribute approximately $32.9 million to offsetting ratepayers electricity bills during their first 10 years of operation.[35] Using local population data,[36] we estimate a range of $2 per person annually to $159 per person annually in credits.

States	CA	MI	NV	NM	NY	OH	TX
Usage	✗	✗	✗	✗	+	✗	✗

✓ Often Used + Sometimes Used ✗ Rarely Used

TAX STRUCTURES

State and Local Sales and Excise Taxes
Description: Taxes levied on the sales and profits of businesses at the state and municipal levels which are then used to fund local needs such as schools, roads, community centers, etc. There are a variety of different taxes and incentives that can generate revenue for the benefit of local communities. Tax incentives and exemptions are used by developers to support clean energy development, while tax revenues can also be used by communities to support local needs and improvements.

Administered By: State and local governments

Risks: There is a trade-off between lower taxes, which can incentivize development but limit benefits for communities, and higher taxes, which can serve as a barrier to development but increase benefits to communities. Lower taxes can benefit the developer by reducing costs over the lifetime of the project to make renewable energy development more attractive. However, lower taxes reduce the amount of revenue generated by the project and allocated to the local community.[37]

Financial Benefits: Taxes provide essential funding for local priorities and projects, while exemptions and incentives can promote energy development.

Public Opinion: Tax policy's influence on public opinion is tenuous, as there is often a limited understanding of how renewable energy projects generate tax revenues and how those revenues are reinvested into the community. When tax revenue is not visibly reinvested into local services that are tied to community needs, it may create the perception that benefits are small or are unequally allocated.

Job Creation: The effect of state and local tax policy on job creation varies based on the policies. In general, tax policies that incentivize development can lead to job creation. This is particularly true when tax breaks are tied to local hiring requirements.

States	CA	MI	NV	NM	NY	OH	TX
Usage	+	✓	✓	✓	✓	✓	✗

✓ Often Used + Sometimes Used ✗ Rarely Used

Case Study: Michigan

Shiawassee County Solar Project photo via Assembly Solar

Within Michigan, utility-scale solar and wind projects are taxed as industrial personal property. Tax payments by the developer leads to significant revenue for the local government. For example, the Assembly Solar Farm within Shiawassee County, MI is expected to pay $100,000 / MW, or $20 to $25 million in tax revenue to the local government over its lifetime.[38] However, the state has also passed legislation exempting property taxes on new equipment purchased or leased in "eligible distressed areas" as defined by State Housing Development Authority Act.[39]

Case Study: New York

The sales tax incentive in New York exempts solar equipment and installation from the New York state sales tax. Established by SB 3203, local governments are also able to grant exemptions from local sales tax. The exemption requires the use of a Sales Tax Exemption Certificate during the purchase of solar equipment.[40]

Benefits Mechanism: Tax Structures

Property Taxes

Description: Taxes assessed on the value of the land where the project is located. Property tax laws may or may not include the increased value of the land due to the development of the energy project

Administered By: Local government

Risks: Setting property taxes at an appropriate rate to both encourage development and collect necessary tax revenues can be a difficult balancing act. Particularly high tax rates may discourage development, and where local counties can opt out of tax exemptions, they may be able to prevent project development by removing economic incentives. Further, high property tax collections may be offset by losses in other sources of state funding. Conversely, property tax exemptions in some locations may be so large that local communities may not receive a reasonable share of the project's economic benefits, which both harms communities and can erode public support.

Financial Benefits: Whether or not property tax abatements or exclusions have financial benefits for communities is uncertain. When these incentives spur new renewable energy projects that otherwise would not have been economic, they result in increased economic activity, local jobs, and higher tax revenue. However, when benefits are too high or are provided to projects that would have been built otherwise, they lead to a net loss in tax revenue for the local government. Which of these effects is larger, and how the local government distributes tax revenues, will impact the benefits received by the community.

Public Opinion: There is not sufficient evidence to conclude how property taxes on renewable energy plants impact public opinion. While communities generally favor economic development and additional revenues, the distribution of funds (e.g. to local schools or to the state), the generosity of tax abatements provided to developers, and the salience to the community of tax revenues are all confounding factors.

Job Creation: Financial incentives that catalyze project development typically lead to local job creation, provided local hiring requirements are agreed to.

States	CA	MI	NV	NM	NY	OH	TX
Usage	✗	✓	✓	✓	✓	✓	+

✓ Often Used + Sometimes Used ✗ Rarely Used

Case Study: Nevada

Spring Valley Windfarm via Gretchen Baker

Nevada's 0.49% median effective property tax rate is already one of the lowest in the U.S.[41], and the state offers a further 55% property tax abatement through its Renewable Energy Tax Abatement (RETA) program. RETA offers this abatement for up to 20 years for projects that invest at least $3 million (rural) or $10 million (urban), and hire 50% Nevada workers at 175% of the average wage ($48/hr). RETA spurred over $14.5 billion in renewable investment in projects that are projected to pay $500 million in property taxes over a 20 year period. However, these projects received an estimated $600 million in property tax abatements, and concerns remain over reduced revenue for rural services and minimal local benefit from federal land projects.

Case Study: California

Solar Electric Generating System via Noah Berger

California, in 2012, amended its tax code to fully exempt the value of solar generation infrastructure from taxation.[42] As California has become a leader in solar deployment, the magnitude of abated property tax revenue has grown substantially, leading to community opposition to new renewable energy projects in some cases. Driven in part by this exemption, local revenues in California per unit of solar generation are much lower than peers like Texas.[43] With the law scheduled to sunset after 2026, community leaders have vocally opposed an extension as a giveaway to developers, arguing that further solar development would happen without these financial benefits.[44]

Case Study: New York

27 MW solar project in Easton, N.Y. via CS Energy

NY - Section 487 of the New York State Property Tax Law exempts utility-scale solar and wind projects as well as rooftop solar from property taxes for 15 years. Local tax jurisdictions have the option to opt-out of this tax exemption, which would require the renewable developer to pay the full tax liability, or they can enter into a PILOT agreement. This mechanism can influence the viability of renewable energy projects.[45]

Payment in Lieu of Taxes

Description: Energy developers make fixed annual payments to local governments in replacement of property taxes. These payments are typically proportionate to the capacity of the project.

Administered By: State & local government

Risks: Depending on the project and jurisdiction, PILOT revenues may be lower than the property taxes they are replacing. Further, because payments are fixed, higher than expected inflation can erode the value of future revenue to communities.

Financial Benefits: PILOTs provide predictable payments that can be used for long term financial planning. Depending on the millage rates in a particular jurisdiction, PILOTs may allow the host community to retain a greater proportion of revenues. Relatedly, PILOT revenues do not factor into the formulas used to calculate state subsidies (e.g. for school districts), and thus are not partially offset by losses in financial support from the state. Finally, because PILOT revenues do not interact with anti-discrimination clauses in state tax codes, counties with large PILOTs have been able to lower taxes (e.g. see discussion of Oldham County below).

Public Opinion: PILOTs are popular with most local officials and developers because they offer long-term stability and, in many cases, greater flexibility to counties.

However, the general public does not seem to be aware of the difference between property taxes and PILOTs, nor the public services PILOTs fund. Because of this, it is difficult to determine whether they have an impact on public opinion broadly construed.[46]

Job Creation: Developers may hire locally due to the new projects proximity to communities. In some cases, there are stipulations where a percentage of local employment on a renewable energy project is required in order to be eligible for a PILOT. The creation of community projects and infrastructure can also result in job creation.[47]

Case Study

Oldham County was formerly dependent on oil and gas revenues, which made up to 20% of its operating budget. The wind industry has grown rapidly in the county, though, and helped grow the county's tax base from $248 million to $342 million over a decade. Though Texas' law incentivizing PILOTs has sunset, five wind facilities still make $790,000 in annual PILOT payments. In total, the wind facilities added $2.5 million to the county's budget, providing more stable revenue and allowing them to reduce taxes for residents and support new facilities across the school districts.[48]

States	CA	MI	NV	NM	NY	OH	TX
Usage	✗	+	✗	+	✓	✓	+

✓ Often Used + Sometimes Used ✗ Rarely Used

Leasing Revenue

Description: Revenues paid by energy companies to the federal or state government for rights to develop on federal or state lands which are then disbursed to beneficiaries including state and local governments. This is primarily used for mining or oil and gas drilling, but the Bureau of Land Management has begun leasing more acreage for solar and wind projects since 2021.

Administered By: Private Companies, Landowners, Governments

Risks: Royalties, which are based on the value of the energy extracted, typically make up the largest fraction of leasing revenue, are vulnerable to volatility driven by changes in oil or gas prices. Further, although local distributions can provide revenue, these revenue-sharing mechanisms also increase states' dependence on fossil fuel production, especially among rural and energy communities.

Financial Benefits: Leasing revenue that returns to local communities is typically modest, representing less than 1% of budgets. Only in New Mexico and Wyoming do leasing revenues make up a substantial portion of the state budget, though it is not clear how much of those disbursements are then allocated to the communities hosting energy projects.[49]

Public Opinion: There is not sufficient evidence to conclude whether leasing disbursements impact public opinion.

Job Creation: There is not sufficient evidence to conclude whether leasing disbursements impact job creation.

Case Study

In 2019, New Mexico's legislature appropriated funding to create the Office of Renewable Energy, with the goal of tripling renewable energy on state lands. Since then, the state has approved 34 leases with nearly 2,400 MW of wind and solar capacity, a more than 6x increase.[50,51,52] These leases bring in substantial state revenue; leases granted to EDF Renewables and Innergex for wind projects in 2024 are expected to generate more than $146 million.[53]

States	CA	MI	NV	NM	NY	OH	TX
Usage	✓	✗	✓	+	✗	✗	✗

✓ Often Used + Sometimes Used ✗ Rarely Used

Community Benefit Mechanisms Usage Across States

States	CA	MI	NV	NM	NY	OH	TX
Landowner Lease Payment	✓	✓	+	+	✓	✓	✓
Discounted Electricity	✗	✗	✗	✗	✗	✗	✗
Local Employment and Procurement Agreements	✓	✓	✓	✓	+	✓	✗
Community Agreements	✓	✓	✗	✗	✓	✓	✗
Road Agreements	✗	✗	✗	✗	✗	✗	✗
Electric Bill Offset Agreement	✗	✗	✗	✗	+	✗	✗
State/ Local Sales and Excise Taxes	+	✓	✓	✓	✓	✓	✗
Property Taxes	✗	✓	✓	✓	✓	✓	+
Payment in Lieu of Taxes	✗	+	✗	+	✓	✓	+
Leasing Revenues	✓	✗	✓	+	✗	✗	✗

✓ Often Used + Sometimes Used ✗ Rarely Used

Public Acceptance

photo via Pexels

PUBLIC ACCEPTANCE

Introduction

As renewable energy has increasingly been deployed at scale, limited public acceptance at the local level has become a key constraint to more rapid deployment of renewable energy projects nationwide. Opposition can come from a number of different sources, but is typically driven by concerns about (i) local control, or lack thereof, in the decision making process; (ii) changes to the identity of a town or region that could result from the loss of farmland, impacts to tourism, or the aesthetics of wind and solar farms; and (iii) whether benefits will be distributed fairly and equitably. [1]

Given the pace and scale required to meet growing electricity demand, energy insecurity, and decarbonization needs, it is essential to determine what types of policy mechanisms state and local governments can employ to not only encourage renewable projects benefit the local community, but also ensure these projects create community buy-in by meeting the needs of local residents. This section provides an overview of how community benefit mechanisms have impacted public acceptance of renewable energy development.

Measuring Public Acceptance

Survey-Based Approaches

Survey-based approaches are one of the most widely used tools for gauging public acceptance of renewable energy projects. These surveys offer insight into community attitudes, concerns, and priorities in areas directly affected by large-scale development. A 2023 study led by Lawrence Berkeley National Laboratory (LBNL), in collaboration with the University of Michigan and Michigan State University, surveyed nearly 1,000 residents living within three miles of existing long scale solar (LSS) installations across 39 states representing over 9 GW of installed capacity.

Approximately 43% of respondents reported positive attitudes toward their local solar project, while 15% held negative views and the remainder were neutral. This roughly 3:1 ratio of positive to negative sentiment highlights the potential for widespread community support under the right conditions. [2]

However, public attitudes were found to vary significantly by proximity and project size. Individuals living within a quarter mile of a project site or near installations over 100 MW in capacity reported noticeably higher levels of concern, particularly around aesthetics and potential landscape disruption. Survey data also suggest that perceptions of local economic and quality-of-life impacts play a strong role in shaping public acceptance. Respondents who felt that solar projects improved local economies, schools, or job opportunities were more likely to express positive views. In contrast, those who perceived worsening aesthetics or reduced outdoor recreation value tended to report more negative sentiments. [3]

A recurring theme across the survey's findings was the limited awareness and participation in project planning. Fewer than one in five respondents said they were aware of the project prior to construction, and among those who did participate in planning processes, the majority felt their input was not meaningfully integrated. Still, where public engagement occurred and was perceived as fair, it often led to more favorable attitudes toward the project. The survey also underscored the importance of trusted information sources: neighbors who had already experienced similar projects, nonprofit organizations, and university-affiliated researchers were rated as more credible than developers or government officials. [4]

While survey data offer valuable insights, they have limitations. In the LBNL study, response rates hovered around 20 percent, raising the possibility of selection bias. Additionally, surveys capture attitudes at a single point in time and may not reflect how views evolve as a project moves from planning to operation. Finally, while a national sample can suggest broad trends, local dynamics often shape public acceptance in more nuanced ways.[5] Despite these limitations, these insights help identify early sources of potential opposition, clarify community benefit preferences, and inform targeted engagement strategies that are responsive to local concerns.

Developers' Perspectives

From the developers' standpoint, public acceptance has become an increasingly central concern in project planning and execution. Across the renewable energy industry, community opposition is now viewed as a primary source of risk, often cited alongside technical or financial challenges. A recent national survey of utility-scale wind and solar developers found that approximately one-third of all siting applications submitted in the past five years were ultimately canceled, with community opposition, along with local ordinances and grid interconnection issues, consistently ranking as top reasons for delays or cancellations. Many developers now anticipate that these challenges will only intensify in the coming years. [6]

Despite growing awareness of the importance of local engagement, most current approaches to community interaction remain largely one-directional. Developers routinely organize open houses, public comment periods, or listening sessions, but these are often structured in ways that allow input without granting residents any real influence over key decisions.[7] In practice, the public's role is often limited to responding to plans that have already been made, rather than participating in shaping those plans from the outset. This disconnect reinforces community skepticism and limits the potential for genuine buy-in.

In response to these mounting pressures, many developers have begun to adjust their project portfolios. There is a noticeable shift away from wind and toward solar development, driven in part by the perception that solar projects encounter less organized resistance and fewer aesthetic or acoustic objections.[8] Solar is seen as less intrusive and more adaptable to a range of site conditions, allowing developers to better navigate complex local political and social landscapes. While this shift may offer some relief from immediate siting concerns, it also underscores the larger issue: without more inclusive and responsive models of engagement, renewable energy development will continue to face costly and unpredictable barriers rooted not in technology, but in trust. However, it is important to note that as pairing solar energy with battery storage becomes more common, large scale battery energy storage systems (BESS) have drawn more concerns. For example, a January 2025 fire at Vista Energy's Moss Landing 300-MW energy storage facility near Santa Cruz led to reports of residents feeling ill [9] and to concerns about other planned energy storage projects across the state. [10]

Mechanisms Influencing Public Acceptance

Individual Agreements

With an individual agreement, there is direct engagement between the landowner and developer, making it much easier for the developer to meet the needs of the landowner as they come to the terms of agreement within the contract. However, landowner lease payments risk disapproval from neighbors who have little to no influence over the impact of project development.[11]

While there is also no direct payment to the broader community or public services, states like Texas illustrate how landowner payments from renewable and battery projects can become a significant local revenue stream that helps to lower residents' tax rates and improve public services (see Texas section for additional details).

Community Agreements

A community agreement is another type of mechanism used to improve public acceptance and ensure that renewable development creates tangible and equitable returns for the broader community rather than only select landowners or investors. While beneficial for the whole community, one factor that influences the effectiveness of community agreements is the visibility and transparency of benefits.[12] Even when significant tax revenues are generated, community members often remain unaware of how those revenues are used, which resulted in further mistrust and perceived inequity. [13] People have expressed frustration that revenue distribution was unclear and sometimes exacerbated local inequalities, especially in education funding.[14] For example, wind tax revenues sometimes benefitted only certain school districts, while leaving adjacent communities with little to no improvement in public services. [15]

CBAs and other shared ownership or funding mechanisms can help address this challenge. These agreements often contain negotiated packages that provide infrastructure upgrades, job training programs, or discounted electricity for community members, which help building trust and fostering buy-in. However, the success of such agreements depends heavily on authentic community engagement: when CBAs are designed without meaningful input from residents or fail to reflect community priorities, they may deepen opposition.

Northwestern Community Benefits Agreement by Sonya Dymova

CBAs or HCAs negotiated transparently and with visible reinvestment into community assets tend to receive broader support. [16,17,18]

Tax Structures

How tax structures distribute local revenue, the salience of benefits, and whether they are perceived as fair impacts whether and how they influence public acceptance.[19] Even though tax revenues can be substantial, community attitudes toward them are shaped not simply by the amount of money generated, but by how visibly and equitably those revenues are used.[20] For example, in New Mexico, communities reported skepticism and mistrust due to a lack of clarity around how funds were being reinvested locally.[21] When community members are unaware of or excluded from conversations about fiscal impacts, these tax incentives that were meant to support local development may instead yield resentment. This dynamic is especially potent when funding appears to benefit developers or individual landowners more than shared community services such as schools or roads.

The structure of PILOT agreements can either alleviate or reinforce these perceptions. To make PILOTs effective, they should be time-bound, subject to audits, and accompanied by community engagement to allocate funds toward widely valued services like education or infrastructure. For example, a wind development in Franklin County, NY has agreed to pay $24 million over 30 years, which has ensured long-term funding stability for local schools. [22]

A failure to address local equity concerns can also reduce the support for tax policies or the projects they aim to incentivize. For the communities that are highly dependent on fossil fuels with energy revenues exceeding $1,000 per person per year, they may find it impractical to replace this income with renewables due to land constraints and limited scalability.[23] These communities may perceive renewables as offering insufficient compensation for economic disruption. Therefore, to maximize public acceptance, tax-based benefit mechanisms must go beyond revenue generation. They must include clear, inclusive, and participatory processes that link tax incentives with visible improvements to public services, ensure transparency in how funds are allocated, and avoid exacerbating existing social or geographic disparities.

State Policy Briefs

photo via Myriams-Fotos, pixabay

California

San Rafael, CA via ERod Photos Pexels

CALIFORNIA

Introduction

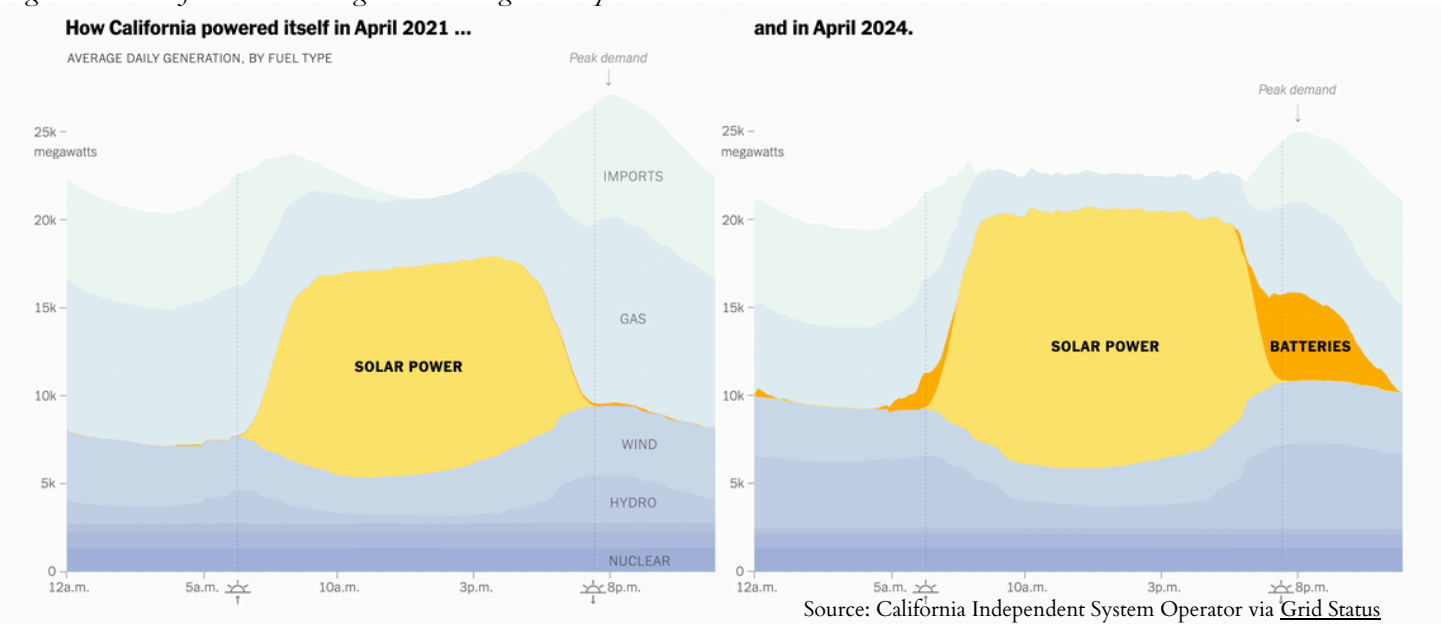
California has long been at the forefront of the renewable energy transition. The state has one of the country's most aggressive renewable energy targets and for at least a decade has exempted the value of solar PV systems from property taxes.[1] Further, the cultural and political environment heavily incentives community engagement, and the state's policy framework relies largely on Community Agreements to ensure communities benefit from development. The state has, in many ways, put the onus on developers to find and negotiate with community leaders. While these agreements can and often do deliver benefits to communities, there are many ways they can fail. The work of building local capacity to negotiate has largely been left to nonprofits and environmental justice groups, which at times has led communities to feel their interests were not truly represented, or has siphoned a portion of financial benefits to regional groups rather than truly local ones. These tensions highlight the need to balance mandates with growing local institutions. Despite some challenges, California continues to innovate new approaches to community engagement and to rapidly build renewable energy.

State Energy Mix

California is the second largest renewable energy producer in the country, and the top producer of solar and geothermal electricity. In 2023, renewable resources, including wind, solar, geothermal, and hydroelectric accounted for 54% of California's total in-state electricity generation.[2] Utility-scale and rooftop solar contributed more than half of this, while wind made up 6% of net generation.

The rapid adoption of solar across California has caused the net load demanded of the grid to drop to zero in the middle of sunny days, a phenomenon known as the "Duck Curve." Because of this and the challenges it presents for the grid, California has begun rapidly deploying large-scale battery energy storage system (BESS) projects.[3] In 2024, California had more than 13,000 MW of battery storage capacity, with more than 11,000 MW under construction.[4] Since 2020, California has installed more large storage batteries than any country but China.[5] While renewable energy is popular across California, battery storage is becoming more contentious.[6]

Figure 1: California's Change in Average Daily Generation



Source: California Independent System Operator via Grid Status

State Legislation

California's Renewables Portfolio Standard

In 2002, California established its first Renewable Portfolio Standard (RPS) Program with Senate Bill (SB) 1078. The RPS has been updated several times, and in 2018 SB 100 increased the RPS to 60% by 2030 and requires all of California's electricity to come from carbon-free sources by 2045.[7] Energy policy and regulation in California is primarily under the jurisdiction of the California Energy Commission (CEC), making it responsible for implementing energy legislation such as California's RPS and related legislation that allows the state to meet these standards.[8]

State Assembly Bill 205 (2022): Opt-In Certification

Assembly Bill (AB) 205 enables energy developers to avoid local permitting processes by using the CEC's newly created Opt-In Certification Program. The Program allows CEC to override local permitting decisions for renewable energy projects, primarily large scale solar, wind, and battery storage, where the developer provides a plan for community benefits, including project labor agreements (PLAs) or other community benefits agreements (CBAs).[9]

Sections 25545.9 and 25545.10 of the bill enable developers to pursue permitting through the CEC, but only if the commission finds the project will provide a net benefit to the local community and if the developer enters into a community agreement with one or more organizations that represent community interests.[10]

Although clean energy is widely supported by both legislation and public opinion, localized opposition, particularly in rural areas, has grown in recent years, mirroring trends discussed in other state overviews.

Key Legislation

Senate Bill 100

State Assembly Bill 205 Sec. 25545.9 & 25545.10

Considering the state's size, there are relatively few ordinances restricting renewables development, and fewer than two dozen projects have been contested,[11] but AB 205 provides an alternate path to approval when these ordinances do pass. As in other states such as Michigan and New York, the bill has exacerbated opposition and the forfeiture of local control to the CEC, perceived or actual, has contributed to frustrations.[12]

There are currently eight projects trying to use the Opt-In Certification program. Some have been more successful than others, and we discuss implications of the bill's design, particularly the requirement for developer's to engage community organizations, below.

