

BACKGROUND

In 2021, [approximately](#) 42% of Wisconsin’s net electric generation was fueled by coal, compared to 49.5% in 2018. The state, [lacking](#) fossil fuel resources of its own, imports most of its coal from Wyoming. Wisconsin utilities had slated several coal plants to [retire](#) by 2025, however, in recent announcements they have delayed those closures to mid-2026. The delays were attributed to energy supply constraints and supply chain issues. Wisconsin utilities [Alliant](#) and [We Energies](#) have committed to eliminate coal from their energy mixes by 2040 and 2035 respectively.

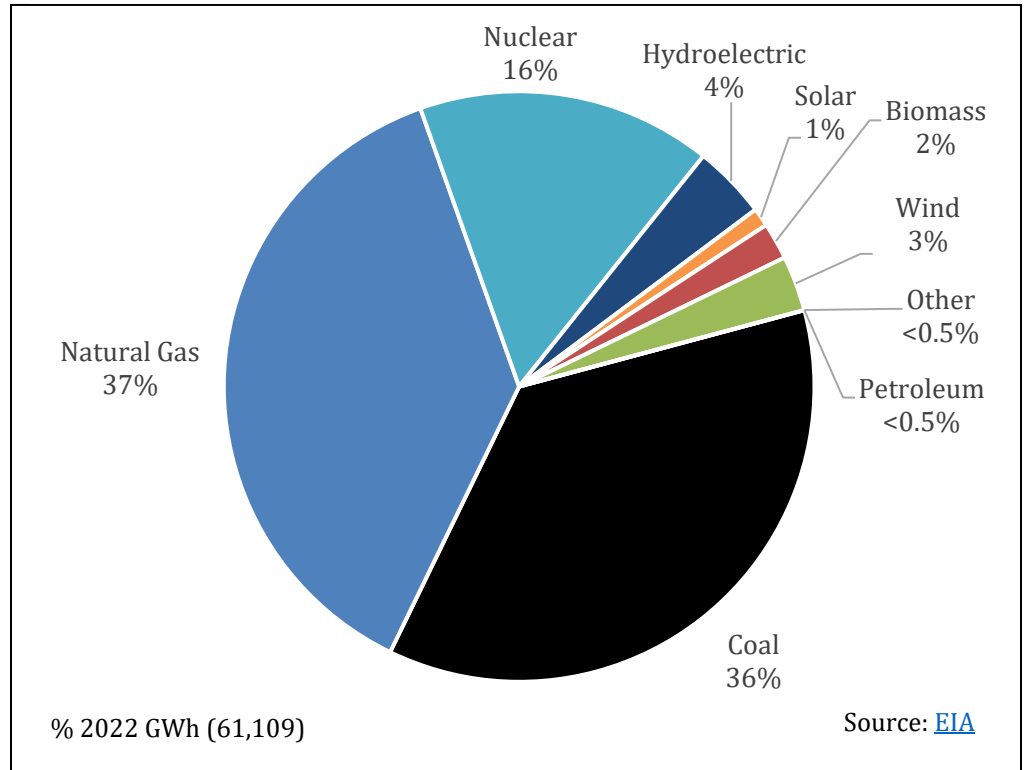
The Badger State has ample biomass resources, supplied in large part by the state’s forests

and agricultural sector. The state is one of the [top 10](#) ethanol producing states in the nation. Wisconsin’s hydroelectric and on and offshore wind resources are also notable. In 2021, nearly one-tenth of Wisconsin’s combined net electric generation came from renewables (hydroelectric, wind, biomass, and solar). Solar made up 10% of the renewable energy generated in 2021, two-thirds of that was generated by utility-scale solar, [outpacing](#) customer-siting solar for the first time. In early 2022, there were 38 utility-scale solar sites with several other projects expected to come online by 2024. Since its inception, the Midwest Renewable Energy Association (MREA) [Solar on Schools Initiative](#) has awarded over [23 grants](#) to Wisconsin schools, which will lead to a capacity of around 3.7 megawatts (MW) when the projects are completed. Since 2019, [1,850 MW](#) of utility-scale solar power has been approved by Wisconsin’s Public Service Commission (PSC). According to the state’s [Strategic Energy Assessment](#) for 2020-2026, if all projects were completed, solar energy would increase from less than 0.1% to 4.5%. This number may increase due to independent development of solar projects in the state.

The [2022 U.S. Energy and Employment Report](#) found that in 2021, [Wisconsin](#) had an estimated 141,530 energy workers (5.1% of total state employment), which includes 56,241 workers employed in energy efficiency. In 2021, Wisconsin [ranked](#) 17th nationally for clean energy jobs, with approximately 69,343 Wisconsinites employed by the industry.¹

Governor Tony Evers [joined](#) the U.S. Climate Alliance in February 2019. As part of his 2019 budget proposal, Governor Evers [proposed](#) a plan to require the state’s utilities to be carbon-free by 2050. After the proposal failed, the Governor issued an executive order in August [creating](#) the [Governor’s Task Force on Climate Change](#). The Task

Wisconsin’s Estimated Net Annual Electric Generation, 2022



¹ To see clean energy job numbers for your Congressional District, visit: <https://cleanjobsamerica.e2.org/#map>.

Force was charged with developing a plan to meet the 100% carbon-free by 2050 goal.² In March 2023, Governor Evers joined the [Clean Energy Coalition of Wisconsin](#), a group of businesses and organizations partnering to facilitate spaces for communities and organizations to support the clean energy economy.

The [Public Service Commission of Wisconsin \(PSC\) regulates](#) investor- and municipally-owned electric and gas utilities in the state. It does not regulate most of the activities of cooperative utilities. The PSC has three appointed commissioners; Rebecca Cameron Valcq is Chair. Republican majorities control both chambers of the [state legislature](#); Democratic Governor Evers took office in 2019.

In March 2021, the PSC voted to begin an [investigation](#) to create a [roadmap](#) for Wisconsin's transition to zero-carbon electricity. The PSC will explore the recommendations proposed by the Governor's Climate Change Task Force, as well as a [stakeholder report](#) of recommendations to accelerate the energy transition in Wisconsin. In April 2021, the first PSC [memorandum](#) and request for public comment on the investigation was released. In September 2021, the PSC issued an [Order](#) outlining next steps for the Roadmap to Zero Carbon investigation including gathering information on utility resource planning, performance based regulation, and considerations for customer affordability. In 2022, Governor Evers [released](#) the state's first clean energy [plan](#), which makes recommendations for agencies, utilities, and lawmakers in support of meeting the state's carbon-free electricity by 2050 goal. The plan calls for a range of actions including increasing incentives for clean energy technology, supporting energy efficiency, and facilitating the transition to electric vehicles. In May 2023, the state [released](#) a progress update report for the clean energy plan.

POLICY STRENGTHS AND OPPORTUNITIES

The National Renewable Energy Laboratory (NREL) developed the notion of “policy stacking,”³ an important framework for policymakers to consider. The basic idea behind policy stacking is that there is an interdependency and sequencing of state policy that, when done effectively, can yield greater market certainty, private sector investment, and likelihood of achieving stated public policy objectives.

In theory, but not always in practice, clean energy policies can be categorized into one of three tiers of the policy stack. Tier 1, market preparation policies, remove technical, legal, regulatory, and infrastructure-related barriers to clean energy technology adoption. Tier 2, market creation policies, create a market and/or signal state support for clean energy technologies. Tier 3, market expansion policies, create incentives and other programs to expand an existing clean energy market by encouraging or facilitating technology uptake by additional market participants.

For example, before financial incentives for combined heat and power (CHP) will be successful, two key considerations for deployment are having clear interconnection standards and favorable stand-by rates for customers who opt to add CHP. In this example, states should adopt policies to address interconnection and stand-by rates before adopting financial incentive programs.

INVESTING IN THE WORKFORCE

The energy sector added nearly [3.1 million net-zero aligned jobs in 2021](#), and these jobs currently comprise roughly 40% of total energy jobs. However, a lack of qualified candidates across occupations and education levels could impede states' abilities to modernize their grids and deploy clean energy resources. To ensure that the workforce can meet industry demand, policymakers can consider several policies to educate and train qualified candidates. This can simultaneously enhance industry employment and provide economic opportunity to individuals and local communities.

² The Task Force's December 2020 [Climate Change Report](#) recommends adopting policies to (1) develop electricity storage and microgrids for critical infrastructure, (2) increase energy efficiency goals, (3) increase [Focus on Energy's](#) funding, (4) support load management / demand side management (DSM) programs, (5) support low-cost debt financing of customer clean energy projects, (6) support community solar, (7) update interconnection standards and (8) support hybrid-electric vehicles, electric vehicles, and infrastructure.

³ V.A. Krasko and E. Doris, *National Renewable Energy Laboratory*, 2012. Strategic Sequencing for State Distributed PV Policies: A Quantitative Analysis of Policy Impacts and Interactions. <http://www.nrel.gov/docs/fy13osti/56428.pdf>.

Wisconsin's [Department of Workforce Development](#) offers apprenticeship and training opportunities for in-demand fields. These training services also offer [assistance](#) for qualified individuals impacted by dislocation, mass lay-offs, or plant closures.