Renova Energy Solar Project via Jay Calderon

Bureau of Ocean Energy Management Bidding Credits
California's coastline receives enough wind to make offshore wind farms successful, and in 2023, the Bureau of Ocean Management (BOEM) awarded leases to five energy developers to construct farms in waters just north of Santa Barbara.[13] BOEM's bidding process for offshore leases incentives developers to establish CBAs and PLAs by considering the combined value of cash and bidding credits in its auction.

Bidding credits are awarded to developers for PLAs that fund workforce training and for monetary, material or other benefits provided to the impacted groups through a CBA.[14] This federal process is not specific to California, but we discuss it in more detail in this brief as it helps illustrate the complexities of forming and evaluating CBAs.

Framework

Individual Agreements		
Land Owner Lease Payment	⊕	Lease payments to individual landowners are made in most solar, wind, and battery storage projects that are located, at least in part, on private land, but do not play a major role in California
Community Agreements		
Local Employment Agreements	⊕	PLAs are strongly encouraged under laws incentivizing CBAs, and a PLA or similar provisions are often included as part of a CBA
Community Agreements	✓	California's AB 205 (2022) incentivizes developers to create CBAs, which are often negotiated independent of these incentives
Road Agreements	⊖	Road agreements are rarely signed as a standalone benefit. However, similar provisions are typically included in CBAs or HCAs
Electric Bill Offset Agreements	✗	Not used in California
Tax Structures		
State and Local Taxes	⊕	CBAs often include provisions requiring local procurement in order to generate sales tax in the county
Property Taxes	✓	Property tax exemption for the value of new solar construction until January 2027
PILOTs	✗	Not used in California

✓ Often Used ⊕ Sometimes Used ⊖ Rarely Used ✗ Not Used

Use and Impact of Mechanisms

Community Benefit Agreements

California's AB205 and BOEM's OSW bidding process both highly incentivized CBAs as part of renewable energy development. It is still too early to evaluate the success of these programs on whether community needs are met, or if public opinion improves cannot be determined until projects are completed and revenues flow back to the host communities. We have analyzed a handful of projects to better understand the dynamics driving engagement currently and what elements are more or less likely to lead to success.

Darden Clean Energy Project:

The Darden Clean Energy Project (DCEP) is a proposed solar voltaic and battery storage project in Fresno County participating in the CEC's Opt-In Certification program and is the first of the eight projects currently under review with the CEC.[15] DCEP proposes a project of 1,150 MW of solar power and up to 1,150 MW of battery energy storage on 9,500 acres of retired federal land. Its benefits plan includes more than 2,000 construction jobs to support the local workforce, as well as an estimated $169 million in economic benefits to the local area over the project's 35 year lifetime. DCEP also promises $2 million in community investments over the next decade starting with a $320,000 commitment to Centro La Familia Advocacy Services, a social services non-profit supporting families in rural communities.[16]

Fountain Wind Project

The Fountain Wind Project was a proposed 205 MW wind energy generation facility in Shasta County California which also sought approval through CEC's Opt-In Certification program. Shasta County, however, campaigned against the project, highlighting elevated wildfire risks and threats to Tribal cultural resources of the Pit River Tribe.[17]

Because of these issues and the high likelihood the project would be rejected by local authorities, the developer turned to the CEC for approval. To satisfy AB205's CBA requirements, the developer negotiated with a regional organization rather than a local one, leading Shasta County and the Pit River Tribe to sue, arguing that community benefits would not material because the developer had not engaged a truly community organization.[18] In March 2025, the CEC concluded the project's benefits did not outweigh its potential environmental harms and rejected the proposal.[19]

Case Study: Morro Bay Offshore Wind

Morro Bay via Manuela Durson on Shutterstock

One developer vying for OSW leases from BOEM, Castle Wind, entered into a CBA with the local community of Morro Bay during the four-year bidding process, but still lost the auction.[20] In 2018, Castle Wind negotiated a CBA with two local commercial fishermen's organizations, and formed the Morro Bay Lease Areas Mutual Benefits Corporation.[21] Castle Wind was the only developer to negotiate this agreement in advance of the auction, but ultimately lost the lease auction to higher bidders, highlighting the uncertainty developers face when investing in community engagement. However, because the community's negotiations with Castle Wind led to a framework other developers could sign in the future, it is still possible the negotiations bear fruit for the impacted area.[22]

Analysis

These case studies help illustrate the tensions at play in California's development landscape. The state has been a leader in the use of CBAs to ensure local engagement and has demonstrated they can be a useful tool. However, they are time intensive and there is not always an entity that clearly represents the community. Developers are hesitant about investing in engagement when they are uncertain about whether a project will be approved.

AB205 provides developers with broad discretion in identifying community organizations to negotiate with. Fountain Wind highlighted how CBAs can be negotiated with regional groups that are well-intentioned but do not truly represent the local community. Although existing environmental justice (EJ) organizations may not be equipped to negotiate on behalf of the community, they are more visible and therefore easier to engage. In many cases, developers act in good faith but are unable to identify organizations that truly reflect the interests of the community. This challenge is particularly prominent when urban organizations purport to represent rural communities.[23] CBA revenues then flow to communities only after the EJ group in question has been compensated, reducing community benefits.

However, an overly narrow conception of who can represent communities also creates challenges. Real local engagement is time intensive and expensive, and there is often a gap in local capacity to truly negotiate. When local coalitions that can represent the community do not already exist, developers need at least a year on the ground meeting with stakeholders in order to negotiate a package of benefits that really works for the community. Communities need time to organize, as well, if there is not existing community infrastructure or engagement in this type of negotiation.[24]

Developers may be understandably unwilling to invest significant resources in a project that may not receive approval. Castle Wind's agreement with the community of Morro Bay reflected four years of on-the-ground engagement and a broad set of stakeholders, but the project was not awarded an OSW lease by BOEM. Developers may try to hedge this risk by waiting until they are further in the approval process to engage communities, which can create the impression that such negotiations are not in good faith and undermine the support they intend to generate.

Despite these challenges, CBAs can be, and often are, successful. While AB205 is perceived to reduce local control, it also encourages communities to come to the negotiating table.[25] As more communities build capacity for negotiating benefit agreements and developers gain experience engaging with communities, some of the challenges discussed above may be mitigated. The Darden Clean Energy project showcases the potential CBAs have to bring a broad set of benefits to a community, offering an encouraging model of success.

Property Taxes

California has a property tax exclusion for all new solar property through January 2027, when the exclusion is scheduled to sunset. This program was initially created to incentivize solar development when solar was more expensive and less accessible to the average Californian.[26]

Property taxes are generally directed toward municipal improvement, going to fund schools, parks, and other public works.

While this property tax exclusion is beneficial to solar developers and residential or commercial property owners who add small-scale solar to their property, this property tax exclusion prevents funds from reaching the communities in which these solar projects are sited. When Governor Gavin Newsom signed SB 1340, which extended the exclusion to 2027, he issued a warning to the Senate to "consider the impacts to local agencies before bringing forward another extension of this policy."[27] The governor was concerned that the local agencies providing essential services to citizens are suffering from the lack of property tax revenue. The sunset date on this property tax exclusion, while hurting developers, may help communities by ensuring a revenue stream for municipalities. In 2025, Senator Catherine Blakespear introduced legislation to eliminate the sunset for the property tax exclusion, though it is not clear at this time whether her effort will succeed.[28]

Conclusion

California's plethora of clean energy policies and an aggressive RPS have helped make the state one the leading producers of renewable energy in the country. These policies are not a panacea, however, and community opposition can and does arise when communities are not benefitting from projects or are not properly represented in negotiations.

Although developers and environmental justice nonprofits are largely well-intentioned, identifying the right groups to engage with is often a challenge and communities may not have the capacity to negotiate effectively. As local institutions and capacity grow and developers are attracted to former agricultural land for energy projects, it is possible that these initial hurdles may be resolved, allowing the promises of Community Agreements to bear themselves out.

Patrick T. Fallon/Agence France-Presse via Getty Images

Michigan

Alma, MI, USA | Peggy Sue via Unsplash

MICHIGAN

Introduction

Michigan has established a handful of policy mechanisms that support renewable development and have enabled its rapid growth in recent years. The state has some of the most aggressive clean energy standards in the country and passed a suite of legislation in 2023 that balances community benefits with developer incentives. These bills established landowner leasing rights and access to tax incentives, provided multiple permitting pathways to develop projects, and created new programs for communities to benefit from renewable energy development. While Michigan, like many of the states in this report, has faced pockets of local opposition, these policies have contributed to an overall positive public perception of clean energy in Michigan.

Current Energy Mix

Michigan produces most of its electricity from natural gas, and historically has been a large consumer of coal, but legislative support and improved economics have led to a rapid adoption of renewable energy in recent years. In the past decade, electricity production from wind, solar, and batteries has increased 148%, with nearly 30% of that increase occurring since 2022. In 2023, renewables provided 11% of Michigan's total in-state electricity net generation. [1]

State Legislation

Overview of Current Policy Landscape

Public Act (PA) 235 established the State's new clean and renewable energy standards.[2] Signed in 2023 and enacted in 2024, Sec. 51 of PA 235 creates a 100% clean energy standard for the state by 2040, requiring 50% and 60% of electricity from clean sources by 2030 and 2035, respectively.[3]

Key Legislation

Public Act 235 Sec. 51
Public Act 230
Public Act 233 Sec 226(8)

This is one of the most aggressive clean energy goals in the country and sets the foundation for many of the state's policies to encourage wind, solar, and battery deployment.

Public Act 230 amends previous acts to clarify and redefine multiple issues with respect to land use and landowners development and agricultural rights.[4] These provisions establish landowners' right to lease their property for commercial solar projects while also protecting their right to return to the agricultural use of their land at the end of the useful life of the solar project. In particular, PA 230 protects such landowners from losing access to heritage land protection, which includes tax incentives, through the state's Farmland and Open Space Preservation Program.[5] Prior to PA 230, farmers who leased their land for non-agricultural purposes, including solar development, became ineligible to enroll in the program. Now, farmers who rent their land for solar energy can defer tax breaks on the land until they are no longer renting the land.[6]

Public Act 233 grants the Michigan Public Service Commission (MPSC) permitting authority for siting utility-scale wind, solar, and energy storage facilities, under certain conditions.[7] While it incentives community benefits, this new state-level authority provides multiple permitting pathways for renewable projects while placing limits on local government authority,[8] making PA 233 a particularly contentious bill.[9]

Section 226(8) of the bill defines the requirements of a "Compatible Renewable Energy Ordinance" (CREO). If local governments do not establish a CREO, developers can request the MPSC to permit a solar and battery project greater than 50 MW or wind project greater than 100 MW. The state permitting process requires developers to meet more than 21 conditions and evaluation criteria, make a one-time $2,000/MW payment and provide $75,000 in intervenor funds.[10] Because it is generally more onerous and more expensive, building in communities through local ordinances will likely be the first choice for developers, and this enables communities that want to bring in renewable energy to make themselves attractive.[11,12]

However, developers can choose to negotiate with the local government for a permit even if they do not have a CREO.[13] This creates an alternate route for approval and, because of that, some leverage for proponents of development.[14] Experts believe that this, rather than MSPC review, will be developers' second choice.[15,16] To date, no project has used the MSPC review.[17]

Michigan residents are generally supportive of the clean energy transition. Positive views on renewable energy translated into 2023's Clean Energy & Climate Action Package, considered one of the most ambitious statewide climate action plans.[18] Underneath majority support for renewables development at the state level are pockets of opposition within some communities. As in several other states discussed in this report, there are rural communities who oppose renewable energy, particularly wind energy, because they believe it will change the agrarian character of their towns, negatively impact their health, cause negative visual or noise impact, or devalue their property. [19]

Pending Legislation

In response to the contentious nature of PA 233, Republicans in the Michigan House, led by Rep. Greg Alexander, have introduced House Bills 4027 & 4028 aiming to repeal the law.[20] Given Democratic control of the state legislature, it appears unlikely the bill will pass, and experts familiar with Michigan state policy view the bill's introduction as primarily signaling to local constituents. However, PA 233 has been paired with other legislation to incentivize active dialogue between developers and communities, and these incentive structures are beginning to play an important role in driving the decision making of these stakeholders.[21]

Framework

Individual Agreements		
Land Owner Lease Payment	✅	Solar rental payments can be approximately $500 - $2,000 per acre per year, while a single wind turbine lease can be around $8,000 per year
Community Agreements		
Local Employment Agreements	➖	Employment & Procurement agreements are rarely signed as a standalone benefit. However, similar provisions are typically included in HCAs
Community Agreements	➕	GNAs are commonly negotiated for landowner lease payments. An HCA or CBA is required to use the state permitting process created by Public Act 233, but have not been commonly used to date
Road Agreements	➖	Road agreements are rarely signed as a standalone benefit. However, similar provisions are typically included in HCAs or CBAs
Electric Bill Offset Agreements	❌	Not used Michigan
Tax Structures		
State and Local Taxes	❌	State and Local Sales Tax policies do not appear to be driving development or community benefits in Michigan
Property Taxes	✅	Utility-scale solar and wind projects are taxed as industrial personal property in Michigan. In most cases, projects do not receive exemptions and pay taxes on the assessed value of the project
PILOTs	➖	Public Acts 108 & 109 allows local governments to negotiate PILOTs, but these are rarely used as the statewide PILOT rate typically produces lower revenue than property taxes

✅ Often Used ➕ Sometimes Used ➖ Rarely Used ❌ Not Used

Use and Impact of Mechanisms

Landowner Lease Payment

Developers in Michigan pay landowners directly for leasing their land in order to build renewable energy facilities. The rates vary depending on potential production and the amount of infrastructure co-located on the property, but landowners typically receive annual payments of $500 - $2,000 per acre for hosting solar farms, and roughly $8,000 per turbine for wind farms. [22]

The Isabella County Wind Project consists of 136 wind turbines spanning across 56,000 acres and 7 townships in Michigan. It was first proposed by Apex Clean Energy Holdings and later sold to DTE in 2021. The project shows how landowner payments can, in some cases, help overcome opposition.

Bob Walton, who has been an elected trustee for Isabella Township since 2016, recalls that when Apex Clean Energy first approached the town about building wind farms, “Our first thought was, how can we stop this?”[23] However, after spending a year researching wind power and visiting wind farms, Walton and other trustees changed their minds, calling wind energy “the best crop you’re going to have and the most profitable crop you could ever raise.”[24]

The project, now complete, is projected to pay $30 million in local taxes and $104 million in lease payments to roughly 400 leaseholders over the 30 year life of the project. That translates to roughly $8,000 annually to each leaseholder, though the actual amount each leaseholder receives will vary based on how many turbines are on their property. [25]

Good Neighbor Agreements (GNAs)

In Michigan, landowner lease payments and GNAs are often related. Historically, neighbors would have to look at energy projects but did not receive compensation from the development, which led to opposition. Now, it has become more common for neighbors to receive a share of revenue through GNAs known as "Neighbor Payments" or "Friendly Neighbor Agreements,"[26] particularly with wind projects. Developers make payments to landowners surrounding the development, even if no equipment is directly on their property. This is common especially for wind projects, while forthcoming research on solar is expected from the University of Michigan. Unfortunately, there is no reliable data on the type size of Neighbor Payments, but payments of up to $1,500 per year have been reported.[27]

Case Studies: Lake Winds Energy & Blissfield Wind Energy

Lake Winds Energy via masoncounty.net

The Lake Winds Energy Park in Mason County consists of 56 wind turbines with an installed capacity of 100 MW.[28] Consumers Energy, the developer, established a Good Neighbor Fund to distribute almost $2 million to property owners located within 3,000 ft of any turbines.[29] The size of payments varied depending on households’ distance from the turbines and number of turbines.

The Blissfield Wind Energy Project was proposed in 2008 and would have constructed 45 turbines to provide 81 MW of capacity. It was blocked by local opposition, driven by concerns about noise, the visual impact of the project, and the potential for their home values to decrease. The developer proposed that residents with property within half a mile distance of any windmill would be compensated with $1,500/ year, but this was not sufficient to garner support and the project ultimately relocated to Huron County.[30]

Host Community Agreements (HCAs) & Community Benefit Agreements (CBAs)

Legally binding HCAs between host communities and developers are required through State siting, under PA 233, Section 227 (1) as discussed above.[31] Payments can be used for local services and infrastructure as agreed between the host community and the developer. Due to how recently PA 233 was enacted, there is not yet a public record of an HCA that has been negotiated and signed.

If the host community refuses to enter the HCA after negotiations in good-faith, Section 227 (2) outlines the developer's ability to negotiate a CBA with one or more community organizations, with the $2,000/ MW payment paid to this organization(s) instead of the town. As with HCAs, we are not aware of any CBAs that have been negotiated through this process.

Property Taxes

Utility-scale solar and wind projects are taxed as industrial personal property in Michigan, with property taxes levied based on the assessed value of the property and the appropriate millage rate given its location.[32] Wind turbines are subject to industrial personal property taxation,[33] with the developers paying around $15,000/ year/ turbine, or a total of $450,000/ turbine, throughout the expected 30-year lifespan of the windmills.[34]

Prior to 2021, utility scale solar projects were assumed to depreciate at the same rate as other industrial property, which is fairly rapid when compared to how solar actually devalues.[35] That September, the State Tax Commission (STC) issued a report recommending an updated valuation approach. The report concluded that solar property should be valued on the basis of how much it costs to build - in contrast to the expected income based approach used by New York state[36] - and that the value declines much slower than the previously used industrial property rates.

Given the costs to build a solar plant, this led to a valuation equivalent to a levelized rate of $12,700 per MW of capacity over the facility's lifetime, though the yearly payments would decrease over time with depreciation.[37] This approach ultimately became law, leading to significantly higher tax rates on utility scale solar than neighboring states (the report notes, for example, that Ohio and Wisconsin levy taxes equivalent to between $4,000 to $9,000 per MW of capacity).[38] This approach is much more favorable to local governments and had important implications for the design and use of PILOTs in the state.

Payment-in-Lieu-of-Taxes (PILOTs)

The Solar Energy Taxation Act and PA 109 became effective in July 2023. This gave local governments the right to establish solar energy districts where they can grant 20-year property tax exemptions to qualified solar energy facilities and establish PILOT agreements at a rate of $7,000 / MW nameplate capacity (specified in The Solar Energy Tax Act, Sec. 9); the rate is reduced to $2,000 / MW for projects located on brownfields or opportunity zones.[39]

The rates established for PILOT programs ($7,000/MW) has made local governments slow to embrace them because this value is substantially lower than the property tax rates a PILOT would replace. Another limitation to PILOTs in Michigan is that revenues collected from PILOTs would be dispersed among the state, city, schools, and other authorities in the same proportion as industrial taxes.[40] Authorities may be willing to accept lower overall tax revenues from the developer if they were able to keep a higher proportion of the levy and direct its use.

However, as PILOTs are currently structured in Michigan, this is not possible and no projects have negotiated a PILOT through this process yet. [41]

While this highlights how gaps between two policies – in this case, the Alternative Specific Tax and PILOT rates – can disincentivize uptake, the implementation of the Renewable Ready Communities Award shows the positive potential of aligning incentives across policies.

The Renewable Ready Communities Award (RRCA) Program

The RRCA is a $30 million program designed to incentivize and reward host communities of renewable energy projects. The program is authorized through the State budget[42] and managed by the Department of Environment, Great Lakes, and Energy (EGLE), provides grants of up to $5,000 / MW to permitters and expectant hosts of eligible projects. Projects are eligible if they received a land use permit or approved site use plan on or after October 1, 2023 and are utility-scale (50 MW or more for solar, 100 MW or more for wind).[43] Four rounds of awards have been announced thus far, granting $20.6 million to 29 projects across 18 counties.[44]

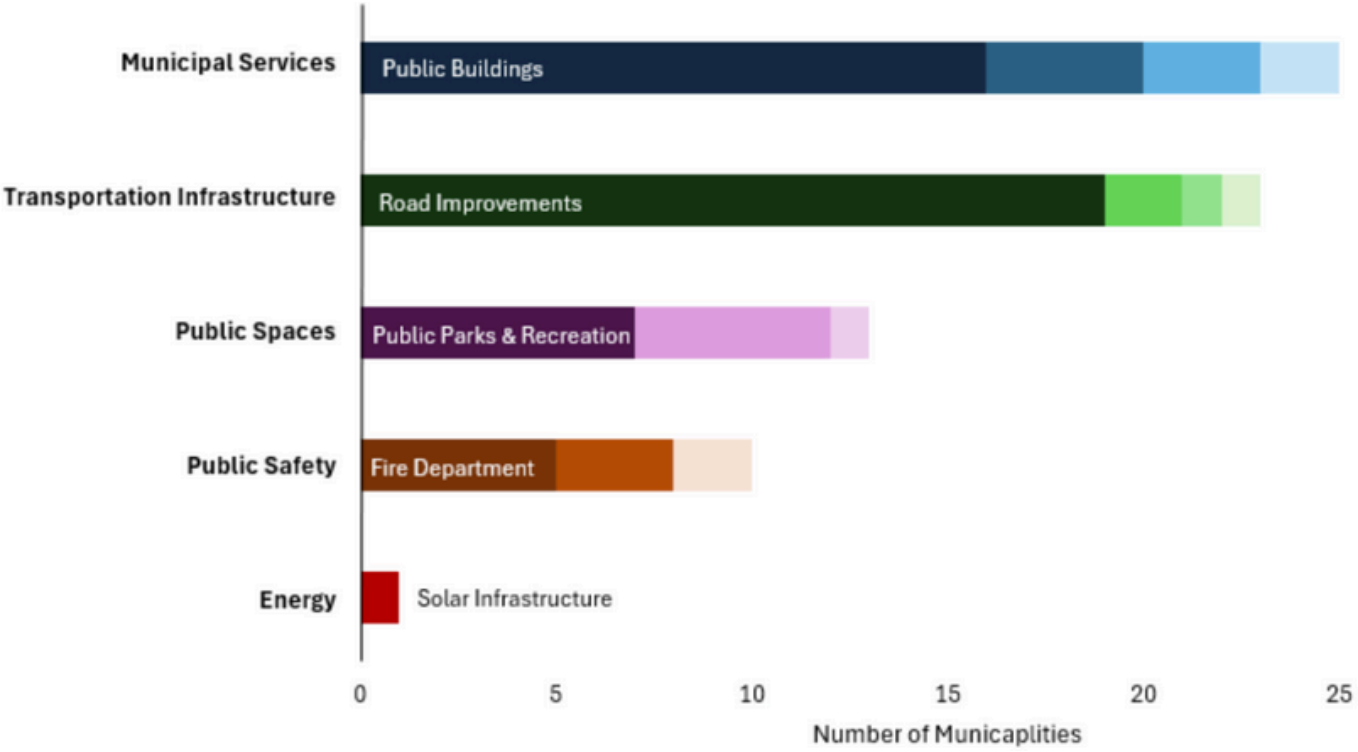
The program offers useful lessons for other policymakers looking to replicate its success. The RRCA compliments other policies passed by Michigan in 2023. As discussed above, PA 233 created the option for the state to review a renewable energy project's permit, which has been criticized as removing local control. However, the state siting option is more difficult and expensive for developers; no projects have been permitted through this process yet, and indications are that developers would prefer to negotiate with local officials.[45] The eligibility requirements for RRCA mirror those of PA 233, and the payment structures incentivize both local officials and developers to work together.

Whereas developers are required to pay $2,000 / MW to host communities if they use the MPSC process, the state will pay host communities $5,000 / MW through RRCA; communities receive more funding and developers save money.[46]

Given how recently the program was launched, it is difficult to evaluate the impact of the RRCA. Though only 6 of the 40 grants thus far have gone to projects permitted after PA 233 became effective, suggesting RRCA was likely not a deciding factor for many towns that received funding in the early rounds, anecdotal evidence from developers and local officials suggests the program has improved negotiations. As award money is used, it should be possible to determine whether having the funding go directly to towns shifts public opinion.[47] In the meantime, reporting on the program includes details on how municipalities plan to use award money, allowing us to examine the variation in local priorities.

Figure 1 below outlines the most common municipal uses for the RRCA funds. Municipal Services and Transportation Infrastructure were most common, with items like expanding or repairing a Town Hall, repairing roads, and repaving parking lots appearing most frequently.[48] For example, Isabella Township, mentioned earlier for hosting the Isabella County Wind Farm, is receiving $375,000 from the first round of RRCA awards for hosting the Mission Solar Park.[49] The town noted in its application that it will use that revenue to "pave and repair several damaged roads in the township, remodel the current Township Hall, contribute to new fire department equipment & trucks, upgrade the cemetery and park."[50]

Figure 1. Planned Uses of RRCA Funds

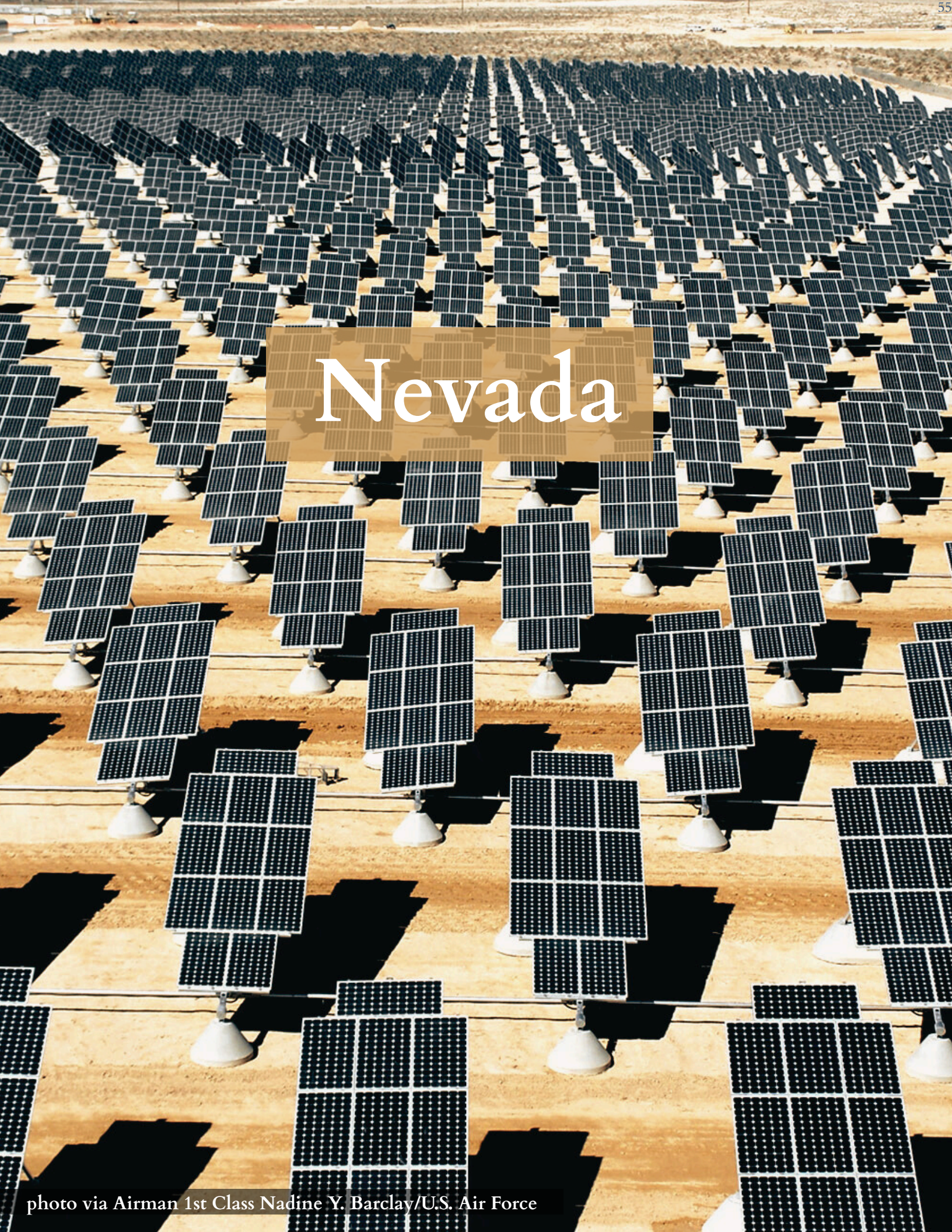


Michigan in Comparison

Across the policy mechanisms to encourage landowner leasing payments, legally binding agreements, and coordination around project permitting through RRCA, Michigan has taken a relatively centralized approach to encourage renewable development. For example, PA 230 clarifies landowner leasing rights and requirements, and PA 233 provides state-level pathways—as an alternative to local pathways—to permit renewable energy projects. This more centralized policy environment contrasts that of Texas, where the state has tried to deregulate most permitting processes and has little jurisdiction over the specific characteristics of landowner lease payments. These two states also differ in their political support of renewable development, where Michigan's democrat-led legislature has initiated a much more supportive policy environment. In contrast, the state legislature in Texas is trying to reduce or remove incentives for renewable technologies.

Conclusion

Michigan has rapidly developed renewable energy in recent years, driven largely by the state's 100% clean energy standard by 2040 and coordinated legislation. A suite of legislation passed in 2023 protected landowners rights to lease land, incentivized community benefits, and created new permitting pathways for renewable projects. Further, the Renewables Ready Community Awards program is designed to complement these laws and its success in incentivizing dialogue between developers and local governments could serve as a blueprint for other states. Overall, Michigan's coordinated policy framework and financial incentives are positioning it as a national leader in the clean energy transition.



Nevada

photo via Airman 1st Class Nadine Y. Barclay/U.S. Air Force

NEVADA

Introduction

Nevada's policy landscape draws heavily on its Renewable Portfolio Standard (RPS) and executive action to increase in-state energy production. These policies, along with property and sales tax abatements for renewable energy projects, have helped renewable technologies to become a major component of the state's energy mix. However, given that the majority of Nevada's land falls under federal ownership, developable land for renewable projects that can translate into local and state benefits are relatively limited. Balancing the needs of federal and state actors with local residents and Tribal communities is a major component of continuing Nevada's renewable development in the future.

Current Energy Mix

Nevada has long been an energy importer, relying on its neighbors for power given it lacks oil and gas reserves. In 2021, it met 86% of energy demand with imported fuel.[1] This is changing, however, as Nevada has significant renewable energy potential. The state has the highest solar power potential in the country and ranks second in geothermal capacity.[2] Renewable resources now provide 39% of Nevada's total in-state electricity generation, led by solar (26%) and geothermal energy (10%).[3] The rest of the state's renewable capacity comes from hydroelectric power, primarily the Hoover Dam, with a generating capacity of over 2,000 MW.[4] Since 2016, solar generation has nearly tripled, underscoring the state's commitment to clean energy.[5]

State Legislation

Overview of Current Policy Landscape

Nevada's current policy landscape is largely the result of its RPS that was first adopted in 1997 and was subsequently updated in 2019 to ensure that at least 50% of the state's electricity sold to customers comes from renewable sources by 2030 and achieve net-zero emission by midcentury. The RPS allowed utilities and generators to meet up to 10% of their compliance requirements through energy efficiency credits, but this system will be phased out after 2025.

Key Legislation

Renewable Portfolio Standard
NRS § 278.02077 & § 278.0208
Renewable Energy Tax Abatement (RETA)

Additionally, Nevada's RPS developed a market for Portfolio Energy Credits (PECs) that permits up to 25% compliance through trading.[6] To address the imbalance between Nevada's energy consumption and relatively low in-state energy production, the Governor issued Executive Order 2023-007 in March of 2023 to direct the state to pursue a more diversified and balanced energy portfolio, including both natural gas and renewables.[7]

Nevada Revised Statutes (NRS) Section 278 covers Planning and Zoning, and prohibits local governments from placing unreasonable restrictions on solar (§ 278.02077) and wind development (§ 278.0208).[8] Because of this, there are no local restrictions to renewable development across Nevada's 16 counties.[9] Nevada residents are broadly supportive of their utilities buying more solar energy and of utility scale solar being built in their area.[10] However, as 85% of Nevada's land is federally managed, this often limits local decision making and the ability to collect taxes on property or new development.[11] This leads to a complex dynamic between residents, local governments, Tribal nations, and federal agencies that can impact public opinion which is also common in New Mexico. This complexity was highlighted by a 2024 update to the Bureau of Land Management's (BLM) Western Plan, opening 31 million acres of land it administers for more rapid solar development.

Of that, nearly 12 million acres are in Nevada, making up roughly one-fifth of the state's land.[12] Clean energy groups and solar developers have publicly supported the plan.[13] However, the plan united environmental conservationists, rural residents, and Tribal communities in opposition.[14,15,16,17] Because 85% of Nevada's land is federally owned,[18] these forms of opposition are fairly common. In parts of rural Nevada, distrust of federal agencies runs deep, and residents have expressed the feeling that solar energy is "being pushed down our throats," despite the fact that energy is just exported to cities at the expense of wildlife and aesthetics.[19] Limited local capacity and insufficient coordination between federal agencies with state or local officials have also burdened rural municipalities with limited staffing.

The projects will change the economy and landscape in these communities and residents are concerned that there are not proper policies to protect the environment and agriculture.[20] Further, permitting on federal lands requires environmental review under the National Environmental Protection Act, which delays timelines by an average of 4.5 years.[21]

In addition to the policies set forth through Nevada's RPS, the state has also bolstered renewable development with energy-related tax incentives, such as the Renewable Energy Tax Abatement (RETA) Program. Since 2011 the Governor's Office of Energy (GOE) has awarded partial sales and use tax and property tax abatement to eligible renewable projects. Additional details on the RETA Program are included in the *Use and Impact of Mechanisms* section.

Framework

Individual Agreements		
Land Owner Lease Payment	+	Lease payments to individual landowners are made in most cases where projects are located on private land but do not play a large role in Nevada because so much land is federally or state owned
Community Agreements		
Local Employment Agreements	✓	Actively used in Nevada. The state offers property tax abatements for projects that hire locally and pay high wages
Community Agreements	−	CBAs are not widely used, but mechanism is gaining traction in rural settings
Road Agreements	−	Road agreements are rarely signed as a standalone benefit. However, similar provisions are typically included as part of permitting or in Community Agreements
Electric Bill Offset Agreements	✗	Not used in Nevada
Tax Structures		
State/Local Taxes	✓	Partial sales/use tax exemptions for renewables development
Property Taxes	✓	The RETA program offers 55% property tax abatement for eligible projects and has supported rapid development and investment throughout the state
PILOTs	✗	PILOTs are not used in Nevada

✓ Often Used + Sometimes Used − Rarely Used ✗ Not Used

Use and Impact of Mechanisms

Relative to the other states reviewed in this report, Nevada uses a limited set of mechanisms to distribute community benefits from renewable energy projects. The primary mechanism is the state's Renewable Energy Tax Abatement Program, which offers tax incentives to developers in exchange for meeting local hiring and investment requirements.

Renewable Energy Tax Abatement Program

The goal of the RETA program is to encourage the development of utility-scale renewable energy projects, increase the state's tax revenue, and create green jobs. To receive partial tax abatements on the state's sales and use tax and/or property tax, the developer must meet hiring and investment criteria. First, they must hire at least 50% Nevada residents and pay average hourly wages of at least 110% the state average for facility employees and 175% the state average for construction employees. Those in low population areas (less than 100,000 or a city with a population less than 60,000) must hire at least 50 full-time employees and invest at least $3 million in Nevada. Projects in areas with higher populations must hire at least 75 full-time employees and invest at least $10 million in Nevada.

If a project meets these requirements, the RETA program provides a 55% property tax abatement for 20 years to eligible renewable energy projects (e.g., solar, wind, geothermal, battery storage). It also provides a partial abatement of Nevada's sales and use tax, where the developer is only required to pay 2.6% instead of 6.85%. In both cases, the statute requires "transparency and public posting" that the financial benefits of the projects are larger than abated tax revenues, and that this estimated fiscal impact is publicly available. [22]

Since the program began operation in 2011, Nevada's GOE has approved 68 RETA projects that have resulted in:

- Over 17,000 construction jobs with an average hourly wage of $48/hr
- Over 700 operational jobs with an average hourly wage of $39/hr
- More than $14 billion in capital investment
- Over $1 billion in Nevada wages
- More than $9.5 million in property and sales and use tax benefits
- Over 7,400 MW of renewable energy, representing half of Nevada's current renewable production capacity.[23]

The impacts of RETA have accelerated in recent years as falling costs and large federal subsidies have combined with state incentives, leading to a boom in solar development across Nevada.

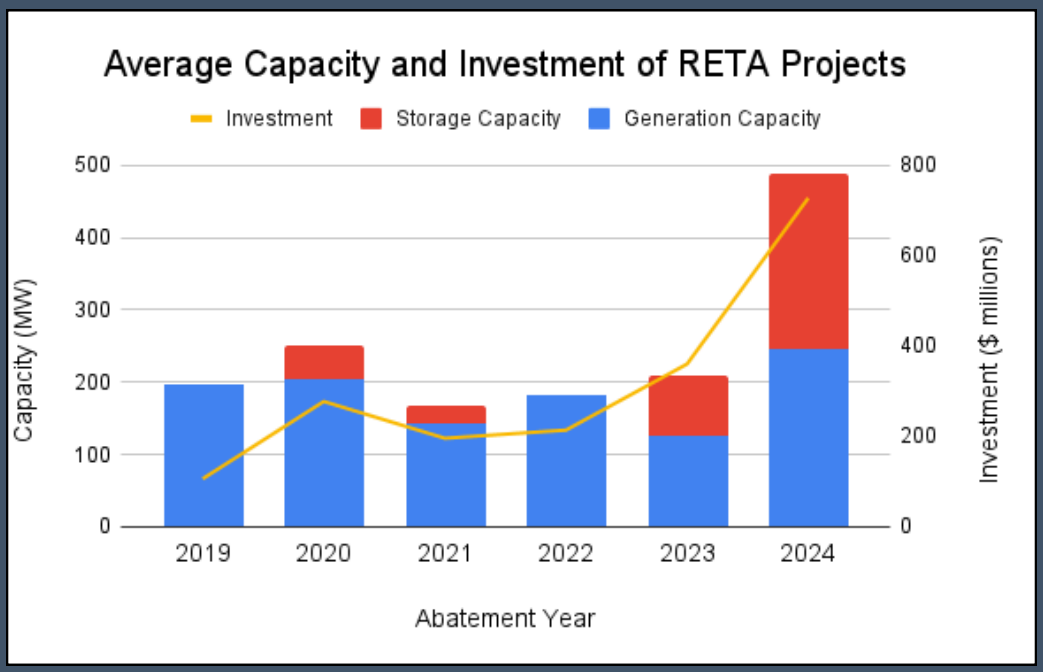
Regarding the Governor's executive order to reduce reliance on energy imports, it is also noteworthy that about one-third of the RETA projects (~2,300 MW) are exporting excess power to California's grid. [24]

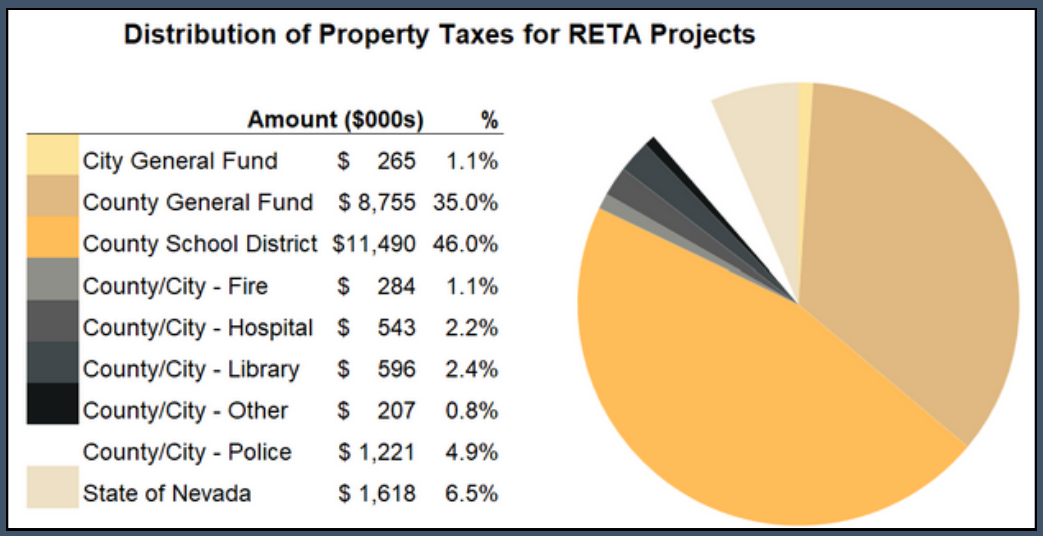
Solar Panels in Nevada via Nevada Governor's Office of Energy

RETA Property Tax Analysis[25]

Analysis on the affected municipal bodies is possible because NRS 701A requires estimates of the fiscal impact of partial abatements through RETA are made available to the public. Over the past five calendar years and through Q1 2025, the RETA program has supported 24 projects bringing almost 5 GW of solar (and limited geothermal) capacity to Nevada's grid. These projects are estimated to invest $9.3 billion into Nevada's economy. Battery storage is also accelerating. From 2020-2023, 630 MW of battery storage capacity was approved; in 2024 alone that figure was 1,467 MW.

It is difficult to estimate the impact of the program as we cannot know, in most cases, whether projects would or would not have been built without these abatements. However, we can see that the revenues flowing to local districts are substantial, particularly in rural counties with smaller existing tax bases. Figure 2 below provides a breakdown of how expected tax revenues will be distributed once all projects approved from 2020 through Q1 2025 are operational. The majority of funds - 92% - go to the County, either through the School District (46%), General Fund (35%), or other municipal services (11%). The impact is larger in smaller, rural counties. Projects in Churchill County, for example, will pay roughly $6 million annually in property taxes (after abatements) once they are operational. Of that, roughly $5.5 million will stay in Churchill County. The county's FY2024-2025 budget only expects to collect $10 million in total property taxes[26], and the news outlets have recently reported on the challenges this poses for the school district.[27] New solar projects can represent a substantial expansion of the county's tax base.





Case Study: Gemini Solar Project

Gemini Solar via *Quinbrook Infrastructure Partners*

The Gemini Solar Project, located in Clark County, is the country's largest co-located solar and battery storage facility, with 690 MW of solar capacity and 380 MW of battery storage. The project is expected to meet approximately 10% of Nevada's peak electricity demand and offset significant CO_2 emissions annually. The construction of Gemini created over 1,300 jobs and represented a $1.2 billion investment. The Gemini Solar Project saved $82 million in property taxes over 20 years but contributed $463 million to Nevada's economy and created 1,300 jobs (54% local hiring). Rural counties still receive partial revenue (e.g., Mineral County gets $654k/year from the Libra Solar Project).

Nevada in Comparison

Relative to many of the other states in this analysis, Nevada has employed only one notable policy mechanism—the RETA program—to more equitably distribute the benefits from renewable development to local communities. Nevada joins the rest of the states in this analysis (California, New York, Texas, New Mexico, Ohio, and Michigan) to offer some form of a tax abatement for developing a renewable energy project. However, these other states also have additional policy provisions to encourage payments to landowners and legally binding agreements with impacted communities, among other policies to distribute benefits. Despite being the only major policy to encourage renewable development in the state, Nevada's RETA program has consistently benefitted local economies, generating substantial investments and revenue for local communities.

Conclusion

Nevada's sunny, flat, and largely empty territory make it a cheap and productive place to build solar energy. Though the state has not passed a comprehensive suite of climate policy, it does have a Renewable Portfolio Standard and a stated goal of reducing its reliance on out-of-state energy production. Given it lacks fossil fuels and has abundant sunshine, this positions Nevada to continue its rapid deployment of renewable energy. The state's overlap between federal, Tribal, state, local, and private lands may present the greatest challenges to project development, but permissive zoning laws and development incentives like the RETA program can help Nevada increase its renewable capacity while also increasing statewide energy security.

New Mexico

photo via patternenergy

NEW MEXICO

Introduction

New Mexico has abundant renewable energy resources and ambitious climate goals to match. Though the state has a complicated assortment of federal, state, Tribal, and private land ownership, it has permissive zoning and an Office of Renewable Energy that is active in supporting development on state lands. These factors, combined with development incentives such as Industrial Revenue Bonds have allowed the state to accelerate the development of solar and wind projects in recent years. On the other hand, relatively few community benefit mechanisms are employed in New Mexico, and compared to other states examined in the report, there is little data that can be used to analyze the level of benefits flowing back to communities.

Current Energy Mix

New Mexico, with its unique capacity for both renewable and fossil fuel energy production, is expected to play a key role in the U.S. energy transition. For over a century, the crude oil and natural gas industries have been a cornerstone of the state's economy, accounting for 10% of its GDP[1] and contributing 34.5% to its revenue fund.[2] At the same time, its geography offers advantages for wind and solar energy. New Mexico ranks second in the nation for potential solar-generated electricity production and tenth for wind potential.[3]

The state's first utility scale projects were not built until the early 2010s, but solar has been rapidly deployed in recent years.[4] Wind energy has a longer history in the state, with the first utility scale project completed in 2004. By 2023, wind energy accounted for 38% of in-state electricity generation.[5] Currently, New Mexico has 3,570 MW of installed solar capacity and approximately 4,400 MW of wind capacity.[6]

Key Legislation

Renewable Energy Act § 62-16-1 to 10
Energy Transition Act § 62-18-1 to 10
Industrial Revenue Bond Act §3-32-1 to 16 § 4-59-1 to 16
RETA § 62-16-1A to 16

State Legislation

New Mexico has emerged as a leader in the energy transition, passing climate policies such as the Energy Transition Act, and creating new government agencies to help reach climate goals. The New Mexico State Land Office, which oversees over 9 million acres of trust land, has also prioritized renewable leasing through its newly created Office of Renewable Energy.

Despite political tension with the oil and gas sectors, particularly in southeastern counties, New Mexico's policy infrastructure positions the state to develop towards 100% renewable energy.

Renewable Energy Act § 62-16-1 to 10

The Renewable Energy Act, establishes the Renewable Portfolio standards, which mandates that public utilities procure 50% of electricity from renewable sources by 2030, 80% by 2040, and 100% by 2045 (2050 for rural coops).[7]

Energy Transition Act § 62-18-1 to 10
The Energy Transition Act amends the Renewable Energy Act and allows utility providers to issue bonds to retire coal plants and provide transition funding for communities and workers for decline on reliance of fossil fuel.[8]

Industrial Revenue Bond Act §3-32-1 to 16 § 4-59-1 to 16
An Industrial Revenue Bond (IRB) is a bond issued by a local government on behalf of a private project in which the government takes title to the project's assets and leases them back to the company. This gives the project the tax status of government-owned property for the term of the bond, exempting the project from property taxes and gross receipts tax on equipment purchases. Since 2002, electricity generation and transmission projects have been eligible for IRB financing and in 2024 the statute was amended to include energy storage.[9] Earlier this year, House Bill (HB) 6 was signed, requiring developers to pay prevailing wages if they receive an IRB.[10]

Renewable Energy Transmission Authority Act (RETA) § 62-16-1A to 16
RETA creates an authority separate from the state government to facilitate the financing and development of high voltage transmission and storage projects of renewable energy in and beyond New Mexico. RETA can exercise eminent domain, issue revenue bonds, start private and public partnerships, lease and operate transmission and storage facilities.[11]

Pending Law
HB 295 – RETA Property Tax Exemption[12]
Passed in House and Senate 3/11/2025 and 3/20/2025
HB 295 provides property tax exemption for transmission and energy storage infrastructure owned or leased by the Renewable Energy Transmission Authority. By reducing development costs, it aims to facilitate large-scale renewable energy projects.

SB 48 – Community Benefit Fund Act[13]
Passed in House and Senate 2/25/2025 and 3/19/2025
Senate Bill 48 would establish a $340 million Community Benefit Fund to support local clean energy initiatives, climate resilience projects, energy efficiency improvements, and workforce development programs.

Permitting & Siting
New Mexico's laws tend not to restrict the siting of renewables projects. No counties have ordinances explicitly restricting renewables, and Chaves is the only county where multiple projects had been contested as of June 2024.[14] The state Public Regulatory Commission (PRC) has jurisdiction on projects 300 MW or larger and can void state, county, or municipal land use regulations that it finds "unreasonably burdensome" to proposed projects.[15] However, the state's permitting process is complex, involving coordination among federal agencies like the Bureau of Land Management (BLM), state entities such as the State Land Leasing Department, and Tribal governments. As in Nevada, this multi-layered jurisdictional framework can result in protracted timelines for project approvals.