In April 2023, \$382,000 was [awarded](#) to the University of Wisconsin Milwaukee from the Wisconsin Fast Forward fund for promotion of green energy and clean water jobs. Governor Evers' proposed 2023-2025 budget [contains](#) a \$10 million investment for clean energy training and jobs and \$2 million for the Wisconsin Fast Forward fund. The proposed budget also allocates \$2 million to create the Southeast Wisconsin Green Jobs Corps to help young adults get jobs in energy efficiency and environmental sectors.

The policies states can explore to address workforce development include:

1. **Incentive Programs** – States can attract new workers to the field by providing financial and other incentives to students who pursue education in specified trades or in the science, technology, engineering, and math (STEM) fields. States might require that graduating students remain and work in the state for a given time to remain eligible for the incentive. In conjunction with this, states might also provide economic development incentives to companies employing students with training in specified STEM and trades fields. To ensure safety in the workplace, states can adopt programs that will cover the costs of OSHA training.

Initiatives to improve access to broadband and public transportation in underserved communities can boost access to educational and employment opportunities.

2. **Education and Continuing Education** – Existing electrician training and mentorship programs can be expanded to encourage more young people to enter the industry. Policymakers can direct public colleges and universities, with input from industry, offices of economic and workforce development, and other interested parties, to create new trades and STEM programs. This could include the development of “green” credentialing programs. States can also provide financial resources to organizations that educate or retrain students in STEM and trades professions.

For the state's existing energy workforce, policymakers might direct state departments of workforce services or their equivalent to work with utilities and other interested parties to develop continuing education and training programs for existing utility employees to remain in their field or to transition to a new role. Incentive programs might also be developed for employers that design roles that include ongoing skills development and continuous learning to help keep pace with evolving roles.



GRID MODERNIZATION

The [electric grid](#) is a complex system of generation, transmission, and distribution. Aging infrastructure and emerging technologies are forcing the grid to modernize to keep pace with historic and emerging expectations. Grid modernization encompasses a broad range of actions intended to make the electrical system more resilient, interactive, and capable of meeting current and future demand.

The transition to a digital economy requires affordable, sustainable, and reliable electricity and creates challenges and opportunities for grid management. Emerging physical and cybersecurity threats and increased demand for faster outage response times require, at minimum, real-time incident tracking and response capabilities. Increased grid penetration of distributed energy resources (DERs) such as renewable energy coupled with increasing adoption of energy efficiency, [energy storage](#), [microgrids](#), and other technologies will provide economic benefits, increase security, and ensure more reliable, resilient, and clean energy. Utility-scale renewable energy may require expanded transmission capabilities. As adoption of these innovations increases, so too will the need for modern grid technology to strengthen the grid, the implementation of which will require substantial planning and investment by states and utilities.

By allowing a two-way flow of information between the electric grid and grid operators and between utilities and their customers, new technologies enable utilities to better manage the grid and provide opportunities for consumers to customize their services to fit their priorities and to reduce their electric bills. By enabling better tracking and management of resources, emerging technologies improve system reliability and resiliency. These technologies also allow grid operators to incorporate central and distributed energy resources, energy storage

technologies, and electric vehicles (EVs). This all assists in addressing the challenges associated with planning, congestion, asset utilization, and energy and system efficiency.

On the customer's side of the meter, dynamic pricing, [advanced metering infrastructure](#) (AMI), and other technologies allow a more dynamic exchange of information and electricity between a consumer and their electric provider. Grid modernization is associated with greater consumer choice by allowing customers to meet their energy priorities by producing and storing their own energy or through contracting for innovative clean energy services from different providers.

Grid modernization will require a suite of policy changes to support advancements in grid technologies, grid management, and utility regulation.

In January 2023, the U.S. Department of Agriculture [awarded](#) two Wisconsin utilities, Oconto Electric Cooperative and Chippewa Electric Cooperative, more than \$19 million in federal loans for grid modernization and expansion. In 2023, Xcel Energy [partnered](#) with Bayfield County to build the first microgrid through a utility program; the program aims to increase system resiliency in the face of extreme weather. In 2021, Alliant Energy [announced](#) development plans for a microgrid in Richland County which will improve reliability for customers in case of outages.

Wisconsin's utilities have taken the lead in installing AMI. In 2018, the Wisconsin PSC [partnered](#) with [Landis+Gyr](#) to provide a platform for AMI development, data management, and grid modernization. In 2023, Landis+Gyr [partnered](#) with WEC Energy Group to expand AMI coverage for gas and electric meters through 2038; the expansion will have to be approved by the PSC.