In 2019, the legislature appropriated funding to create the Office of Renewable Energy, with the goal of tripling renewable energy on state lands. At the time, there were 17 active leases on state land for roughly 400 MW of renewables capacity,[16,17] and today there are 51 active leases for 2,745 MW of wind and solar capacity.[18] These leases also bring in substantial state revenue; leases granted to EDF Renewables and Innergex for wind projects in 2024 are expected to generate more than $146 million.[19]

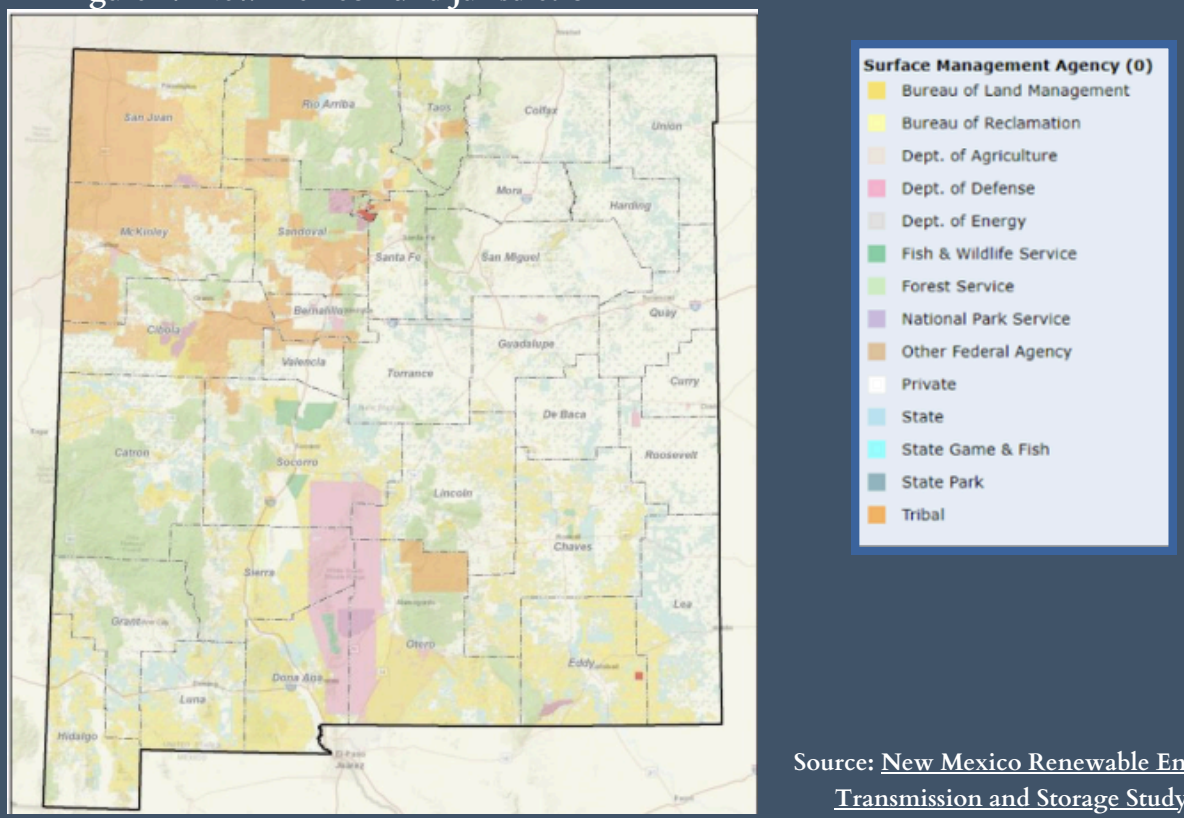
New Mexico has successfully accelerated efforts to lease state land but still faces challenges stemming from the large amount of land that is owned federally or by Tribal communities. The SunZia Wind and Transmission project, first proposed in 2006, illustrates the complexities of renewables development in the southwest. The 550 mile transmission line spans New Mexico and Arizona, and Tribal communities argue that the Bureau of Land Management (BLM) failed to adequately consult them and assess the impact on sacred sites, leading to legal challenges seeking to halt construction.

Construction SunZia Transmission and Wind project Pattern Energy

To address concerns, Pattern Energy, the developer, worked with BLM to create a bilateral Programmatic Agreement under the National Historic Preservation Act (NHPA), which included measures such as cultural monitoring, avoidance of high-sensitivity areas, and the establishment of Tribal liaison roles during construction of the transmission line.[20]

The SunZia project reached an agreement with local communities, but concerns may remain for future projects. Indigenous communities have expressed that they view renewable energy development as a continuation of a history of infrastructure and energy development on their lands; historically, this development has been extractive and created health risks, leading to distrust of developers and governmental processes.[21] Developers and policymakers will need to proactively address these concerns if wind and solar development is to continue apace.

Figure 1. New Mexico Land Jurisdiction



Source: New Mexico Renewable Energy Transmission and Storage Study

Framework

Individual Agreements		
Land Owner Lease Payment	+	Lease payments to individual landowners are made in most cases where projects are located on private land but do not play a large role in New Mexico because so much land is federally or state owned
Community Agreements		
Local Employment Agreements	✓	Common in practice even if not legally required
Community Agreements	+	HCAs are often accompanied alongside the issuance of an Industrial Revenue Bond
Road Agreements	✓	Standard practice for NM wind projects; also used for large solar sites
Electric Bill Offset Agreements	✗	Not used in New Mexico
Tax Structures		
State and Local Taxes	+	New Mexico employs a Gross Receipts Tax instead of Sales Tax; if a project is financed by IRBs it may be exempt
Property Taxes	✓	Counties and cities commonly issue Industrial Revenue Bonds (IRBs) to exempt a project's land, equipment, and improvements from property tax for up to 30 years
PILOTs	✓	IRBs require PILOTs that at least cover the revenue school districts would have received, though counties can negotiate for larger payments

✓ Often Used + Sometimes Used − Rarely Used ✗ Not Used

Use and Impact of Mechanisms

Developers engage with local communities to negotiate agreements like CBAs or HCAs and may pursue Industrial Revenue Bonds through local governments to access tax exemptions and where PILOTs are negotiated. Construction proceeds with local labor (if negotiated) and infrastructure agreements, and once the project is commissioned and operational, ongoing obligations include PILOT payments and PRC compliance checks.

Community Benefit Agreements (CBAs)

New Mexico law neither mandates nor incentives the use of CBAs, limiting the frequency with which they are used. Among the handful of CBAs that have been written about, the most notable was signed as part of negotiations for the Sagamore Wind Project. This wind farm is being developed by Xcel Energy and will have a 522.8 MW capacity.

Xcel signed an agreement with the New Mexico Attorney General and advocacy groups pledging to use 30% local content in construction (with $57 million going to New Mexico workers/companies), funding for local wind technician training (a $25,000 grant to Mesalands Community College), and regular meetings to update the community on progress.[22] Further, the project will pay 175 landowners $89 million over its 25 year useful lifetime.[23] This translates to roughly $20,300 per landowner annually, though we do not have details on how payments vary among each property. In return, community stakeholders supported the project at the Public Regulation Committee, where conditions are added within legal documents.

Road Use or Maintenance Agreements (RUMAs/RUAs)
RUMAs and RUAs are common practice for wind projects in New Mexico, especially those which require heavy equipment delivery to rural county roads that are not designed to sustain these weights. Lincoln County, for example, requires road repair agreements for wind farm permits.[24] Road Maintenance Agreements have been used in multiple projects, including Sagamore Wind Farm and Great Divide Wind Farm, to protect and restore roads that have been used for the renewable projects.[25]

Tax Code

Gross Receipt Tax
Gross Receipt Taxes (GRT) are applicable to sales and goods during construction, including labor, materials, and consulting services. Rates vary county by county from 4.875% to 8.9375% depending on location.[26] However if the project has been financed by IRBs, this makes this project eligible for exemption from GRT.

Gross Receipts Tax Deduction for Solar § 7-9-112[27]
GRT Deduction for Solar allows 100% deduction from gross receipts tax for the sale and installation of solar energy systems used to power a home or business. This directly lowers the cost of solar adoption for residential and commercial installations.

Property Tax
Property tax applies to land, buildings, and improvements; specific property tax rates are determined at the county level. Typical effective tax rates range from 0.4–1.0% of taxable value, with an average of 0.77%.[28]

The Sagamore Wind Farm, mentioned earlier, leases land from approximately 175 private landowners across Roosevelt County.[29] The project does not have any property tax abatements or exemptions, and will pay an estimated $43.2 million gross receipts taxes and $101 million in property taxes over its useful life.[30] In large part because of this, Roosevelt County receives more than half of its property tax revenues from renewables, making it the only county in the country to do so.[31]

Industrial Revenue Bonds (IRBs) and PILOTs
Across New Mexico, many large renewable energy projects negotiate with county governments for Industrial Revenue Bond (IRB) agreements. IRBs are essentially tax subsidies in which developers are exempted from a combination of property taxes, gross receipts tax, and bond interest. In an IRB, a developer deeds the project to the IRB-issuing county, who then leases the project back to the developer. This series of transactions results in the project acquiring the state and local tax status of the county that is now the legal owner.[32]

PILOTs are often negotiated alongside IRBs to repay property tax during the period where the IRB is effective.[33] New Mexico statute § 4-59-4 stipulates that counties cannot issue IRBs to electricity generating facilities "unless the school districts within the county in which the project is located receive annual in-lieu tax payments."[34] These agreements require approval from the local school district and each school district in the county must receive at least as much revenue from the PILOT as they would have had the IRB not been issued. The PILOT funds are then distributed among school districts based on where the project is located and the size of the student population among affected districts.[35]

Beyond this minimum threshold, the statute does not specify a PILOT rate. Historically these have varied greatly, with many counties taking different approaches. Some have tried to capture the majority of the tax exemption benefits, while others have imposed PILOTs only up to the minimum amount needed for the school district.[36]

As large-scale renewable projects have become more common in New Mexico, several prominent projects have issued IRBs in exchange for large PILOTs. In 2019, Pattern gained approval from the Torrance County commission to issue an Industrial Revenue Bond for $1.82 billion for a 1,050 MW wind project spanning four wind farms.[37] The IRB exempted the project from property taxes but required annual PILOT payments of $1.6 million for a set period to several of the municipal and school district beneficiaries.[38] More recently, in November 2024, the Sun Lasso Energy Center secured $190 million from the County of Bernalillo to develop a battery storage facility. The project is projected to receive a tax break of $2.4 million in gross receipts tax and $5.6 million in property tax. In return, the company would still be responsible for paying $2.2 million in payment in lieu of taxes.[39]

Conclusion

New Mexico has abundant wind and solar resources, relatively cheap land and low taxes, and a strong set of climate policies. Counties generally have permissive zoning laws and the recently created Office of Renewable Energy is working to expedite approval on state lands, though permitting is complicated by a patchwork of federal, state, Tribal, and private land ownership. The state uses relatively few community benefit mechanisms. Community Benefit Agreements are negotiated on an ad hoc basis. Industrial Revenue Bonds are the primary drivers of economic development and are commonly used to partially exempt property taxes for solar and wind projects. Because of this, although development is accelerating in the state, it is difficult to discern the level of benefits flowing back to communities.

New York

Maple Ridge Wind Farm via Kate Lovering for The Washington Post

NEW YORK

Introduction

New York is one of the largest states in the U.S., both in terms of population and economic activity, and is a leader on climate. The state has passed several landmark bills to advance clean energy and either mandate or heavily incentivize developers to engage with local communities. Further, recent changes to the way solar and wind projects are valued for taxation has contributed to an uptick in HCAs and PILOT agreements across the state. In both cases, New York needs to balance requiring developers to bear more responsibility for ensuring communities benefit from new projects while not creating an environment so onerous that it disincentivizes investment.

Current Energy Mix

More than half of the state's electricity generation has come from clean sources for decades due to rich hydropower resources and one of the largest nuclear fleets in the country.[1]

Wind and solar power have only recently begun to make meaningful contributions to New York's generation mix. Solar in particular is beginning to rapidly scale in the state, fueled by federal subsidies and several state policies and incentives.[2] Wind generation along the coasts of the state[3], current opposition at the federal level has created uncertainty over whether or not New York will be able to develop its capacity.

State Legislation

New York has passed several key pieces of legislation that encourage renewables development and require certain community benefits to be provided. This has helped catalyze the recent growth in wind and solar capacity and encouraged greater engagement between communities and developers.

Key Legislation

Senate Bill S6599 - CLCPA
Accelerated Renewable Energy Growth & Community Benefit Act ("Accelerated Act")

However, as with many other states across the country, renewables development has begun to face opposition in some parts of New York state. As of June 2024, there were at least 39 towns that had passed restrictive ordinances across 19 counties in New York, and at least 30 projects were facing some form of local opposition.[4]

Senate Bill S6599 - Climate Leadership & Community Protection Act (CLCPA)[5]

The CLCPA, passed in 2019, obligates New York to take action on three primary goals:

1. By 2030, the state must reduce greenhouse gas emissions by 40% from 1990 levels and reduce emissions by 85% by 2050.
2. The state must obtain 70% of its electricity from renewable sources by 2030 and shift to 100% carbon-free electricity by 2040.[6] The state's Clean Energy Standard (CES) was first adopted in 2016 and expanded in 2020 to comply with the CLCPA.[7]
3. New York must ensure that 35% of the benefits of clean energy and energy efficiency are directed to disadvantaged communities.

Accelerated Renewable Energy Growth and Community Benefit Act ("Accelerated Act")[8]

New York's Accelerated Act was passed in 2020 with the goal of improving the siting and construction of large-scale renewable projects (those over 25 MW).[9] The Act creates the Office of Renewable Energy Siting (ORES) which will have one year to act upon completed applications, else the application is automatically approved and a permit is granted. The Accelerated Act also created the Host Community Benefit Program, discussed in more detail in the Use and Impacts of Mechanisms section, which requires solar and wind developers to provide funds which will be used to credit utility bills for ratepayers in the host community.

The new application and permitting processes introduced by the Accelerated Act replace a process called Article 10, which was enacted in its current form in 2011. Although it aimed to facilitate quick and easy permitting for renewable energy facilities, only six wind projects were approved under this process; when the Accelerated Act passed there were 56 more in the queue, some of which had been there since 2015. Not a single project approved under Article 10 was operational when the Accelerated Act passed.[10] Many of the Section 10 requirements for public involvement were eliminated under the Accelerated Act, though applications still require consultation with the host community and compliance with local laws to be deemed complete.[11] Although the state could override local restrictions under Article 10, it never did, and local opposition killed many projects or deterred them from getting started. The process through ORES, however, considers the reasonableness of local restrictions through the lens of the CLCPA's climate goals and the environmental benefits of a project, enabling the state to more easily override local restrictions.[12]

After several years, the process appears to be gaining steam: there is now a docket, projects have begun receiving approvals, and ORES has been meeting deadlines.[13] Particularly given the recent growth in local restrictions, the Accelerated Act highlights how state control over permitting can be paired with mandated community benefits to speed up development.

Industrial Development Agencies: Article 18-A of New York State General Municipal Law [14]

Industrial Development Agencies (IDAs) are intended to promote, encourage, and assist in bringing economic development to their jurisdictions.[15] IDAs can overlap with each other (e.g. the county and city of Rochester both have an IDA),[16] which can lead to competition among IDAs to provide the greatest economic incentives to prospective businesses and developers.[17] They play a unique role in the New York economy, and play an important role in renewable energy development by issuing tax-exempt and taxable bonds for qualifying projects and issuing PILOT agreements. [18]

Because the decision is made by local IDAs, tax exemptions vary from county to county. Although renewable energy enjoys strong support with the general public - more than 90% of voters support solar energy and nearly two-thirds support wind energy[19] - pockets of local opposition to renewable energy development have grown in recent years.

In particular, anti-development sentiment is growing among rural populations in the western and northern parts of the state, where researchers have documented an increasing perception of "rural burden," the idea that rural people are unfairly asked to shoulder burdens in order to meet urban demand.[20] As of 2023, 51 out of 62 counties had opted out of New York's renewable energy tax exemption,[21] the implications of which are discussed in more detail in the Use and Impacts of Mechanisms section.

Framework

Individual Agreements		
Land Owner Lease Payment	✓	Lease payments to individual landowners are made in most solar, wind, and battery storage projects that are located, at least in part, on private land, but do not appear to play a major role in New York
Community Agreements		
Local Employment Agreements	−	Employment & Procurement agreements are rarely signed as a standalone benefit, but similar provisions are typically included in HCAs
Community Agreements	✓	Wind and solar projects often negotiate HCAs; this is a requirement for large scale projects approved through the state-level Office of Renewable Energy Siting process
Road Agreements	−	Road agreements are rarely signed as a standalone benefit, but similar provisions are included in HCAs
Electric Bill Offset Agreements	+	Host Community Benefit Program was introduced in 2022. So far, there are 30 projects (non-operational) expected to provide benefits through this mechanism.
Tax Structures		
State and Local Taxes	✗	State and Local Sales Tax policies do not appear to be driving development or community benefits in New York
Property Taxes	✓	New York exempts the added value of wind and solar systems from taxation for 15 years, but localities can opt out of exemption. Many choose to negotiate separate HCAs/PILOTs
PILOTs	✓	Many renewables projects negotiate PILOTs with the Industrial Development Agencies representing the community where the project is located

✓ Often Used + Sometimes Used − Rarely Used ✗ Not Used

Use and Impact of Mechanisms

Community Agreements

Within New York, the Community Benefits Mechanisms which are most commonly used are Host Community Agreements and, relatedly, Payment in Lieu of Taxes (PILOTs). New York tends to use different terms than Host Community Agreement, but the substance of the agreements matches the definition of an HCA laid out in Section 4 of the report. Host Community Agreements (HCAs) are commonly used in New York to outline benefits the developer is obligated to provide the host community as a condition for a project's approval. These are often negotiated in order to formalize PILOT payments to counties or townships.

Host Community Benefit Program

Section eight of the Accelerated Act, described above, required the NY Public Service Commission (PSC) to create a "Host Community Benefit Program" which would provide benefits to utility customers in the communities that host future "Major Renewable Energy Facilities."[22] The PSC's proceeding (Case# 20-E-0249) established that Major Facilities would be those larger than 25 MW which NYSERDA has contracted to purchase Tier 1 RECs from. These projects are required to pay $500/MW of solar and $1000/MW of wind into a fund which is used to provide utility bill credits for electric utility customers in the host community, distributed evenly among among residential ratepayers (proximity to the project is not considered) on the first bill of each year. Credits through the program are in addition to any other negotiated benefits such as an HCA or PILOT agreement.[23]

To date, no projects have been completed under this process and paid into the HCBP fund.[24] However, 30 projects have been permitted and are expected to contribute approximately $32.9 million to credit ratepayers electricity bills during their first 10 years of operation.[25] Using local population data,[26] we estimate a range of $2 per person annually to $159 per person annually in credits. The smallest per capita benefit comes from the 110.2 MW Rutland Solar project, which will pay $55,100 to the roughly 27,000 residents living in the towns of Rutland and Watertown. The largest benefits are expected from the 340 MW Alle-Catt Wind project.

Table 1. Estimated benefits from HCBP

Year Approved	No. of Projects	Total Nameplate Capacity (MW)	Total Annual HCB $	Average Annual HCB / Person
2021	8	1,563	$781,375	$28
2024	22	4,010	$2,508,890	$41
Total	**30**	**5,573**	**$3,290,265**	**$38**

Because these projects have not yet led to bill credits for residents, it is too soon to know whether the financial compensation will increase public support. The credits may be too small or may not be salient, limiting their effectiveness.[27,28] In principle, however, they do address one of the main sources of negative sentiment projects encounter. Across the states considered in this report, rural areas that think of themselves as agrarian have tended to be most likely to oppose new energy development. This is particularly true when they do not see the benefits of projects being reinvested into the town, which creates the perception of exploitation.[29]

Property Taxes

New York considers wind and solar installations to be real property, and in 2022, Real Property Tax Law (RPTL) §575-b standardized that projects bigger than 1 MW would be valued through a discounted cash flow model.[30] The New York State Department of Taxation and Finance and NYSERDA built a model which estimates the full value of the compensation developers will receive for their projects and the average cost of capital (debt and equity) which is used to discount these expected cash flows back to today.[31] This standard methodology is useful to developers and localities, as it creates transparency and certainty. In the past, and in other states, differing methodology and familiarity with renewables projects across different tax assessors offices led to challenges with valuing and taxing projects, as well as negotiating fair benefits agreements that could supplement or replace property taxes. [32]

In 2021, the New York legislature adopted RPTL § 487 to exempt the value of a solar system from local property taxes for 15 years. The value that is not attributable to the solar system is still subject to taxation. [33]

This exemption is considered an essential piece of the State's clean energy strategy, as in many cases solar would not be viable without this economic incentive.[34]

Although this tax exemption is critical to enabling solar deployment, RPTL § 487 allows any taxing jurisdiction (e.g. a town, school, etc.) to "opt-out" through local laws or resolutions. The opt-out is binary, meaning jurisdictions cannot tax utility scale solar while exempting rooftop solar and/or community solar. Utilizing this opt-out can slow or halt development altogether, a feature which some jurisdictions have intentionally used.[35] However, this also has the effect of giving taxing jurisdictions leverage to negotiate with developers for PILOT payments, capped at the amount taxes would have been without the exemption.[36] PILOTs are typically negotiated as part of a Host Community Agreement, and have become increasingly popular in recent years. PILOT rates should typically fall between 1-3% of the compensation a project receives,[37] though the economics of each project differ based on development and operational costs, as well as variable revenues driven by differences in insolation, transmission availability, or other factors.

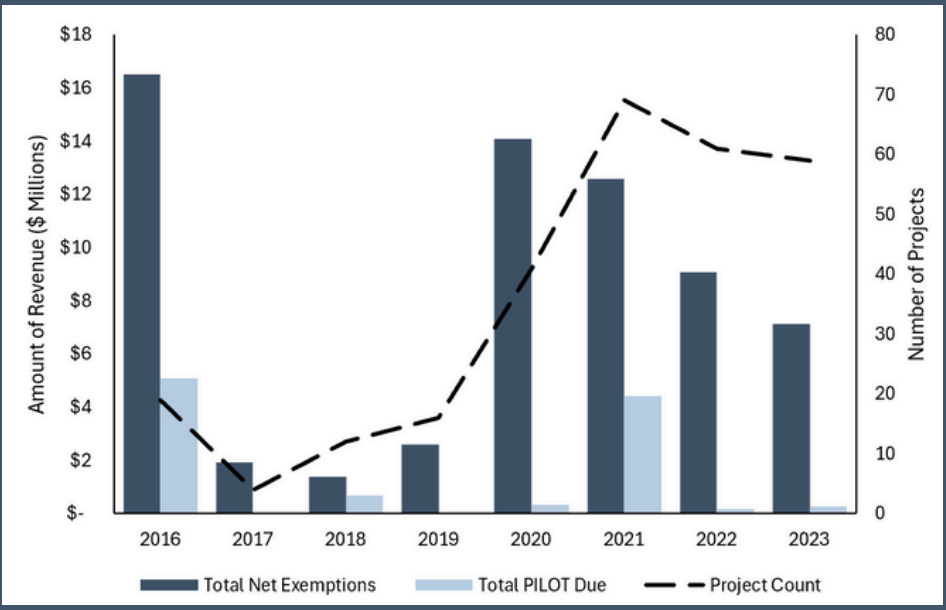
Although many states have standardized per MW rates for PILOTs, New York chose not to in order to provide communities flexibility to meet needs they identified as most important.[38]

In a report on IDAs (see State Legislation above for more on their role negotiating PILOTs), the state estimated that 151 out of a total of 4,324 projects were for Clean Energy at the end of FY2021.[39] Using the same methodology and New York's Open Data[40], we estimate there were 281 PILOTs for clean energy projects valued at $7.8 billion as of the end of 2023. These projects were exempted from $76.2 million in taxes - with more than half of that in state and local sales tax - and expected to pay $11.0 million in PILOTs while creating 232 jobs.

Notably, there seems to be a significant gap between the size of the exemptions and the PILOT revenues that replace them. This runs counter to what we have seen in other states like Ohio or Texas, where the difference between property taxes and PILOT payments were largely a matter of timing, not magnitude. It is not clear what is driving this dynamic, but competition among IDAs to attract businesses could play a role.

Figure 1: Net Exemptions and PILOT Agreements for clean energy projects in New York

Over the past 8 years for which we have data, we've identified 281 clean energy projects that have entered into a PILOT agreement with IDAs in New York. Though these projects will pay substantial PILOT revenues, they are receiving substantially larger tax exemptions.



Case Study: Morris Ridge Solar

Morris Ridge Solar Farm via Smart Energy Decisions

Morris Ridge Solar project is a 177 MW solar farm that became operational in Q4 2024 and will pay surrounding municipalities roughly $14 million over 20 years. Construction of the project injected $70 million into the New York economy. [41]

The project's HCA requires the developer to conduct environmental, noise, and health analyses, hire local workers, maintain infrastructure, and ensure agricultural compatibility. Roads and local infrastructure were either maintained or improved during construction, and the HCA commits the developer to the same standards when decommissioning the project. Because Mount Morris is agriculture-oriented, the solar farm's ability to integrate with pollinators and grazing animals on the land was important to local residents and is covered by the HCA.[42]

Morris Ridge is one of the first utility-sized solar projects permitted under the Accelerated Renewable Energy Growth and Community Benefit Act, making it an important example of how ambitious renewable energy policy can affect the process of a renewable energy project.[43]

Conclusion

New York has aggressive climate goals and a legislature that wants to support clean energy while ensuring communities benefit. Though this has enabled renewable energy deployment to grow quickly, pockets of local opposition are also growing. This has slowed projects, particularly in agriculturally-oriented parts of western and northern New York. Laws like the Accelerated Renewable Energy Growth and Community Benefit Act have tried to remedy this by offering developers a state-controlled pathway to approval.

The Act balances this state oversight with developer requirements for community engagement and the provision of financial benefits through the Host Community Benefit Program. Many of these changes are still so recent that we do not have data to conclude whether or not they have been effective, but they demonstrate a balance between the ambition to build renewable energy quickly and the need to ensure the energy transition is conducted with justice for local communities in mind.

Ohio

Richard Pan via Pexels

OHIO

Introduction

Ohio has fairly unambitious climate goals, limiting the urgency of regulators and developers to build renewable energy facilities. Despite this, development is still rapidly taking place. Ohio does not utilize many of the mechanisms in the Community Benefits Framework, but its PILOT program is widely popular and appears to be driving much of the engagement between municipalities and developers. Ohio law provides payment rates that are high enough to be attractive to communities, but low enough that developers are happy to pay them in exchange for public support and more predictable cash flows. Although this environment has allowed renewable energy to continue growing, Ohio's current policy environment, driven by shifts in public opinion, is adding friction to the process of building new renewable energy facilities. It remains to be seen what effect, if any, this will have on development and local communities.

Current Energy Mix

Ohio has a large population and is endowed with abundant coal and natural gas resources.[1] Parts of the state – along the Ohio River and Lake Erie – are highly industrialized, while western Ohio is primarily farmland. Combined, these factors have led Ohio to consume large amounts of electricity, and to produce most of it from coal and natural gas.[2] However, the northwest portion of the state receives steady wind, and in the early 2010s was an early adopter of wind farms.[3,4] As recently as 2020, solar energy produced less than 200 GWh of electricity in Ohio. By 2024, solar produced more than 4,000 GWh of electricity.[5] Although the state has rapidly deployed utility-scale solar and wind over the past 10-15 years, recent shifts in public opinion and new legislation may undermine this progress.

State Legislation

Alternative Energy Portfolio Standard (AEPS)

In 2008, Ohio established its Alternative Energy Portfolio Standard (AEPS) through Senate Bill (SB) 211.[6]

Key Legislation

Senate Bill 211
Ohio Revised Code (ORC) Sec. 303.211 & 519.211
Senate Bill 52 Sec. 4906.10
Senate Bill 232
HB 33 Section Sec. 5727.75

The standard initially created a 12.5% clean energy requirement for the state's utilities and electric service companies. However, the requirement was paused in 2014 and later restated in 2016, establishing a 8.5% requirement by 2026 through HB 6 Sec. 4928.64, though utilities can avoid compliance if doing so is expected to raise costs at least 3% more than they otherwise would be. [7]

Siting & Permitting

The Ohio Power Siting Board (OPSB) has jurisdiction over the approval process of energy projects across the state. Historically, Ohio Revised Code (ORC) Sections 303.211 (counties) and 519.211 (townships) provided a public utility exemption, specifying that towns and counties have no zoning authority over public utilities, including energy projects. [8]

SB 52, however, provided new authority to county commissions over renewable energy developments when it became effective in October 2021. The law discards the public utility exemption for solar facilities larger than 50 MW and wind facilities larger than 5 MW if they are connected to the grid. This enables counties to designate restricted areas where wind and solar cannot be built, or to restrict individual projects.[9]

Further, the law altered the approval process for wind and solar projects by requiring additional local input and adding two local county commissioners to the voting board of the OPSB. Developers must hold public meetings prior to submitting an application to the OPSB and wait at least 90 days, during which time county commissioners can adopt a binding resolution prohibiting or reducing the size of the project.[10]

As opposition to renewables has grown in Ohio, this process used to enact new restrictive ordinances and slow development.

At least 23 counties have passed restrictive ordinances, most of which are outright bans of wind and solar projects. All of these ordinances have passed since SB 52 became effective.[11] Green County, for example, approved the request of five towns in 2023 to restrict solar and wind deployments in order to maintain the area's "agricultural outline." This led the county siting board to reject an application for the Kingwood Solar project, which would have been a 175 MW solar installation and brought more than $1.5 million in tax revenue to the county. [12]

Framework

Individual Agreements		
Land Owner Lease Payment	✅	It has been reported that landowners in Ohio receive between $1,000 to $3,000 per wind turbine and up to $1,000 per acre for solar farms
Community Agreements		
Local Employment Agreements	➕	Used, but not mandated statewide
Community Agreements	✅	CBAs and GNAs are not mandated by state law but are commonly used, particularly following the passage of Senate Bill 52
Road Agreements	➖	Road agreements are rarely signed as a standalone benefit
Electric Bill Offset Agreements	❌	Not used in Ohio
Tax Structures		
State and Local Taxes	❌	State and Local Sales Tax policies do not appear to be driving development or community benefits in Ohio
Property Taxes	✅	If property taxes are not abated through a PILOT agreement, wind and solar projects are subject to Ohio tangible personal property taxes
PILOTs	✅	Many renewables projects have negotiated PILOTs with the Industrial Development Agencies representing the community where the project is located

✅ Often Used ➕ Sometimes Used ➖ Rarely Used ❌ Not Used

Use and Impact of Mechanisms

Individual Agreements

As in other states examined in this report, it is common for farmers and large landowners to receive land lease payments when they rent their land to renewables projects. Though precise figures are difficult to come by, it has been reported that landowners receive between $1,000 to $3,000 per wind turbine (roughly $3,000 to $6,000 per MW of capacity)[13] and up to $1,000 per acre for solar farms located near PJM interconnections.[14]

These high payments often make solar or wind farms popular with leasing landowners. However, restrictive ordinances can block renewable energy in a town or county, limiting individual landowners' ability to earn money by leasing their land.[15] Even when no ordinance prevents landowners from leasing land, the decision to do so can be divisive, particularly when others perceive that benefits are not widespread.[16]

Community Agreements

Although there are no state laws requiring the use of CBAs, GNAs, or other community agreements when developing renewable energy, they have become common in Ohio. SB 52 mandated that developers would need to hold county meetings to discuss proposed projects before formally submitting an application, and Section 4906.10 stipulates that permits only be approved if the facility will "serve the public interest, convenience, and necessity."[17] Because of this, community engagement has become more important in the state, though it is not yet clear what, if any, impact this will have on public opinion.

GNAs are commonly used when leasing land from individual landowners, which provide both compensation for the land and protection against risks such as soil erosion or chemical leakage. They also offer compensation to neighbors in many cases. Open Roads Renewables (ORR), the developer behind Frasier Solar (discussed in more detail below), offers one-time payments of $10,000 or annual $600 payments with a 2% escalation to those who may be affected by a project's construction.[18]

However, not all developers follow ORR's practices and these agreements have come under scrutiny. While landowners who stand to benefit financially may be willing to host parts of wind or solar projects, neighbors that are not receiving payments have commonly raised concerns surrounding noise, aesthetics, and potential environmental impacts.[19,20]

These dynamics resemble nearby Michigan, where resentment from neighbors was slowing wind farm development and ultimately made the practice of paying both landowners and neighbors more common.

Property Taxes

Solar and wind projects in Ohio are considered "energy companies" and classified as public utilities for tax purposes under ORC 5727.01. If taxes are not abated (see discussion on PILOTs below), projects are subject to Ohio tangible personal property taxes. Property value is based on its capitalized cost minus any allowances, and is then assessed based on the public utility's assessment schedule.[21] Taxable production equipment, such as solar panels, is assessed at 24% of its value and all other equipment, for example a transmission line, is assessed at 85% of its value.[22] Personal property tax revenues are collected by the respective county and then used to fund improvements within the county such as schools and township projects. [23]

Sales and Use Tax

Ohio HB 315 exempts the sale of tangible personal property (i.e. solar equipment) from state sales and use tax for energy providers aiming to generate and distribute electricity. See Ohio Revised Code Section 5379.02(B)(40) for more details.

Qualified Energy Property Tax Exemption and PILOTs[25]:

Solar and wind projects are considered public utilities and subject to personal property taxes if they are not exempt. However, in Ohio, most projects are approved as Qualified Energy Properties (QEP), enabling them to make PILOT payments in place of property taxes. In 2010, Ohio passed SB 232, which allowed projects to be certified as QEPs if they produce renewable energy, have a nameplate capacity of at least 250 KW, and employ at least 50% Ohio residents (70% for solar projects).[26] Projects larger than 20 MW must be approved by the county, while smaller projects apply for QEP certification from the state-level Department of Development.[27] In 2023, HB 33 (Section Sec. 5727.75) extended the QEP Program through at least 2028. [28]

QEPs pay PILOTs at a rate ranging from $7,000 - $9,000 / MW nameplate capacity. SB 232 sets a minimum rate of $7,000 per MW, with payments distributed proportionately to each taxing jurisdiction. Counties can, and typically do, request up to $2,000 per MW more from developers, and those revenues go directly to the county. SB 232 also allows for other clean energy projects, including wind, to pay a fixed amount of $6,000–$9,000 per MW.[29] The bill also requires developers for projects greater than 5 MW to post a bond that ensures funding to repay any damage sustained during the construction process to roads and bridges.[29]

The economic return to communities: PILOTs and Property Taxes

In Ohio, most wind and solar projects have been certified as QEPs and are making PILOT payments to counties rather than paying property taxes. This appears to work well for both developers and counties. The predictability of fixed PILOT payments enables better planning for each party, enabling local government agencies to plan more ambitious long-term projects and increase wages for public employees. Because property taxes decline rapidly, it can be more difficult to expand services based on the initially high payments. Further, state school aid is provided based in part on the property taxes a district collects; meaning a portion of increased property tax revenue would be offset by losses in school funding. PILOTs, however, are excluded from this calculation, and so a larger fraction of the money stays local.[31,32]

PILOTs offer planning advantages, but it is just as important that they offer similar economic benefits to communities. Most evidence indicates PILOTs offer as much or more revenue than property taxes would in Ohio.[33,34,35] However, assumptions regarding future inflation and discount rates can greatly impact these calculations.[36,37,38] While the cash flows from property taxes and PILOTs should be rigorously analyzed, each county may have preferences that make property taxes or PILOTs more suitable.

Case Study

Paulding County courthouse via Devin Sanchez

Paulding County was an early adopter of renewable energy and has been receiving PILOT payments since 2013. After the creation of the Blue Creek Windfarm, PILOT payments have been the top tax revenue source in Paulding County, Ohio.[39] The county now has 5 large wind farms with 766.7 MW of capacity, and a sixth 150 MW wind farm was approved in 2024. In total, developers have invested more than $1 billion in wind energy in the county and made more than $40 million in PILOT payments, helping transform the county. Countywide benefits consist of infrastructure upgrades, wage increases, and educational investments. In 2022, the Wayne Trace Local School District received $1,614,549 in payments, allowing for various school improvements. Further, PILOT revenues have funded 18 municipal services[40], including 911 systems, mental health programs, and school upgrades.

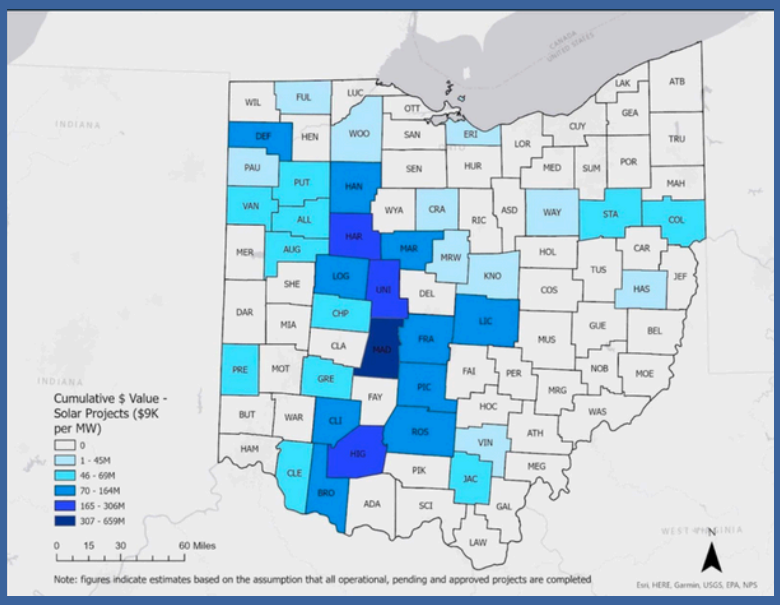
The Lincolnview Local School District within neighboring Van Wert County receives $400,000 annually in PILOT payments from the same windfarm, and the revenue generated from the payments are used to fund similar educational and community investments. For instance, the new $4.9 million Lincolnview Community Center is a direct result of the PILOT payments.[41] The transformational impact of the PILOT payments has been essential for the growth of the two counties.

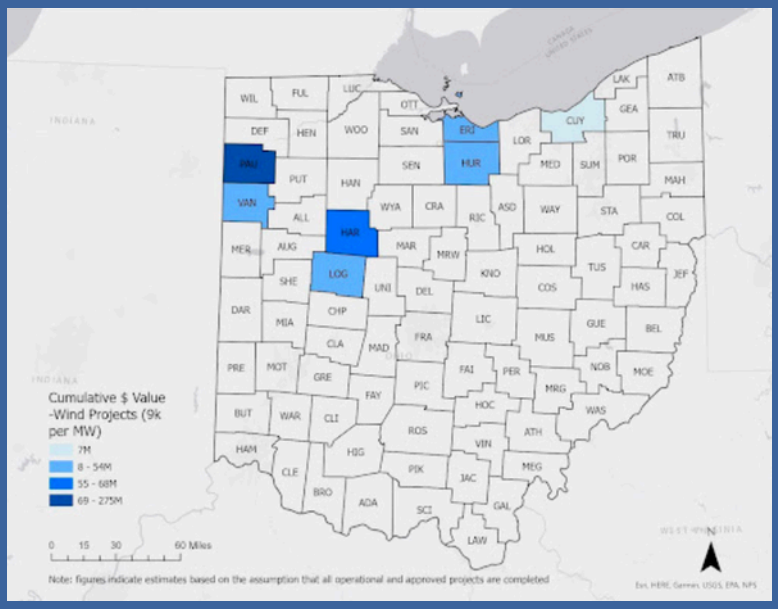
PILOTs in the Midwest

In 2023, Michigan enabled local governments to grant qualified solar facilities 20-year property tax exemptions and establish PILOT agreements at a rate of $7,000 / MW nameplate capacity (see Section 5.2 for more detail). Though it is difficult to draw conclusions about a new program, PILOTs have not yet gained traction in Michigan, and experts we spoke with indicated they are unlikely to in the future. This is because Michigan assesses taxes on solar equivalent to almost $13,000 / MW, and local governments are not interested in providing, in effect, steep subsidies.

Although most developers in Ohio pay a higher $9,000 / MW rate for PILOTs, they have become the de facto mode for delivering revenue to host counties. Developers and local governments prefer the more predictable revenue stream, and PILOTs direct a larger proportion of funding to the local community than property taxes would. The contrast highlights not just that similar mechanisms can be used differently in different contexts, but the importance of designing policies that provide complementary incentives in order to effectively drive local engagement, energy development, and benefits to host communities.

Figures 1 and 2. The Total Value of PILOT Payments for Wind and Solar Projects by County[42]





Conclusion

Ohio's policy landscape offers little in the way of strong climate policy. Public opinion across the state has become notably more oppositional to renewables in recent years, particularly in rural, agrarian communities and this has led to new local siting controls and more restrictive ordinances. Perhaps because there are no state requirements or incentives, Community Benefit Agreements and Project Labor Agreements appear less common in Ohio.

Even absent strong legislative mandates or an ambitious Renewable Portfolio Standard, the state's use of PILOT agreements has been highly successful in terms of enabling development and allowing communities to financially benefit.

Texas

Brandon Bell via Getty Images

TEXAS

Introduction

Texas' policy landscape over the last three decades has directly contributed to significant levels of renewable penetration. Early on, Texas created a supportive policy environment for renewable development with property tax abatements to attract developers and required payments in lieu of those taxes from developers to local school districts. The state's focus on free-market principles also promoted direct agreements between landowners and developers in rural Texas, increasing revenue streams and attracting investment to those communities. The Electricity Reliability Council of Texas' (ERCOT) relatively limited regulation has also encouraged renewable development and heavily shaped the renewable-heavy makeup of the grid's interconnection queue. While local residents typically support renewable development because they see these benefits directly, a more recent push at the state level to discourage renewable energy could threaten those community improvements as well as Texas' leadership in the energy transition.

Current Energy Mix

Texas has earned its moniker as the "energy capital of the world." The state is the largest energy consumer and net supplier of energy in the country, with a long history of oil and gas production.[1] Over the past decade, Texas has also become a U.S. leader in renewable energy development, generating more from wind, solar, and hydropower than any other state in 2022.[2] That year, Texas led the nation in utility-scale wind power generation, accounting for 28% of all wind-sourced electricity, and was the second-largest producer of solar power after California.[3]

State Legislation

Overview of Current Policy Landscape

Texas' renewable-supportive policy landscape began with the passage of Texas' Renewable Portfolio Standard (RPS) in 1999, with the goal of developing 10,000 megawatts (MW) of renewables by 2025.[4]

Key Legislation

Chapters 312 & 313
JETI Program

Texas also made early investments in electricity infrastructure through the Competitive Renewable Energy Zones (CREZ) in 2008 to support increasing wind capacity. The project created more than 3,500 miles of new transmission that were capable of hosting more than 18.5 MW of new generation.[5] In support of the state's renewable development goals in the 2000s, Texas also exempted the manufacturing, selling, or installing of solar panels from franchise taxes, which makes up about 3-5% of total state tax revenue.[6]

The state's most impactful policies for renewable development, however, have been technology neutral. At the local level, the Chapter 312 and Chapter 313 property tax abatements in the Texas Tax Code served as the primary venue to incentivize renewable energy developers to build in the state,[7] while leasing agreements with individual landowners created new revenue streams in local communities. Both of these approaches were inherently technology-agnostic but happened to be utilized to great effect by renewables developers. See the Use and Impact of Mechanisms section below for additional details.

However, after two decades of leadership in renewable energy, Texas lawmakers have initiated a concerted effort to disincentivize renewable energy development. Texas repealed its RPS in 2015[8], and renewables have become a scapegoat for an increase in ERCOT's major grid failures, despite evidence pointing to ill-equipped infrastructure failing during catastrophic weather events such as Winter Storm Uri in February 2021.[9] In response, Texas legislators allowed the Chapter 313 tax abatement to expire in 2022 and replaced it with the Jobs, Energy, Technology, and Innovation (JETI) Program, which excluded renewable projects from local property tax abatements.[10]

Further, two bills passed in 2023 excluding renewable energy and energy storage facilities from state grant programs for dispatchable energy and payments for reserves on standby.[11] Supporters of this policy shift suggest it reintroduces a level economic playing field and eliminates needless regulation, following Texas' history of prioritizing free market outcomes for the state's economy.[12]

Pending Legislation

Pending legislation could further disincentivize renewable energy development, undermining claims of creating a level playing field. In March 2025, the Texas Senate passed SB 388 requiring half of all new power capacity come from dispatchable sources, excluding batteries, essentially functioning as a "reverse RPS." Whether it will pass into law is uncertain, as it would raise energy costs and limit development at a time when demand is rapidly increasing in Texas. [13,14]

SB 819, also pending, would require renewable energy projects 10 MW or larger to obtain a permit from the Public Utilities Commission of Texas (PUCT) to interconnect with transmission, but does not provide objective criteria the PUCT should use for permitting decisions. The bill would also amend Chapter 312 of the State Tax Code to prohibit taxing authorities from entering into agreements granting property tax abatements to renewables projects larger than 10 MW.[15]

Framework

Individual Agreements		
Land Owner Lease Payment	✓	Landowner payments are a major source of revenue for landowners throughout Texas and helped raise property values (and thus property taxes) in some regions
Community Agreements		
Local Employment Agreements	✗	Not typically used in Texas
Community Agreements	✗	Not typically used in Texas
Road Agreements	✓	Commonly negotiated as part of landowner lease agreements
Electric Bill Offset Agreements	✗	Not used in Texas
Tax Structures		
State and Local Taxes	✗	State and Local Sales Tax policies do not appear to be driving development or community benefits in Texas
Property Taxes	+	Exemption and replacement PILOT agreements were common prior to the sunsetting of Chapter 313 and helped drive the rapid growth of wind energy and tax bases in west Texas
PILOTs	+	Many renewables projects negotiated PILOTs prior to the sunsetting of Chapter 313 and some PILOT agreements remain active

✓ Often Used + Sometimes Used − Rarely Used ✗ Not Used

Use and Impact of Mechanisms

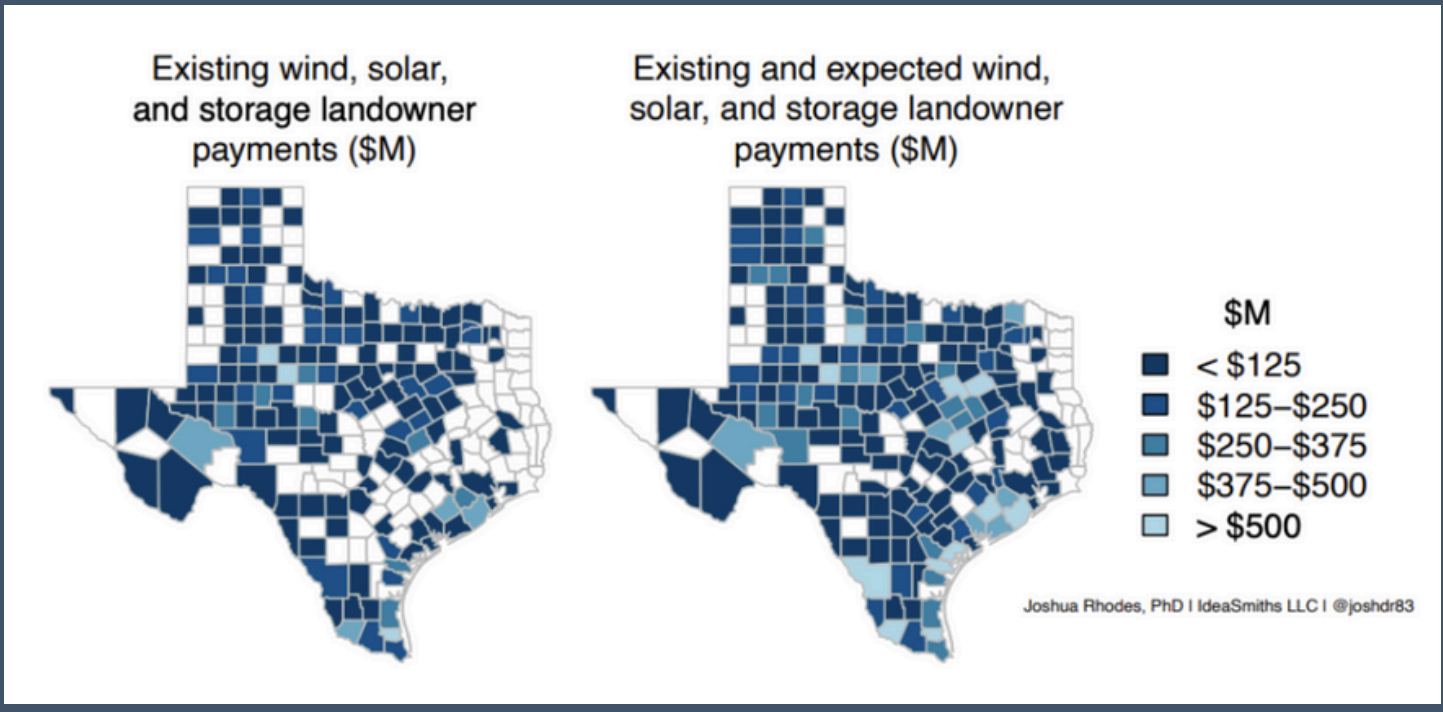
Texas is known for its free market approach. Fittingly, few mechanisms are used frequently across the state. Those that are – landowner agreements and exempt and replacement tax schemes – are enabled by state policy but directed by local decision making.