In May 2021, the PSC approved Xcel Energy's "[Resiliency as Service](#)" pilot program, which will allow the utility to offer Resiliency Service Assets – battery energy storage systems (BESS) and generation assets (back-up generation and solar photovoltaic (PV) systems paired with BESS) – as well as switching and control equipment for their commercial and industrial customers. The pilot will rely on Xcel's experience with resiliency projects in Colorado, follow the recommendations of the Wisconsin Energy Distribution and Technology Initiative's (WEDTI) [2020 report](#), and be consistent with the [recommendations](#) from the Governor's Task Force on Climate Change. Projects will be financed via an on-bill charge for commercial and industrial customers. Separately, in June 2021, after a successful pilot program in Iowa, Alliant Energy announced a [partnership](#) with Sensus that intends to expand their smart utility network, which includes improving outage response times.

The Infrastructure Investment and Jobs Act of 2021 (IIJA) is a landmark federal spending bill that includes funding earmarked for grid modernization projects. This includes \$11 billion for Department of Energy (DOE) grants directed specifically towards electric infrastructure resiliency projects (including grid hardening against severe weather and cybersecurity improvements), [\\$2.5 billion for transmission](#) development, and \$3 billion for the [Smart Grid Investment Matching Grant Program](#).⁴ Enacted August 2022, the Inflation Reduction Act (IRA) set aside \$2 billion for loans for constructing new high-capacity transmission lines and upgrading interties. The bill includes funding for technical assistance and grants for states and tribal governments, which includes assistance for siting transmission projects. The bill also directs DOE to undertake interregional transmission planning, modeling, and analysis, including analysis of transmission for offshore wind and the use of grid-enhancing technologies (GETs).⁵

There are policies that Wisconsin's policymakers could adopt to support in-state modernization efforts.

1. Develop a grid modernization strategy through a collaborative process. Alternatively, states might decide to require that utilities develop and propose a ten-year grid modernization plan to the PSC within a specified timeframe. Utilities would then be required to implement that plan within another specified timeframe. Strategies and/or plans should outline a clear set of grid modernization goals and describe methods to measure, report, verify, and enforce progress towards those goals.

⁴ For more information on the grid-related earmarks included in the IIJA, see Potomac Law Group's January 2022 analysis: "The Infrastructure, Investment & Jobs Act of 2021: What's in It for You? (Part V: Grid Infrastructure and Resiliency)." Available: <https://www.potomaclaw.com/news-Infrastructure-Investment-Jobs-Act-of-2021-Whats-In-It-For-You-Part-V-Grid-Infrastructure-and-Resiliency>.

⁵ J. Runyon and J. Engel. 2022. "The Inflation Reduction Act is Signed into Law." *PowerGrid International*. 16 August. Available: <https://www.power-grid.com/td/the-inflation-reduction-act-is-signed-into-law/#gref>.

2. States might also provide incentives or cost recovery mechanisms for utilities that meet grid modernization goals. Policymakers could consider directing the PSC to evaluate alternative ratemaking mechanisms, [performance-based regulation](#), and/or new utility business models that support grid modernization.
3. Require that utilities' integrated resource plans (IRPs) include plans to enhance cybersecurity, integrate distributed energy resources (including electric vehicles and energy storage), increase smart meter deployment and demand response and/or demand-side management (DSM) programs, and measure and report on the results of grid modernization efforts. Wisconsin's [2022 Clean Energy Plan](#) suggests the implementation of an IRP process. The PSC has released a [2022 Strategic Energy Assessment](#) which evaluates current and future electricity supply.
4. State policy should include measures to protect data regarding customer behavior but can also encourage the use of this information to facilitate additional improvements in grid management and customer service. To address this, policymakers can develop legislation or direct commissions to promulgate rules that clarify that the customer owns the energy data associated with their energy usage; protect customer privacy; outline the process for allowing direct access to data by third parties; and promote access to the highest resolution of data possible. States could establish [customer access to energy data](#) through the [Green Button Connect program](#), for example. Wisconsin does offer residential customers or potential customers [access](#) to some energy consumption data for the prior 12-month period.

The adoption of incentives for or a requirement to integrate a certain amount of renewable energy and energy storage on the grid alongside enhanced building energy standards and electric vehicle policies can support grid modernization efforts.