Landowner Agreements

Direct landowner payments have functioned as one of the primary mechanisms through which renewable energy development has provided community benefits to rural Texans. It is estimated that utility-scale wind, solar, and energy storage projects operational as of 2024 will provide landowners $15.1 billion in direct payments over their lifetime. If all projects with signed interconnection agreements are built, Texas landowners would receive an additional $14.4 billion. The vast majority of these payments come from wind projects given their magnitude across the state. [16]

Lease agreements typically last 30 to 40 years with 10-year extensions, with compensation based on the number of turbines. The per turbine payments vary based on geography, other land uses, and necessary site infrastructure. Projects that are closer to load centers and whose production aligns with peak demand receive the highest rates. These contracts often leave land available for farming and raising livestock while the wind farm is operational, with landowners receiving more money when there is less remaining infrastructure on the property.[17] Landowners may also receive development fees, option period payments, road construction fees, transmission line rights-of-way payments, sitting fees, decommissioning bonds, and attorney fee coverage. Lease agreements also account for mineral and water rights that contribute to higher property values. [18]

Figure 1: Projected landowner payments by county for existing renewables facilities (left) plus expected facilities (right)



Source: Rhodes

Case Study: Nolan County

Nolan County Courthouse via co.nolan.tx.us

Nolan County, with a population of just 15,000, has more than 2,400 MW of wind capacity, the highest in the state, and showcases the significant potential landowner payments can make.[19] Landowners typically receive annual lease payments of about $13,000 to $15,000 per turbine, depending on size. Some landowners have 30 to 50 turbines installed on their property, meaning their potential annual earnings could amount to anywhere from $390,000 to $750,000.[20] These revenues have driven an increase in the taxable property value in the county from just $608 million in 1998 to $2.2 billion in 2018. [21,22]

While these payments directly support landowners in Nolan County, local representatives highlighted several broader economic benefits to the community as well. Each project brought 300 to 400 construction workers, leading to a significant increase in local economic activity and hotel occupancy. County school districts built new facilities because taxable property values from the wind farms dramatically expanded the county's tax base and reduced taxes for the rest of the community. The wind industry's strong presence attracted solar, battery storage, and data center development that could greatly benefit the community in the future. One of the representatives also mentioned the immense social and cultural importance of these benefits from renewable development in their community, largely because it has kept "century farms" (i.e., multi-generational family farms) operational during severe droughts and other economically challenging times. Still, they noted a challenging environment for development in the future, based on transmission limitations, blade recycling conflicts, and SB 819's restrictions.[23]

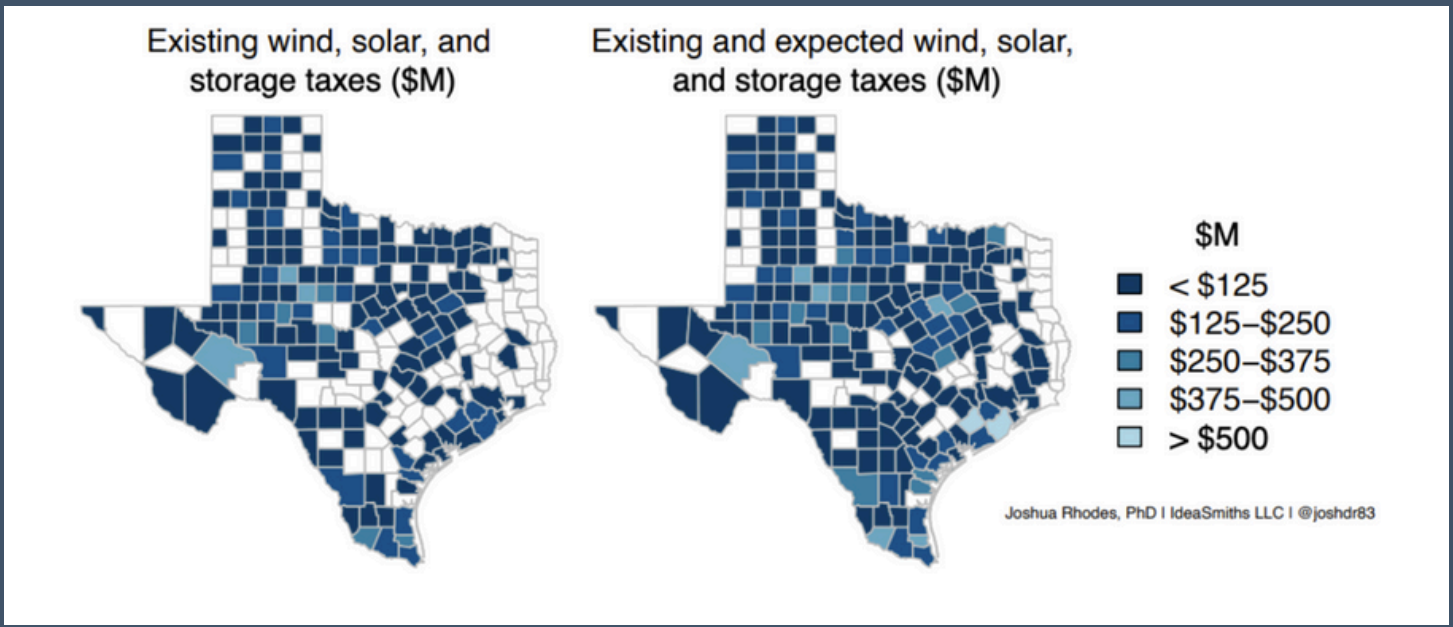
Local Tax Code - Property Tax Abatements

Chapter 312 allows municipalities and counties to set "reinvestment zones" where renewable projects, among others, can receive a tax abatement.[24] Chapter 313 allowed school districts to offer a temporary 10-year limit on the taxable value of certain new investment projects, including renewable energy.[25,26] Specifically, Chapter 313 permitted school districts to enter into agreements with developers that limit the appraisal value of projects for the first 10 years of its life, limiting the maintenance and operations (M&O) taxes it pays over that time. School district taxes account for 54% of all property taxes levied at the local level. Of that, M&O accounts for 80% of the school district's levy, or roughly 43% of all local property tax collections.[27] Chapter 313 did not remove property from the tax rolls, but rather delayed the time before new investments entered the tax base at full value. Since the legislature allowed the law to sunset, development has continued apace, providing additional tax benefits to communities and suggesting the state incentives may no longer be needed as costs have fallen and federal incentives have grown.

This is especially valuable because property taxes are the largest tax on Texas' businesses.[28]

In practice, Chapter 313 has provided significant benefits for communities with renewable development. Based on 2024 data, current utility-scale wind, solar, and energy storage projects in Texas would generate about $12.3 billion in new tax revenue for local communities. Proposed projects, if built, would pay an additional $7.9 billion to local residents in total tax revenue for the 30 to 40 year lifetime of these plants. This accounts for projects that receive the Chapter 313 abatement and those that began operating or received an interconnection agreement after it expired in 2022.[29] As a point of comparison, the State Comptroller estimated that, as of 2019, there were over 500 executed Chapter 313 agreements that had brought in a total of over $134 billion in new investment to Texas. Additionally, the program itself directly led to over 9,000 qualifying jobs (not including construction and contractors), and indirectly supported over 56,000 jobs and $2.5 billion in personal income to the state.[30]

Figure 2: Projected tax revenue by county from existing renewables facilities (left) plus expected facilities (right)



Source: Rhodes

The large economic benefits from solar and wind production have boosted their popularity in many parts of rural Texas. Texas residents are extremely familiar with energy infrastructure and the energy industry writ large, and tend to be agnostic to the type of energy being produced if it supports local economies and regional development. The lack of state income tax expands the economic impacts—and thus public perception—of the Chapter 313 tax abatements (given that property taxes are larger to make up the difference). Given that these property taxes are assigned to municipalities and counties, their revenues stay at the local level. This, in turn, has improved the general sentiment around renewable development at the local level, where projects and their tax benefits are more directly visible to residents.[31] Local officials in these rural counties have generally been open to sharing the local economic benefits these projects have created in their communities, regardless of political affiliation.[32]

Despite rural communities' support of renewable development, political backlash at the state level has manifested itself in the form of pending bills such as SB 388 and SB 819. This appears to be driven by suburbanite populations that have more recently purchased rural land tend to be more concerned with the aesthetic impacts of development.[33] Similarly, Chapter 313 in particular has been criticized as a "corporate handout" and heavily regionally focused. Notably, about two-thirds of the projects initiated through Chapter 313 are located only in 14 of Texas' 254 counties.[34]

Payment in Lieu of Taxes (PILOTs)

Another key component of Chapter 313 was the option for developers to make PILOT payments. Once the State Comptroller approves the project, the developer must ensure the school district does not lose out on state aid as a result of the tax abatement. Typically, the school district targeted a recovery of 40% of the tax savings of the project through PILOTs, and many agreements included requirements for the project to pay additional "supplemental payments," or PILOTs, equivalent to either $100 per student or $50,000 annually for 15 years.[35]

Oldham County has been heavily influenced by these tax abatements. Most of the land in the county has an agricultural exemption, which historically limited the tax revenue available for the four local school districts to collect for road maintenance and education. The county had been dependent on oil and gas revenues, accounting for up to 20% of its operating budget. The wind industry has grown rapidly in Oldham County, though, and now accounts for 50% of the county's budget.[36] Before the wind industry, the county's tax base was about $248 million. By 2019, the tax base had increased to $342 million as wind facilities reached the end of their Chapter 313 exemption. The five wind facilities still receiving Chapter 313 abatement provide the county with $790,000 in annual PILOTs. In total, the wind facilities add $2.5 million in annual to the county's budget, providing more stable revenue and allowing them to reduce taxes for residents and support new facilities across the school districts.[37]

Texas in Comparison

Texas is unique in the U.S. for its relatively lax regulatory approach. While the state is known for fossil fuel production, this has also left the door open for a boom in wind, solar, and battery deployment over the past decade as the costs of these technologies have fallen dramatically. Because of this, counties across the state - particularly rural counties - have benefited from lease payments, increased property values, and PILOT payments which have gone directly to school districts.

This approach stands in contrast to a state like California, another leader in renewable energy deployment, which relies more on state mandated (or heavily incentivized) agreements between developers and local constituents to guarantee benefits go to communities.

This approach may protect Californians, but developers have had challenges identifying the right community groups to negotiate with, and complicated legal requirements have slowed down development (and the associated economic benefits).

Conclusion

Texas offers important insights for those seeking to ensure renewable energy projects are built and that communities receive their fair share of the benefits. A free market-orientation has led to relatively fast interconnection for new energy projects, while direct landowner payments and technology agnostic tax abatements have secured buy-in from energy producing landowners and communities. These communities are benefitting from the boom in wind, solar, and battery deployment. Importantly, they are aware of the direct benefits renewable energy has brought to their communities. While there are state legislators seeking to prop up fossil fuels, the communities that are actually hosting energy projects do not appear to support these efforts. In the end, the local buy-in may prevent harmful laws from taking place and may support continued clean energy development.

Comparative Analyses

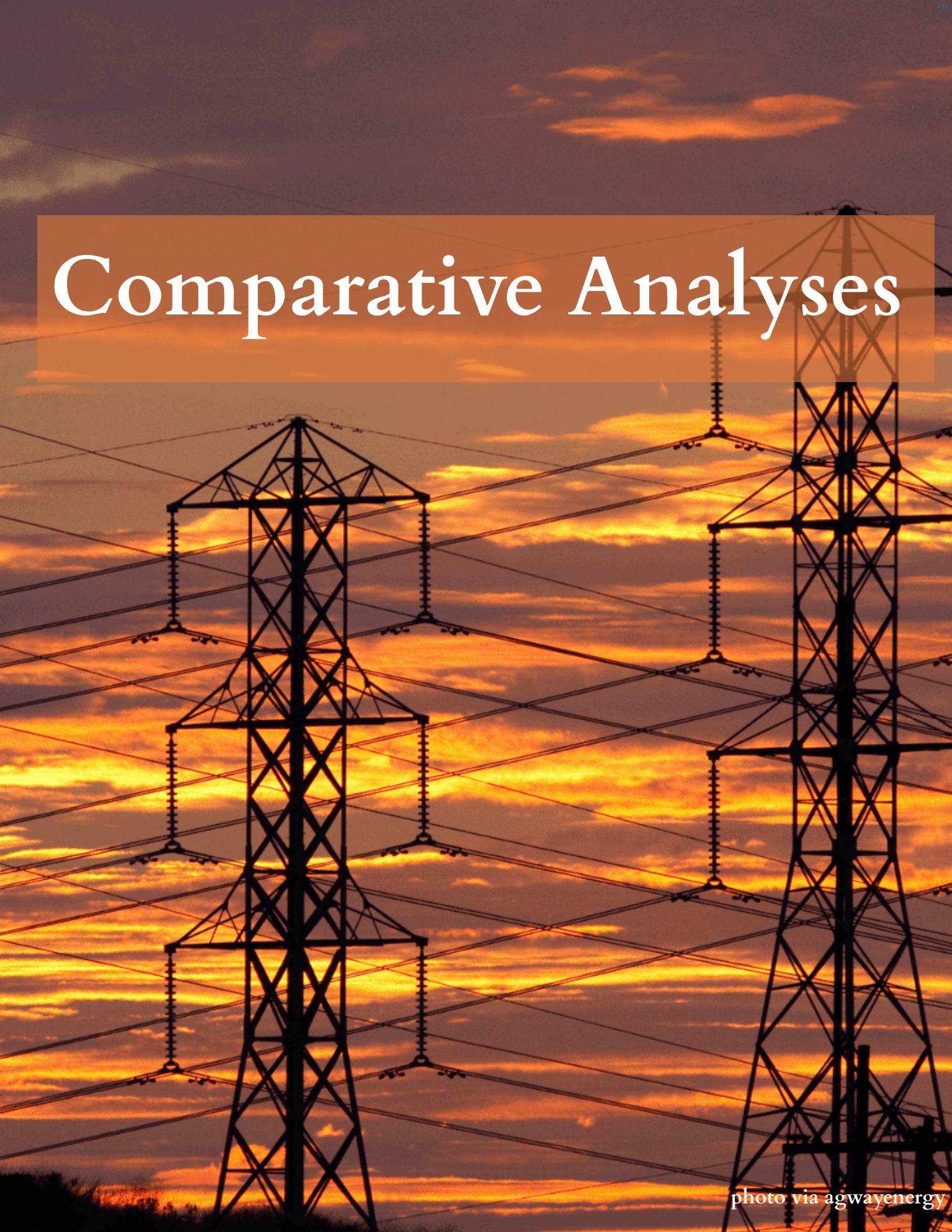


photo via agwayenergy

INDIVIDUAL LANDOWNER PAYMENTS

Introduction
Landowner payments directly benefit members of the community who own land, and indirectly support the broader community as an addition to the tax base. Landowner payments are made in almost all cases where private land is used to build. Texas and Michigan offer an interesting comparison in the way they have used these payments to provide benefits, and in the way they have shaped public opinion. Importantly, these states vary in terms of the policy structure, public perception, and economic impact from these types of deals and the subsequent development.

Comparison
Landowner payments have been used for solar, wind, and battery storage in both states. In Texas, wind makes up the vast majority of landowner leasing revenues, given the maturity of the industry and the size of the projects.[1] Precise figures for comparison are not available in Michigan.

Based on existing data, it is also likely that, in general, lease payments to landowners in Texas are greater per turbine than to landowners in Michigan. Discussions with local Texas landowner representatives estimated that landowners typically receive about $13,000 to $15,000 per turbine, whereas in Michigan it is closer to $8,000 per turbine.[2,3] From conversations with local representatives in Texas, the high revenues are largely the result of geography, a project's proximity to load centers, and the many conditions regarding land rights that could factor into the land's value and subsequently the overall compensation.[4] The factors contributing to revenue in Michigan are similar, largely dependent on potential production and the amount of infrastructure co-located on the property.[5]

In terms of applicable land, there are virtually no restrictions to where, or with which landowners developers can enter into an agreement to develop renewable energy currently.

Importantly, many landowner payments in Texas, especially on ranches or farms, have provisions to leave the land available for farming crops and raising livestock both after construction and during operation of the wind farm.[6] In the future, this will depend on the passage of pending legislation that could increase regulation on renewable generation.[7] Solar projects in Michigan, however, can benefit from Public Act 230 which allows farmers to lease their farmland and open spaces to project developers, while still retaining the right to stay in the Farmland and Open Space Preservation Program and receiving the additional tax incentives that come with it.[8]

Public perception also varies between Texas and Michigan. As detailed in Section 5.7, Texas' rural residents have generally supported renewable energy development from the onset, viewing it as another form of energy infrastructure in a state where energy production and extraction is commonplace. This public sentiment coincides with a state culture of limited regulation and free market activity that supported the rapid development of a renewable energy industry. In terms of local impact, conversations with local representatives highlighted how landowner payments are more easily understood and translated into local economic benefits, whether in the form of bringing construction jobs that fuel economic activity, building up public infrastructure and funding public goods, or attracting new industries to the region. [9] Landowners from all regions of the state are hosting renewable energy infrastructure, and evidence suggests that these economic benefits are easily seen and realized. Still, resistance to renewables is growing, largely in parts of East Texas, and wealthier landowners generally see a lower marginal benefit from landowner payments as compared to mitigating the concerns of local residents.[10]

The public was slower to accept energy development in parts of Michigan, as we have documented in many agriculturally-oriented regions.

Because of this, the impact of landowner payments on public perception may be larger, and in some cases residents have explicitly cited these payments as a reason for their support. For example, the Isabella County Wind Project is expected to pay a total of $100 million in lease payments to almost 400 farmers and landowners who lease their land for its construction.[11] It was only after engaging with farmers who had already leased land to wind developers and began receiving the steady revenue stream that these landowners supported the project's development.[12] Still, there are cases where renewable development actually pushed the outcome into the opposite direction.

PROPERTY TAXES

Introduction

In many jurisdictions across the country, property taxes are one of the biggest drivers of benefits from renewable energy projects to the host community. Because of this, property tax policies exert influence on the level of development and the trade-offs faced by developers and local officials during negotiations. The variation in approaches taken by states to assessing energy projects, abating or exempting property taxes, and the suite of other taxes levied results in different trade-offs for developers and communities. In this section, we examine how some of these differences intersect and the implications for the benefits communities receive.

Valuation Approaches

Past reports and several of our interviewees agreed that local assessors have historically struggled to value solar and wind farms, as these are relatively new types of property in many regions.[1,2,3,4] Recently, states have begun developing standardized methodologies to help solve this problem. There are two primary approaches the states in this analysis use to value tangible personal or real property, the classification most states assign to renewable energy projects. [5] The Comparable Sales approach is a third, less common method, valuing a property based on the sale price of similar properties.[6] Because it is not widely used, we do not discuss it in detail.

The most common is the Cost Approach, used for example by Michigan and Ohio, in which value is based on the estimated cost to reproduce or replace property minus depreciation that has occurred.[7] The value is thus highly dependent on the rate you assume property depreciates and how you value its cost. This is particularly relevant with solar and wind, as the costs have fallen dramatically in the past decade - should assessors use the cost that was paid when the project was built, or what it would cost today? Further, the slower a project depreciates, the higher its present value. When Michigan amended their valuation approach for solar projects in 2021, they used a slower rate of depreciation, which led to assessments equivalent to a levelized rate of $12,700 per MW nameplate capacity.[8] This is notably higher than neighboring states like Ohio and Wisconsin, and lowers incentives for local officials to negotiate with developers.[9] The second method, the Income Approach, estimates future revenues and expenses, and discounts their value to the present. This type of Discounted Cash Flow (DCF) modeling is common in equity markets or Mergers & Acquisitions, but is challenging with renewable energy projects because each project has different costs, expected energy production, and energy prices. New York adopted this method with Property Tax Law ("RPTL") § 575-b in 2021[10] and has provided a valuation toolkit to municipalities and developers.[11] New York further complicates their property tax assessments by offering a 15-year exemption (through RPTL § 487), but allowing individual jurisdictions to opt out of this exemption or to negotiate PILOTs with developers.[12]Table 1 summarizes the valuation methods used by the states analyzed in this report.

These choices impact the role of property taxes vis a vis other Community Benefit Mechanisms. Although Michigan and New York both allow communities and developers to negotiate PILOTs in replacement of property taxes, they are only commonly used in New York. Michigan mandates a $7,000 / MW PILOT rate, which is unappealing to local governments given they could collect relatively high property taxes. [13]

photo via Catrina Rawson

Table 1: Property Tax Analysis for Select States[15,16]

State	Valuation Method	Relevant Legislation	Solar Type	Wind Type	Details
California	Comparable Sales	Code of Regulations, Title 18	Abatement	No special treatment	The added value from a solar facility is exempt from property taxes
Michigan	Cost	MCL § 460.1131	Exemption and Replacement*	No special treatment	Local governments have the option to grant tax exemptions in exchange for a PILOT agreement
Nevada	Cost	NRS § 701A.200, NRS 701A.360-390	Abatement	Abatement	Projects receive 55% property tax abatement through RETA
New Mexico	Comparable Sales or Income	NM Stat § 7-36-15	No special treatment	No special treatment	New Mexico allows for a combination of valuation methods to be used, with Comparable Sales considered the best option
New York	Income	NY RPTL §487	Exemption and Replacement*	Exemption and Replacement*	New York, PILOT payments are negotiable and can range from a full exemption to a cap equivalent to the advalorem value.
Ohio	Cost	ORC §5709.53, ORC §5727.75	Exemption and Replacement*	Exemption and Replacement*	Facilities greater than 250 kW can negotiate PILOTs to replace property tax
Texas	Cost	Chapter 312, Chapter 313 (sunset), Texas Tax Code 11.27	No special treatment	Abatement or Exemption*	Chapter 313 was not specific to renewables and offered an exemption with a PILOT (sunset); Senate Bill 419 would extend the useful life used in appraisal calculations from 10 years to no less than 35 years.
Sunset Year	N/A	2028	N/A		2022

*Involves local government control

New York, on the other hand, allows the assessed value of renewable energy projects and negotiated PILOT rates to fluctuate depending on the energy potential and costs of an area. NYSERDA estimated a fair PILOT payment would be between $1,700 - $11,100 per MW[14], reflecting both the benefit of not setting a single state-wide rate - there are some areas where PILOTs are worth much more than others - and the challenge local governments face when trying to understand the broad landscape and how their town or county fits into it. The role of PILOTs, and thus the implications of this dynamic, are discussed in more detail in the following Section of the report.

Property Taxes & Development Incentives

The role that property taxes play – both in terms of funding the local government and as a tool for incentivizing development – is also variable. In low income-tax states like Texas, property taxes play an outsized role in funding government services. Because of this, approaches that locally retain a larger share of revenue can be even more impactful. This may explain the broad popularity of the Chapter 312 and 313 tax abatements (prior to Chapter 313's sunset date), which brought PILOT revenues and large amounts of development to rural Texas. [17]

On the flip side, the added value of a solar system has been exempt from California property taxes for so long that the state has not, to our knowledge, developed a uniform valuation methodology. Municipalities have relied on developer fees or local use taxes to make up the difference[18], but local revenues in California per unit of solar generation are much lower than peers like Texas.[19] There is a balancing act between incentivizing development with lower taxes and collecting sufficient revenue such that host communities benefit, on net, from development.

Nevada offers a different approach to this balancing act. The state has relatively low property tax rates to begin with, but offers a further 55% abatement through the Renewable Energy Tax Abatement (RETA) program. To be eligible for RETA, projects must meet local hiring requirements, pay prevailing wages, and invest at least $3 million in Nevada (for rural projects).[20] To date, this program has supported 63 projects and attracted more than $14.5 billion in investment in projects that are projected to pay $500 million in property taxes over a 20 year period, net of abatements.[21] Though it is not possible to know exactly how much development can be attributed to RETA, Nevada now has one of the most renewables-heavy grids in the country and these projects have brought significant revenues to many counties across the state.

Conclusion

The methods states use to assess and tax the value of renewable energy projects vary by state, and these dynamics help explain why property taxes are relatively more or less important drivers of development and local revenue in some jurisdictions. It is also important to consider the intersection between property taxes and other state policies, as this affects the paradigm in which developers and local governments negotiate over other Benefit Mechanisms such as Community Agreements or PILOTs.

PILOTS

Introduction

Payment in Lieu of Taxes (PILOTs) have grown in popularity for renewable energy projects across several states in the US. While all PILOT programs share the same overarching goal - directing payments from developers to local communities - the structure and implementation of the programs vary between states. Among our states of interest, Michigan, Ohio, New York, and Texas have employed PILOT programs.

Table 1 provides details on how each PILOT program functions, with variance across duration, where decision making authority resides, and typical payment levels. For a more in-depth analysis on the role of PILOTs in renewable energy development, see Appendix C.

Local vs. State Decision Making

PILOT rates are legislatively set in Michigan, Ohio, and Texas (prior to the sunset of Chapter 313), but are negotiated on a per project basis by Industrial Development Agencies (IDAs) in New York (see Section 5 for more detail). New York's Solar PILOT calculator also enables transparency for both the developer and localities while giving local governments a degree of control in rate setting.[7] Though New York's property tax law exempts the value of solar facilities from taxation, IDAs can choose to opt out of that default, giving them negotiating leverage.

Michigan introduced PILOTs for solar facilities in 2023 through the Solar Energy Taxation Act. The bill specifies that PILOTs for eligible facilities are a 20-year replacement of property taxes at a rate of $7,000 per MW nameplate capacity; the rate is reduced to $2,000 / MW for projects located on brownfields or opportunity zones.[8] In Ohio, Senate Bill 232, passed in 2010, outlined eligibility criteria for Qualified Energy Properties (QEP)[9] which can then make PILOT payments in place of property taxes. As in Michigan, this enabling legislation established the per MW rate; in Ohio, QEPs pay a minimum of $7,000 / MW. Unlike Michigan, counties do have some power to negotiate, and can request up to $2,000 per MW more from developers. SB 232 also allows other clean energy projects, including wind, to pay a fixed amount of $6,000–$9,000 per MW. [10]

In Texas, developers are responsible for ensuring school districts do not lose state aid if their Chapter 313 tax abatements are approved. School districts typically try to recover 40% of the abated revenue through PILOTs, and typically receive payments of either $100 per student or $50,000 annually for 15 years.[11]

Table 1. PILOT Analysis for Select States

	New York [1]	Ohio[2]	Michigan[3]	Texas[4]
Legislation	RPTL § 487	SB 232	Public Laws 108 and 109	Chapter 313
Base Rate	Negotiated per project	$7,000/MW	$7,000/MW; $2,000k/MW for facilities in opportunity zones [5]	$100 per student, or a total of $50,000 annually
Rate Setting Entity	IDA negotiates	State	State	State
Approving Body	A taxing jurisdiction	Local Commission	State Commission	State Comptroller
Term	15 Years	Project Life	20 Years	10 - 15 Years
Introduced In	Passed in 1977; re-enacted in 1990 and 2014 [6]	2010	2023	2001
Sunset Year	N/A	2028	N/A	2022

Uptake

Although legislation in Michigan and Ohio set similar payment rates for PILOTs, uptake in Ohio has been significantly higher than in Michigan. This may be explained in part by the recency of Michigan's legislation, but appears to be primarily driven by the interaction between these rates, the property taxes PILOTs would replace, and how revenues are distributed.

Michigan's methodology for assessing property taxes on solar farms assumes much slower depreciation, resulting in much higher taxes. The Michigan State Tax Commission estimated property taxes were equivalent to more than $12,000 / MW, compared to $4,000 to $9,000 per MW in Ohio.[12] Because of this, local officials in Michigan have little reason to accept a proposed PILOT agreement, and it may be seen as a "tax break" that favors the developer.[13] In Ohio, not only is the base rate relatively more favorable, but counties can negotiate for an additional $2,000 / MW. These additional revenues go directly to the county, rather than being distributed among the state and other counties.[14] This appears to be driving their popularity in Ohio.

In New York, PILOTs are also quite popular. Using New York's Open Data,[15] we estimate there were 281 PILOTs for clean energy projects valued at $7.8 billion as of the end of 2023. While not every county or project negotiates a PILOT, they are frequently used to incentivize energy development.

Texas' Chapter 313 which enabled PILOTs sunset in 2022, though there are still many projects with active PILOT agreements. Prior to the law sunsetting, PILOTs had been an incredibly popular tool to bring wind farms to west Texas.

The State Comptroller estimated that, as of 2019, there were over 500 executed Chapter 313 agreements that had brought in a total of over $134 billion in new investment to Texas.[16]

Impact

In three of the four states, PILOTs have been broadly popular, allowing us to examine their impact. Local communities appear to be benefiting more from PILOTs in Ohio and Texas than in New York. The 281 PILOTs we identified for clean energy projects in New York provided exemptions from $76.2 million in taxes and would pay only $11.0 million. Though these projects are estimated to have created 232 jobs, there seems to be a significant gap between the size of the exemptions and the PILOT revenues that replace them. It is not clear what is driving this dynamic, but competition among IDAs to attract businesses could play a role.

This gap between exempted taxes and replacement payments is, among the states we analyzed, unique to New York. In Ohio and Texas, PILOTs roughly met or exceeded the property taxes they replaced and have benefitted the local communities. In Ohio, Paulding County offers an illustrative example. One of the early adopters of wind farms, the county has been receiving PILOTs since 2013. To date, developers have invested more than $1 billion in 5 large wind farms and made more than $40 million in PILOT payments to the county.[17] Similarly, in Texas, regions like Oldham County that have hosted wind farms for several years have been positively impacted. Oldham had been dependent on oil and gas revenues, but the wind industry helped the county grow its tax base from $248 million to $342 million during the 2010's. The five wind facilities still receiving abatements provide the county with $790,000 in annual PILOTs.[18]

Conclusion

Rana via Pexels

AREAS FOR FUTURE RESEARCH

Topics for Further Research

This report has analyzed a broad range of community benefit mechanisms across seven states, each of which plays a key role in the energy transition. Below, we highlight topics we believe would be most impactful to examine as an extension of this report.

The Impact of Development Incentives

In Section 5, our analysis of each state's tax policies outlined the existing landscape and the impacts of Payment in Lieu of Tax programs, property tax abatements or exemptions, and related sales and use tax policies. Future research could more thoroughly analyze how PILOT revenues compare to the property tax revenues they replace and examine how assumptions of future inflation affect these trade-offs. Deeper analysis on the impacts of a broader range of sales and use tax policies would also be informative, particularly on the distribution of revenues between the state, county, and local levels.

Public Acceptance

One thread this report has followed is the extent to which some mechanisms can raise public buy-in for projects among the local community. We expect things like community engagement and transparency to garner support based on surveys and anecdotal evidence, but lack sufficient data to rigorously analyze their impact or to understand when and why they work. For example, PILOTs are popular in Ohio among those who know of them, but most of the general public does not know PILOTs are being negotiated. In California, negotiations for community agreements sometimes built support among and benefits for the public, but failed in other cases. Nevada requires fiscal information be posted publicly, but it is not clear the public knows about or reads it. More research is needed to understand these dynamics.

The Impact of Land Ownership

Several states we examined, particularly in the southwest, had a large concentration of federal, state, and Tribal lands. This complicates both the project approval process, as well as analysis to understand the collection and distribution of tax and leasing revenues. Further research is needed to unpack these dynamics, as well as their intersection with public acceptance.

Long Term Follow Up

The deployment of renewable energy has prompted many new policies in recent years. While these policies offer the potential to improve energy deployment, there is not yet sufficient data to rigorously analyze their impact. To name a few, California's AB 205, Michigan's PA 233 and Renewables Ready Community Awards program, and New York's Accelerated Act and associated Host Community Benefit Program are deserving of follow up analysis.

Expand to Additional States

The states we analyzed in this report are playing or expected to play a key role in the country's energy transition, and provide diversity of policies, geographies, and community attitudes. Although this helps make them a broadly representative set of states, applying this framework and approach in other states would be a useful exercise for analysts and policymakers.

CONCLUSION

Renewable energy projects, particularly utility scale solar, wind, and battery storage, are being built across the U.S. at record pace. In order to maintain these rates of deployment and to ensure the energy transition is conducted with justice for local communities, it is critical to understand whether and how the benefits of these projects are shared with the hosting communities. In this report, we have utilized a combination of desk research, interviews with experts on clean energy policy and deployment, and our own original analysis to better understand the landscape of existing policy and non-policy community benefit mechanisms and categorize them in a community benefits framework (Section 4). We then analyzed how these mechanisms are used – or not used – across seven U.S. states which differed in terms of geography, politics, and the magnitude of renewable energy deployment (Section 5).

Among the seven states we analyzed, there was a wide range in the policy landscapes, local experiences and familiarity with energy development, cultural norms, and public support for renewable energy. The mechanisms we examined can all provide community benefits, but each state relied primarily on a different subset of them to incentivize or mandate engagement between developers and communities. Across every state, we found that policies or mechanisms that were calibrated to the broader policy landscape and local values were most successful in enabling development while ensuring communities received significant benefits. For example, the Renewables Ready Community Awards program in Michigan provided meaningful incentives to communities for enabling wind and solar development projects, Nevada's Renewable Energy Tax Abatement program balances tax abatements for developers with local hiring and prevailing wage requirements, and Texas' free-market ethos allowed individual landowners to negotiate land leases to developers rapidly and at scale. In each case, the mechanism is well suited to its context.

This report is provided to Clean Tomorrow in an effort to provide insights into how various mechanisms compare in their ability to provide benefits and drive public opinion, and how policies and results vary between states. Going forward, this information can be useful to policymakers seeking to understand the policy menu and how certain tools can be used to improve clean energy and community outcomes.

Appendix

alyoshine via Pixabay

APPENDIX A: INTERVIEWEES

Interviewee(s)	Organization	Interview Date
Matthew Eisenson	Sabin Center for Climate Change Law at Columbia University	2/26/2025
Sarah Mills	Graham Sustainability Institute at University of Michigan	3/7/2025
Adam Zurofsky	Columbia School of International and Public Affairs	3/11/2025
Madeline Schomburg	EFI Foundation	2/27/2025
Daniel Giuffrida	Columbia School of Professional Studies and Plankton Energy	3/11/2025
Daniel Raimi	Resources for the Future and University of Michigan	3/6/2025
Jael Holzman	Heatmap News	4/9/2025
Marisa Sotolongo	Formerly at Initiative For Energy Justice	4/9/2025
Katherine Hoff	University of California, Berkley Law Center for Law, Energy, & the Environment	4/8/2025
Joshua Rhodes	Univeristy of Texas at Austin and Center on Global Energy Policy	3/27/2025
Brent Soghen	Ohio State University	4/3/2025
Christoper Coll, Arturo Lua Castillo	NY Department of Public Service	4/9/2025
Shayna Fritz	Energy Forum	4/2/2025
Yuting Yang	New Mexico University	4/2/2025
Miesha Adames	Sweetwater Enterprise for Economic Development	4/8/2025
Jesse Harlow, Sarah Mulkoff, April Stow	Michigan Public Service Comission	4/9/2025
Madeleine Krol	Graham Sustainability Institute at University of Michigan	4/10/2025
Eli Gold	5 Lakes Energy	4/18/2025
Bill Pursel	Knox County comissioner	4/7/2025
Darcy Wheeles	ArkSpring Consulting	4/11/2025
Ian O'Leary	Michigan Department of Environment, Great Lakes, and Energy	4/16/2025
Chris Sanchez	New Mexico Public Regulatory Commission	4/11/2025
Terry Watt	Univeristy of California, Berkeley and Terrell Watt Planning Consultants	4/18/2025

APPENDIX B: IDAS IN NY

Authority Name	Renewables Projects	Total Projects	Percent Renewable
Albany County Industrial Development Agency	1	10	10.0%
Allegany Industrial Development Agency	13	15	86.7%
Amherst Industrial Development Agency	1	52	1.9%
Bethlehem Industrial Development Agency	2	13	15.4%
Brookhaven Industrial Development Agency	12	104	11.5%
Broome Industrial Development Agency	1	54	1.9%
Cattaraugus Industrial Development Agency	9	50	18.0%
Cayuga Industrial Development Agency	2	11	18.2%
Chautauqua Industrial Development Agency	9	46	19.6%
Chemung Industrial Development Agency	4	48	8.3%
Chenango Industrial Development Agency	4	9	44.4%
Clifton Park Industrial Development Agency	1	12	8.3%
Clinton County Industrial Development Agency	15	31	48.4%
Colonie Industrial Development Agency	1	8	12.5%
Cortland Industrial Development Agency	5	18	27.8%
Erie County Industrial Development Agency	3	156	1.9%
Franklin County Industrial Development Agency	8	12	66.7%
Genesee County Industrial Development Agency	13	78	16.7%
Greene County Industrial Development Agency	3	14	21.4%
Hamburg Industrial Development Agency	2	36	5.6%
Herkimer Industrial Development Agency	9	25	36.0%
Islip Industrial Development Agency	2	148	1.4%
Jefferson Industrial Development Agency	16	39	41.0%
Lewis County Industrial Development Agency	12	14	85.7%
Mechanicville-Stillwater Industrial Development Agency	1	7	14.3%
Monroe Industrial Development Agency	2	358	0.6%
Montgomery County Industrial Development Agency	1	9	11.1%
Mount Pleasant Industrial Development Agency	1	12	8.3%

APPENDIX B: IDAS IN NY

Authority Name	Renewables Projects	Total Projects	Percent Renewable
New York City Industrial Development Agency	1	310	0.3%
Niagara County Industrial Development Agency	1	137	0.7%
Oneida County Industrial Development Agency	8	95	8.4%
Onondaga County Industrial Development Agency	13	75	17.3%
Ontario County Industrial Development Agency	2	54	3.7%
Orange County Industrial Development Agency	3	39	7.7%
Oswego County Industrial Development Agency	7	97	7.2%
Schenectady County Industrial Development Agency	5	20	25.0%
Schuyler County Industrial Development Agency	4	24	16.7%
Seneca County Industrial Development Agency	3	28	10.7%
St. Lawrence County Industrial Development Agency	24	42	57.1%
Steuben County Industrial Development Agency	13	62	21.0%
Suffolk County Industrial Development Agency	1	143	0.7%
Sullivan County Industrial Development Agency	7	75	9.3%
Tioga County Industrial Development Agency	1	14	7.1%
Tompkins County Industrial Development Agency	10	62	16.1%
Town of Lockport Industrial Development Agency	1	17	5.9%
Warren and Washington Counties Industrial Development Agency	1	31	3.2%
Wayne County Industrial Development Agency	7	41	17.1%
Westchester County Industrial Development Agency	2	61	3.3%
Wyoming County Industrial Development Agency	9	36	25.0%
Yates County Industrial Development Agency	5	37	13.5%
Grand Total	281	2,889	9.7%
Median IDA*	3.5	38.0	9.2%
Average Per IDA*	5.6	57.8	9.7%

*** Among IDAs with at least one clean energy project**

APPENDIX B: IDAS IN NY

Year	Project Count	Total PILOT Due	Total Net Exemptions
2016	19	$5,093,687	$16,499,928
2017	4	$1,073	$1,916,786
2018	12	$680,753	$1,366,138
2019	16	$40,819	$2,581,336
2020	41	$341,161	$14,069,186
2021	69	$4,417,927	$12,585,107
2022	61	$176,571	$9,076,954
2023	59	$262,004	$7,120,430

APPENDIX B: RRCA AWARDS IN MI

Municipality	County	Total Award Amount	Award Use Categories
City of Ecorse	Wayne	$ 1,000,000	Construct a fairgrounds
City of Trenton	Wayne	$ 1,100,000	Walking/Biking Infrastructure; Public building(s)
Lee Township	Calhoun	$ 4,040,000	Road Improvements; Police Department; Town Planning
Isabella Township	Isabella	$ 395,000	Road Improvements; Public building(s); Fire Department; Cemetery; Public Parks & Recreation
Pulawski Township	Presque Isle	$ 222,500	Public building(s); Road improvements
Ovid Township	Branch	$ 449,000	No Data
Evergreen Township	Montcalm	$ 330,000	Public building(s); Road Improvements; Fire Department
Bethel Township	Branch	$ 1,000,000	Public building(s); Road Improvements
Parma Township	Jackson	$ 625,000	Public building(s); Water infrastructure; Road improvements; Government software
Fremont Township	Saginaw	$ 600,000	Road improvements; Water infrastructure; Public building(s); Cemetery
Augusta Charter Township	Washtenaw	$ 429,050	Town planning; Road improvements
York Township	Washtenaw	$ 303,900	Road improvements; Water infrastructure; Walking/Biking Infrastructure
Moorland Township	Muskegon	$ 2,000,000	Road improvements
Coldwater Township	Branch	$ 991,250	Emergency Preparedness System; Fire Department; Police Department; Road Improvements; Public building(s); Public Parks & Recreation
Day Township	Montcalm	$ 1,500,000	Solar infrastructure
Meade Township	Huron	$ 570,000	Road improvements
Sagola Township	Dickinson	$ 106,500	Street lighting
Belknap Township	Presque Isle	$ 152,500	Public building(s)
Watertown Township	Sanilac	$ 750,000	Public Parks & Recreation
Norway Township	Dickinson	$ 252,500	Road improvements; Public Parks & Recreation; Cemetery
Marcellus Township	Cass	$ 1,000,000	Road improvements; Public building(s); Cemetery; Police Department

APPENDIX B: RRCA AWARDS IN MI

Municipality	County	Total Award Amount	Award Use Categories
Bushnell Township	Montcalm	$ 330,000	Public building(s); Fire Department; Public Parks & Recreation; Government software
Bethany Township	Gratiot	$ 250,000	Bridge Construction; Public building(s); Road improvements
Raisin Township	Lenawee	$ 400,000	Road improvements; Road improvements; Public Parks & Recreation
Hart Township	Oceana	$ 600,000	Town planning; Public building(s); Road improvements
Felch Township	Dickinson	$ 141,000	Public Parks & Recreation
Barry County	Barry	$ 297,500	Emergency Preparedness System; Public building(s); Town Planning
Isabella County	Isabella	$ 395,000	Public building(s); Fire Department; Cemetery
Presque Isle County	Presque Isle	$ 375,000	Road improvements; Public building(s)

APPENDIX B: RETA DATA & ANALYSIS

Abatement Year	AFN	Project	County*	Application	Sales Tax Filing	Property Tax Filing	Nameplate Capacity (MW)	Investment ($MM)	Total Taxes Due_Avg	Renew Abatement_Avg	Taxes After Abatement_Avg
2025	25-0312SPV	Dry Lake East Energy Center	Clark	x	x	x	400	$ 621	$ 4,438,798	$ (2,441,339)	$ 1,997,459
2024	24-0304SPV	Luning 2	Mineral	x	x	x	50	$ 80	$ 1,375,925	$ (756,759)	$ 619,166
2024	24-0305SPV	Escape Solar	Lincoln	x	x	x	185	$ 265	$ 1,835,952	$ (1,009,773)	$ 826,178
2024	24-0701SPV	Townsite Solar 2	Clark	x	x	x	35	$ 250	$ 1,042,824	$ (573,553)	$ 469,271
2024	24-0716SPV	Sierra Solar - Phase I	Churchill	x	x	x	400	$ 1,257	$ 12,939,853	$ (7,116,919)	$ 5,822,934
2024	24-0906SPV	Purple Sage Energy Center	Clark	x	x	x	400	$ 1,257	$ 7,569,774	$ (4,163,376)	$ 3,406,398
2024	24-1108SPV	PanWest NCA2 Solar	Clark	x	x	x	400	$ 1,257	$ 1,074,401	$ (590,920)	$ 483,480
2023	23-0920SPV	Yellow Pine Solar II	Clark	x	x	x	125	$ 361	$ 490,058	$ (269,532)	$ 220,526
2022	22-0302SPV	Iron Point Solar	Humboldt	x	x	x	325	$ 420	$ 2,903,177	$ (1,596,747)	$ 1,306,430
2022	22-0815SPV	TS Solar	Eureka	x	x	x	200	$ 183	$ 1,132,993	$ (623,146)	$ 509,847
2022	22-1201G	Beowawe Repower Project	Lander	x	x	x	21	$ 40	$ 662,735	$ (364,504)	$ 298,231
2021	21-0617G	North Valley Power	Washoe	x	x	x	40	$ 94	$ 732,219	$ (402,721)	$ 329,499
2021	21-0809SPV	Boulder Flats Solar	Clark	x	x	x	113	$ 110	$ 289,700	$ (159,335)	$ 130,365
2021	21-0820SPV	Arrow Canyon Solar	Clark	x	x	-	275	$ 385	No Data		
2020	20-0504SPV	Dodge Flat Solar	Washoe	x	x	x	200	$ 282	$ 525,201	$ (288,860)	$ 236,340

APPENDIX B: RETA DATA & ANALYSIS

Abatement Year	AFN	Project	County*	Application	Sales Tax Filing	Property Tax Filing	Nameplate Capacity (MW)	Investment ($MM)	Total Taxes Due_Avg	Renew Abatement_Avg	Taxes After Abatement_Avg
2020	20-0521SPV	Townsite Solar	Clark	x	x	x	180	$ 210	$ 1,038,369	$ (571,103)	$ 467,266
2020	20-0618SPV	Fish Springs Ranch Solar	Washoe	x	x	x	100	$ 27	$ 231,412	$ (127,277)	$ 104,136
2020	20-0616SPV	Eagle Shadow Mountain	Clark	x	x	-	300	$ 339	No Data		
2020	20-0624SPV	TS Solar I	Eureka	x	x	x	100	$ 76	$ 442,462	$ (243,354)	$ 199,108
2020	20-0629SPV	Yellow Pine Solar	Clark	x	x	x	250	$ 497	$ 406,654	$ (223,660)	$ 182,994
2020	20-0909G	Dixie Meadows	Churchill	x	x	x	20	$ 48	$ 414,434	$ (227,939)	$ 186,495
2020	20-0824SPV	Dry Lake Solar	Clark	x	x	x	100	$ 29	$ 2,174,252	$ (1,195,839)	$ 978,414
2020	20-1207SPV	Gemini Solar	Clark	x	x	x	690	$ 1,200	$ 7,103,837	$ (3,907,110)	$ 3,196,727
2020	20-0626SPV	Citadel Solar	Storey	x	x	x	100	$ 69	$ 742,004	$ (343,880)	$ 398,124
2019	19-0409SPV	Harry Allen Solar	Clark	x	x	x	100	$ 128	$ 992,878	$ (546,083)	$ 446,795
2019	19-0412SPV	Copper Mountain Solar 5	Clark	-	x	x	254	$ 224	$ 1,499,709	$ (824,840)	$ 674,869
2019	19-0618G	Steamboat	Washoe	x	x	x	33.8	$ 60	$ 810,522	$ (445,787)	$ 364,735
2019	19-0805SPV	Turquoise Nevada	Washoe	x	x	x	500	Redacted	$ 517,921	$ (284,857)	$ 233,065
2019	19-1125SPV	Battle Mountain SP	Humboldt	x	x	x	101	$ 120	$ 1,980,822	$ (1,089,452)	$ 891,370

APPENDIX C: PILOTS DEEP DIVE

Introduction

Tax revenue from energy production plays a key role in the finances of many state and local governments, and is often the primary way communities benefit from development. This brief explores differences in how each jurisdiction taxes renewable energy development and the implications for local communities. The most common approach is to assess the value of the property and equipment to be taxed at local rates accordingly (ad valorem property taxes), though Payment in Lieu of Taxes (PILOTs) have become more popular in recent years. PILOTs typically provide lower revenue in the early years of a project, but offer greater certainty and flexibility to local officials.

Purpose

PILOTs are a substitution for property taxes where the developer pays an annual fee to local government entities in accordance with state and local laws. For clean energy projects, PILOTs are typically structured as a fixed per megawatt rate based on the nameplate capacity of the project. Local governments can decide to enter or "opt-in" to a PILOT agreement with a developer of a renewable project. The legislation framework and negotiating process varies for each state but is ultimately approved by either a local or state commission. Across our states of interest, New York, Ohio, Michigan, and Texas[1] allow PILOT agreements. Table 1 outlines the structure of PILOTs across the relevant states.

Table 1. PILOT Analysis for Select States

	New York[2]	Ohio[3]	Michigan[4]	Texas[5]
Legislation	RPTL § 487	SB 232	Public Laws 108 and 109	Chapter 313
Base Rate	Negotiated per project	$7,000/MW	$7,000/MW; $2,000k/MW for facilities in opportunity zones[6]	$100 per student, or a total of $50,000 annually
Rate Setting Entity	IDA negotiates	State	State	State
Approving Body	A taxing jurisdiction	Local Commission	State Commission	State Comptroller
Term	15 Years	Project Life	20 Years	10 - 15 Years
Introduced In	Passed in 1977; re-enacted in 1990 and 2014[7]	2010	2023	2001
Sunset Year	N/A	2028	N/A	2022

[1] PILOTs are no longer used in Texas, but previous PILOT agreements are grandfathered in or exempt from newer rules or regulations

Rate Setting Process

The process for establishing and implementing a PILOT agreement varies by state. PILOT rates are legislatively set in Michigan, Ohio, and Texas (prior to the sunset of Chapter 313), but are negotiated on a per project basis by Industrial Development Agencies (IDAs) in New York (see Section 5.5 for more detail). A standardized rate is simpler for the developer and municipality, but may limit flexibility for negotiation based on local tax rates and the wind or solar potential their region offers to developers.

New York's Solar PILOT calculator also enables transparency for both the developer and localities while giving local governments a degree of control in rate setting.[8] Though New York's property tax law exempts the value of solar facilities from taxation, IDAs can choose to opt out of that default, giving them negotiating leverage. However, not all tax districts have the same capacity to negotiate PILOT agreements. Developers, because they have more information on their projects and negotiate these agreements more often than local officials, may have the upper hand in negotiations.[9] Because there is limited transparency in the per MW rates that each IDA negotiates in its PILOTs, these capacity gaps can be exacerbated and lead to challenges with setting an appropriate rate.

NYSERDA has developed a calculator to help address this ambiguity. PILOT rates should typically fall between 1-3% of the compensation a project receives,[10] though the economics of each project differ based on development and operational costs, as well as variable revenues driven by differences in insolation, transmission availability, or other factors. Table 2 shows the range of PILOT rates that fit that criteria for the average project in different regions.

Projects in ConEdison and Orange and Rockland utilities territories pay considerably higher rates than those in upstate and western New York where the renewable energy market has largely been developeds.[11] This highlights the state's focus on incentivizing benefits in regions of the state that currently lack renewable energy and variance in PILOT rates.

Table 2. NY's Solar PILOT sample rates

	Low ($/MW AC)	High ($/MW AC)
Central Hudson	$2,600	$7,600
Orange & Rockland	$3,200	$9,500
National Grid	$1,700	$5,100
NYSEG	$1,700	$5,000
Con Edison	$3,700	$11,100
Rochester Gas & Electric	$1,700	$5,000

Source: NYSERDA

Other states have set standard rates in order to streamline the process and avoid challenges with valuing and negotiating rates. Michigan introduced PILOTs for solar facilities in 2023 through the Solar Energy Taxation Act. The bill specifies that PILOTs for eligible facilities are a 20-year replacement of property taxes at a rate of $7,000 per MW nameplate capacity; the rate is reduced to $2,000 / MW for projects located on brownfields or opportunity zones.[12]

In Ohio, Senate Bill 232, passed in 2010, outlined eligibility criteria for Qualified Energy Properties (QEP)[13] which can then make PILOT payments in place of property taxes. As in Michigan, this enabling legislation established the per MW rate; in Ohio, QEPs pay a minimum of $7,000 / MW. Unlike Michigan, counties do have some power to negotiate, and can request up to $2,000 per MW more from developers.

SB 232 also allows other clean energy projects, including wind, to pay a fixed amount of $6,000–$9,000 per MW.[14]

In Texas, developers are responsible for ensuring school districts do not lose state aid if their Chapter 313 tax abatements are approved. School districts typically try to recover 40% of the abated revenue through PILOTs, and typically receive payments of either $100 per student or $50,000 annually for 15 years.[15]

Uptake

Although legislation in Michigan and Ohio set similar payment rates for PILOTs, uptake in Ohio has been significantly higher than in Michigan. This may be explained in part by the recency of Michigan's legislation, but appears to be primarily driven by the interaction between these rates, the property taxes PILOTs would replace, and how revenues are distributed.

Michigan's methodology for assessing property taxes on solar farms assumes much slower depreciation, resulting in much higher taxes. The Michigan State Tax Commission estimated property taxes were equivalent to more than $12,000 / MW, compared to $4,000 to $9,000 per MW in Ohio.[16] Because of this, local officials in Michigan have little reason to accept a proposed PILOT agreement, and it may be seen as a "tax break" that favors the developer.[17] In Ohio, not only is the base rate relatively more favorable, but counties can negotiate for an additional $2,000 / MW. These additional revenues go directly to the county, rather than being distributed among the state and other counties.[18] This appears to be driving their popularity in Ohio.

In New York, PILOTs are also quite popular. Using New York's Open Data,[19] we estimate there were 281 PILOTs for clean energy projects valued at $7.8 billion as of the end of 2023. While not every county or project negotiates a PILOT, they are frequently used to incentivize energy development.

Texas' Chapter 313 which enabled PILOTs sunset in 2022, though there are still many projects with active PILOT agreements. Prior to the law sunsetting, PILOTs had been an incredibly popular tool to bring wind farms to west Texas. The State Comptroller estimated that, as of 2019, there were over 500 executed Chapter 313 agreements that had brought in a total of over $134 billion in new investment to Texas.[20]

Impact

In three of the four states, PILOTs have been broadly popular, allowing us to examine their impact. Local communities appear to be benefiting more from PILOTs in Ohio and Texas than in New York. The 281 PILOTs we identified for clean energy projects in New York provided exemptions from $76.2 million in taxes and would pay only $11.0 million. Though these projects are estimated to have created 232 jobs, there seems to be a significant gap between the size of the exemptions and the PILOT revenues that replace them. It is not clear what is driving this dynamic, but competition among IDAs to attract businesses could play a role.

This gap between exempted taxes and replacement payments is, among the states we analyzed, unique to New York. In Ohio and Texas, PILOTs roughly met or exceeded the property taxes they replaced and have benefitted the local communities. In Ohio, Paulding County offers an illustrative example. One of the early adopters of wind farms, the county has been receiving PILOTs since 2013.

To date, developers have invested more than $1 billion in 5 large wind This gap between exempted taxes and replacement payments is, among the states we analyzed, unique to New York. In Ohio and Texas, PILOTs roughly met or exceeded the property taxes they replaced and have benefitted the local communities. In Ohio, Paulding County offers an illustrative example. One of the early adopters of wind farms, the county has been receiving PILOTs since 2013. To date, developers have invested more than $1 billion in 5 large wind farms and made more than $40 million in PILOT payments to the county.[21] Similarly, in Texas, regions like Oldham County that have hosted wind farms for several years have been positively impacted. Oldham had been dependent on oil and gas revenues, but the wind industry helped the county grow its tax base from $248 million to $342 million during the 2010's. The five wind facilities still receiving abatements provide the county with $790,000 in annual PILOTs.[22]

The Financial Benefits of PILOTs vs. Property Taxes

As an alternative to ad valorem property taxes, PILOTs offer a few advantages. The predictability of fixed PILOT payments enables better planning for each party, enabling local government agencies to plan more ambitious long-term projects and increase wages for public employees. Though property taxes may offer larger initial payments, depreciation can cause collections to decline rapidly, making it more difficult to expand services based on the initially high payments. PILOTs offer constant payment over time, helping resolve this challenge.

Further, state school aid is provided based in part on the property taxes a district collects; meaning a portion of increased property tax revenue would be offset by losses in school funding.

For example, New York's public school funding formula, known as "Foundation Aid", factors in property values to allocate the greatest amount of financial aid to districts with the least amount of wealth.[23] PILOTs, however, are excluded from this calculation, and so a larger fraction of the money stays local.[24,25]

Very large projects, particularly in regions with lower existing tax bases, can sometimes allow a town or county to lower tax rates for everyone else. For example, the Town of Cohocton in New York was able to reduce its property taxes by 60%[26] after entering a Host Community Agreement (HCA) that included PILOT payments.[27] Many states have anti-discrimination clauses in their tax code - for example, New York's Constitution Article XVI § 4[28] - preventing counties from raising tax rates on renewable energy projects in order to lower tax rates on other commercial properties. However, because PILOTs are an alternative to taxes, such laws do not apply and a county or town could broadly lower taxes without affecting the PILOT revenue. Communities greatly benefit, as existing businesses provide the same services at a reduced rate due to the decrease in tax payments. [29]

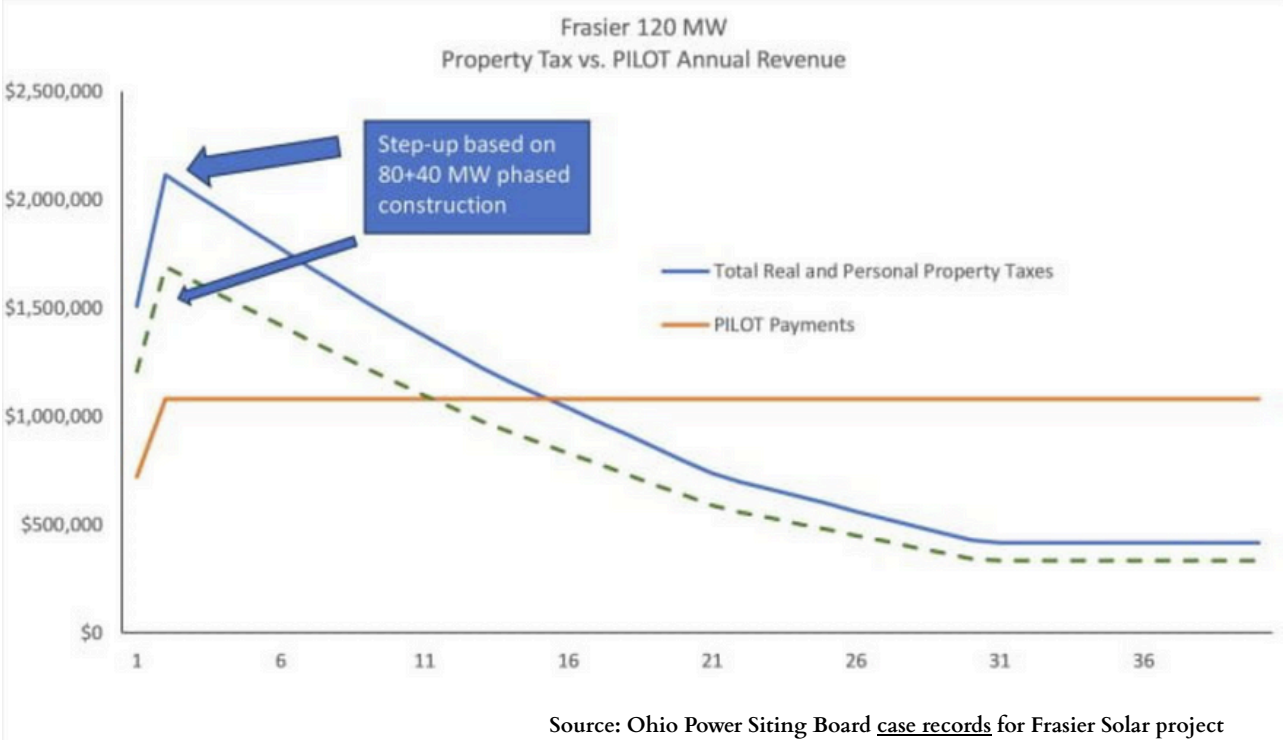
These advantages notwithstanding, it is just as important that they offer similar total economic benefits to communities. In many cases, PILOTs offer as much or more revenue than property taxes would.[30] However, assumptions regarding future inflation and discount rates can greatly impact these calculations. Public debate over the Frasier Solar project in Knox County, Ohio led to multiple analyses being publicly posted, offering a window into these differences.

Open Road Renewables (ORR) proposed the 120 MW project, spanning the Knox County townships of Clinton and Miller, in April 2024. The project would send $42.8mm to the county over the project's 40 year lifetime, which ORR calculated is $4.6mm more than property taxes would provide.[31] Figure 1 below illustrates the difference between the two revenues streams.

The Buckeye Institute, a right leaning public policy think tank, disputed this analysis, claiming that ORR did not properly discount future payments to account for the fact that $1 today is more valuable than $1 in the future. Their analysis claimed the county would lose $3.3mm by accepting PILOT payments rather than property taxes. Ohio State University professor Brent Sohngen replicated their approach but found that PILOT payments are indeed more valuable than property taxes unless an extremely high discount rate is assumed. The analysis by the Buckeye Institute does not appear replicable and they have not made their data public.

In the end, Knox County elected for a PILOT agreement after the Mount Vernon City School (MVCS) District and Knox County Career Center came out in favor of it. Superintendent Bill Sedar of MVCS stated the school district would receive additional revenue ($5.3M over 40 years) via PILOTs than with ad valorem property taxes.[33] The consideration of which payment option is most suitable is dependent on the overall plans of the county and stakeholders.
However, the back-and-forth highlights the important effect that assumed inflation and discount rates have in valuing and comparing revenues from property taxes and PILOTs. While the revenue streams from the different sources ought to be thoroughly analyzed, each county also has individual preferences that make either property tax or PILOTs the most suitable.

Figure 1. Annual Revenue Scenarios of Frasier Solar Project[32]



Source: Ohio Power Siting Board case records for Frasier Solar project

Case Study

Paulding County and Van Wert County, which share a border in the northwestern region of Ohio, are examples of the successful implementation of PILOT payments. Paulding County was an early adopter of renewable energy and has been receiving PILOT payments since 2013. PILOT payments have been the top tax revenue source in Paulding County, Ohio.[34] The county now has 5 large wind farms with 766.7 MW of capacity, and a sixth 150 MW wind farm was approved in 2024. In total, developers have invested more than $1 billion in wind energy in the county and made more than $40 million in PILOT payments. The significant payments have created a strong, positive impact upon the small rural county. Countywide benefits consist of infrastructure upgrades, wage increases, and educational investments. In 2022, the Wayne Trace Local School District received $1,614,549 in payments, allowing for various school improvements.

The largest wind farm in Paulding County, the Blue Creek Wind Farm, is partially located in Van Wert County and pays the Lincolnview Local School District $400,000 annually in PILOT payments. Lincolnview Superintendent Jeff Snyder stated "Additional revenue allows us to think out of the box and do something new…that money is not leaving our area to go somewhere else. It's staying in our district to benefit our kids and future generations of students as well."[35] Nearby Van Wert City School District illustrates the flip side. Although it is also located in Van Wert County, the district does not host any wind turbines and thus does not receive PILOT revenue.[36] Previously proposed wind farms could have provided $800,000 in annual PILOT payments to the schools, but local ordinances blocked wind farms.

Conclusion

Payments in Lieu of Taxes (PILOTs) are an increasingly popular alternative to ad valorem property taxes. They are a potentially valuable tool that can benefit both renewable energy developers and local communities by creating more predictable long-term cash flows, and in many cases, greater control over revenues. The structure and administration of PILOTs varies across states, with a range of local control in decision making, average PILOT rates, and interaction with other policies and tax rates. Because of this, the use and impact of PILOTs differs across the states we analyzed. Ultimately, the potential advantages of a PILOT agreement depend on the goals and finances of a local jurisdiction and its community.

APPENDIX D: OIL & GAS TRANSITION

Introduction

Revenues from energy production represent an essential mechanism for U.S. states to fund public resources. These revenues can be grouped into three main categories: 1) state revenues from severance taxes and leasing royalties, 2) federal disbursements from leasing and production on public land, and 3) local property taxes. States often allocate these revenues to various state expenditures, local distributions, and savings. For the energy transition to be financially sustainable in states that are reliant on revenues from oil and gas production, renewable energy development will need to replace these funds. Because of this, understanding the sources and uses of these revenues can inform policies impacting renewable energy projects such as tax treatment, local labor requirements, or permitting.

Severance taxes

Severance taxes—levied on the extraction of energy resources—make up the largest portion of revenues that states receive from energy production, followed by state leases, local property taxes, and federal leases.[1] Table 1 compares the 16 largest oil and gas-producing states and their respective revenues from oil and gas production.[2]

These revenues are highly variable, reaching a peak of $20 billion in 2012 and a low of $9 billion in 2016. In 2021, the most recent year for which data is available, they were $11.8 billion. In most states, severance taxes account for less than 1 percent of general revenue, but some states heavily rely on these funding mechanisms. In 2021, severance taxes accounted for 14 percent of North Dakota's state and local general revenue, followed by New Mexico (6 percent), Wyoming (4 percent), and Alaska (3 percent).[3] These states inherently have much higher budgetary risks when depending on oil and gas severance tax revenues, given the volatility of these markets.[4]

Table 1. Oil and Gas Revenues for 16 States in FY13 ($millions)

State	Severance tax	Other state taxes/fees	Local property taxes	State leases	State share of federal leases
AK	3,972	107	429	2,804	19
AR	91	—	42	no data	2
CA	—	64	505	407	105
CO	136	—	367	104	99
KS	123	8	175	0.6	3
LA	821	5	202	591	27
MT	213	—	—	27	21
ND	2,408	—	—	345	92
NM	781	21	147	543	460
OH	3	2	5	0.005	0.2
OK	494	29	545	90	6
PA	—	226	—	144	—
TX	4,485	1	2,475	1,239	17
UT	53	6	53	69	131
WV	88	27	72	0.2	0.3
WY	597	—	639	140	472
Total	14,264	495	5,657	6,504	1,454

Source: Resources for the Future, 2016.

Fossil fuel leasing disbursements

On average, states and local governments receive about $2 billion from the leasing and production of minerals and energy on federal lands and waters. Energy companies use bonuses, rents, royalties, and other fees to pay the federal government for leases which are awarded through a competitive bidding process. Royalties, based on the value of the fossil fuels extracted, often represent the largest contributor. All revenues are pooled and disbursed to beneficiaries such as the U.S. Treasury, Tribal governments, state and local governments, and federal conservation funds.[5] As illustrated in Table 2, New Mexico and Wyoming received almost 70 percent of all federal disbursements to states in FY 2020, comprising about 3 percent and 9 percent of their state's expenditures, respectively.[6]

These states allocate most federal disbursements to state expenditures such as public schools, but portions also feed into local government operations through the Gulf of Mexico Energy Security Act (GOMESA) program focusing specifically on coastal conservation and restoration efforts.[7] While local distributions can provide a critical revenue source and help address the impacts of fossil fuel production, these revenue-sharing mechanisms also increase dependence and vulnerabilities, especially among rural and energy communities. Some states, such as New Mexico, have taken steps to manage this dependence and volatility by investing its fossil fuel revenue into permanent funds.[8,9] New Mexico invests in two permanent funds (State Land Grant Permanent Fund and Severance Tax Permanent Fund) using both federal disbursement and revenue from severance taxes. As of April 2021, the two permanent funds have a combined balance of $29.2 billion that guarantees New Mexico's public schools and other state services receive more than $1 billion annually in permanent and dedicated funding.[10]

Table 2. Federal fossil fuel disbursements compared to state expenditures, FY 2020

State	Federal Fossil Fuel Disbursements ($mm)	Share of Fossil Fuel Disbursements	Total State Expenditures ($mm)	Federal Fossil Fuel Disbursements as a share of expenditures
AL	50.29	2.95%	28,600.00	0.18%
AK	21.04	1.24%	12,600.00	0.17%
CA	27.84	1.64%	337,700.00	0.01%
CO	55.93	3.29%	40,900.00	0.14%
LA	159.09	9.35%	37,200.00	0.43%
MS	0.14	0.01%	21,700.00	0.00%
MT	20.58	1.21%	8,300.00	0.25%
NV	1.27	0.07%	16,000.00	0.01%
NM	702.57	41.27%	21,400.00	3.28%
ND	66.72	3.92%	6,900.00	0.97%
OK	6.41	0.38%	24,800.00	0.03%
TX	99.36	5.84%	129,500.00	0.08%
UT	52.45	3.08%	19,000.00	0.28%
WY	438.53	25.76%	4,700.00	9.33%
Total	**1,702.21**	**100.00%**	**709,300.00**	**0.24%**

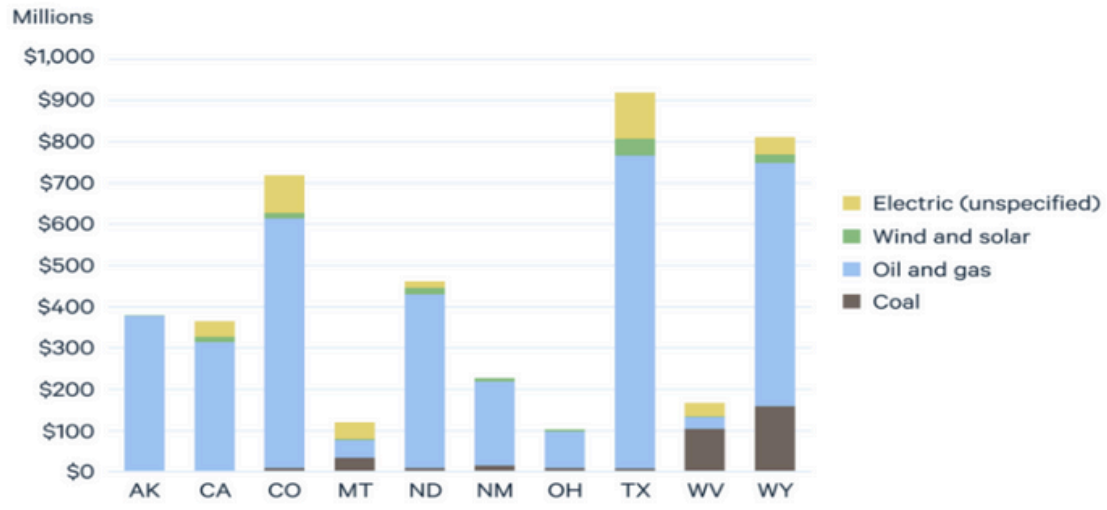
Source: Headwaters Economics, 2021

Local property taxes and renewable revenues

Local property taxes are the third main channel for distributing energy production revenues to local governments. They also provide a pathway for renewable energy to benefit local communities.[A] One study sampled 79 counties that are leading energy producers and found that, across those counties, the energy system contributes more than half of total property taxes to 22 counties, and over 90 percent in four counties in Alaska and Wyoming. In these counties, 82 percent of energy-related local government revenue came from oil and gas, compared to just 2 percent for wind and solar (Figure 1).[11]

Hilcorp's Tyonek platform via Nathaniel Herz

Figure 1. Direct local government revenue in 79 counties by energy type, 2021



Note: Excludes local property tax revenue for oil and gas production in West Virginia and pipelines in Montana.

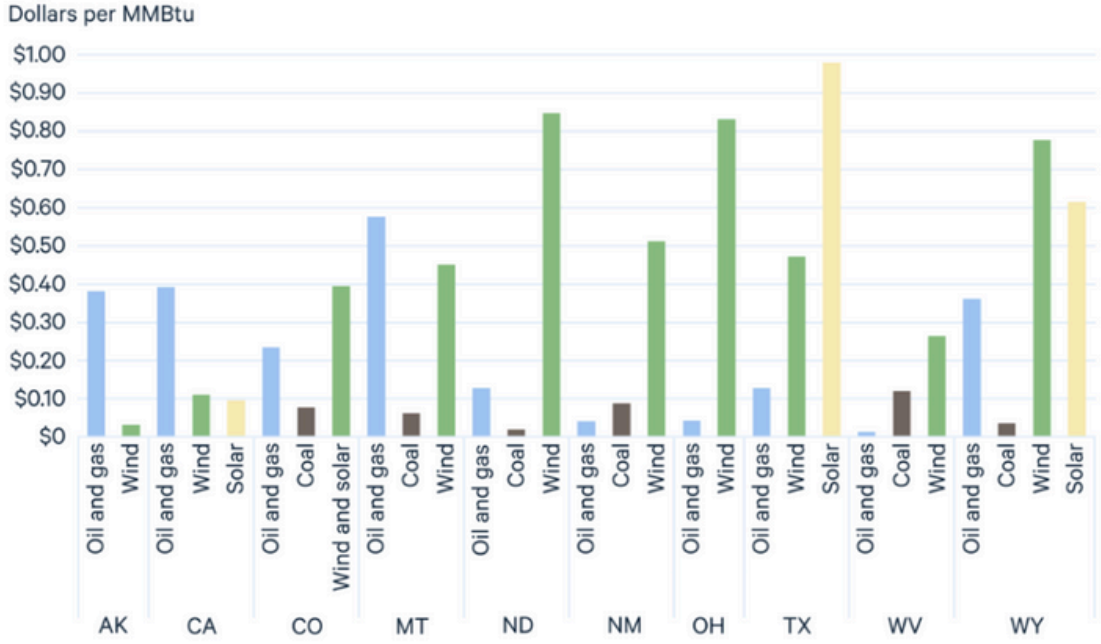
[A] Given the granularity and multiple tax structures at play, research to date has often struggled to distinguish which energy-related revenues (including those from federal, state, and local tax structures) flow directly to local governments. Additionally, data from state and local authorities regarding property taxes vary significantly in their availability. See Raimi et al. (2024) for additional details.

On an energy-equivalent basis (i.e., per unit of total primary energy production), however, local revenues from wind and solar can exceed those of fossil fuels in some cases. For example, in New Mexico, Ohio, and Texas, the highest levels of local revenue per unit of primary energy production come from wind and solar (Figure 2). In many counties, solar could replace fossil fuel revenues but would require an unfeasibly large share of available land. For example, Weld County, CO received $527 million in revenue from fossil fuel production in 2021. The county could replace this revenue with taxes on solar facilities but would require 4,800 km2—or more than half—of developable land in the county.[12] Still, in counties with lower dependence on fossil fuel revenues, wind and solar development could replace those revenue streams. In Carson County, TX, fossil fuels generated $1.7 million in 2021. Wind production revenues could achieve that figure with 12 percent of developable land, while solar would only need 0.5 percent of these lands.[13] Although there are many counties where renewables could feasibly replace fossil fuel revenues, the wide variety of tax mechanisms and revenue allocation policies state-by-state create a challenging environment for renewable revenues to become more widespread.

Conclusion

Severance taxes and federal lease disbursements function as the primary source of revenue from energy production and may meaningfully contribute to a state's budget. The volatility of fossil fuel prices can create risks for communities that depend on these revenue-sharing mechanisms, but fossil fuels have funded many state and local public goods for decades. Renewable energy does not create revenue from severance taxes or federal leases at the same rate as fossil fuels but can generate local revenue through property taxes. Local property tax structures vary widely, which hinders more coordinated and widespread revenue generation from renewables, but in many counties it is feasible for renewable energy production to match or exceed the revenue flowing to communities. Understanding where these counties are located and how to coordinate among them can help facilitate a more sustainable energy transition.

Figure 2. Direct local government revenue per MMBtu of primary energy production, 2021



Note: Revenue and energy data are from 2021. MMBtu = million British thermal units. Includes energy production and revenue data from 79 counties across 10 states. Energy production data are from EIA for coal, wind, and solar and from various state agencies for oil and gas. Excludes local property tax revenue for oil and gas production in West Virginia and pipelines in Montana.

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