MAINSTREAMING RENEWABLES

Renewable energy is increasingly seen as the least cost and lowest risk form of energy (excluding energy efficiency). With increased deployment, utilities are learning more about how to integrate renewables effectively, investors are becoming more comfortable with the technologies, and building code officials are recognizing common standards and best practices for integrating distributed renewable energy resources. In the U.S., the expansion of renewable energy has been one of the most consequential shifts in electricity generation over the last decade. According to the EIA, renewable energy generation [surpassed](#) coal and nuclear generation in 2022, and more than half of all new generation capacity in 2023 is [expected](#) to be solar. As of 2021, there were more than [450,000 jobs](#) in the wind and solar industry. Accordingly, it is in the interest of policymakers to ensure that their states are well positioned to benefit from this shift.

Governor Evers' [Executive Order 195 created](#) the Green Ribbon Commission on Clean Energy and Environmental Innovation to advise the creation of the Green Innovation Fund. The first of its kind in Wisconsin, the Fund will leverage private and public funding to support clean energy, energy efficiency, and environmental projects.

In 2021, [Senate Bill 692](#) was enacted, expanding the state's Property Assessed Clean Energy (PACE) [program](#), a tool which finances clean energy, electric vehicle charging, and energy efficiency projects. The expansion will now allow PACE programs to finance stormwater infrastructure and electric vehicle charging stations.

There are many renewable energy projects in Wisconsin. Dane County became the [first](#) Wisconsin county, and fourth in the nation, to have 100% of its energy come from renewable energy sources. The achievement was made possible in part through a 33,000 solar panel project. Wisconsin is also seeing its [largest renewable energy project](#) move forward as Wisconsin Public Service (WPS) and WE Energies purchased the Koshkonong Solar Center in Dane County. The Red Barn Wind Park in Grant County, a partnership between WPS and MGE, is [now online](#) and will generate power for 50,000 homes. In April 2023, Alliant Energy [announced](#) plans to build a 2.25 MW community solar garden in Janesville.

While the IJA doesn't provide money for specific renewable energy projects, the funding in the Act will benefit renewable energy development as grid resiliency, increased deployment of energy storage, and modernized transmission are all essential to the successful integration of renewable energy generation. The IRA appropriated \$369 billion to fund a variety of energy and climate initiatives – the [largest](#) climate investment in U.S. history. The bill also extended the investment tax credit (ITC) and the production tax credit (PTC) through the end of 2024 and

revived the PTC for solar projects. For projects placed in service in 2025, the bill “[effectively extended](#)” the ITC and PTC by creating new tax credits for zero emission facilities. The bill also extended the residential energy property tax credit through 2034 and created a new advanced manufacturing production credit, to apply to sales of components for constructing wind and solar energy facilities beginning in 2023.⁶

The IRA also includes several [provisions](#) related to energy equity, including \$3 billion to the Environmental Protection Agency (EPA) for grants for community-led projects in disadvantaged communities and \$27 billion for nonprofit, state, and local climate finance institutions supporting the deployment of low- and zero-emission technologies. In support of rural communities, the bill also includes a \$1 billion appropriation to the U.S. Department of Agriculture (USDA) for loans to finance renewable energy projects, \$1 billion for USDA’s [Rural Energy for America Programs](#), and \$9.7 billion to USDA to finance rural electric cooperatives’ purchases of renewable energy.

To reduce barriers to customer and utility participation in the renewable energy market, and to build upon the federal initiatives, policymakers in Wisconsin might consider several options.

Customer-Oriented Policies

1. **Interconnection, Net Energy Metering (NEM), and Streamlined Permitting** – In general, customers want a clear, streamlined, affordable, and predictable system for connecting renewable energy systems to the grid. To ensure this, Wisconsin’s policymakers could consider adopting [IREC’s model interconnection procedures](#), removing NEM system size limitations and the aggregate capacity limit, and crediting net excess generation at the customer’s retail rate. In Wisconsin, NEM eligibility varies by provider, but is often limited to installations with a capacity of less than 20 kW.⁷ In the last four years, the number of net metered customers has grown by [0.11%](#), which is well below the growth seen in other states.

Allowing [aggregated net metering](#) would be beneficial to agricultural operations, commercial properties, and public entities like state and local governments, universities, and schools. The state might also consider establishing either statewide standards for streamlined permitting processes, or resources to support local governments that voluntarily implement a streamlined program. In May 2021, NREL launched the [SolarAPP+](#), an online platform designed to automate the solar permitting process. By running compliance checks and processing permit approvals, the service is intended to drastically reduce permit wait times. Currently restricted to rooftop solar, [thirty-two](#) communities in five states have adopted the platform, processing over 15,000 permits for more than 100 MW of generation with an estimated 15,000 hours saved in permit review time. The state might also consider establishing either statewide standards for streamlined permitting processes, or resources to support local governments that voluntarily implement a streamlined program, as [Wisconsin Rapids](#) has done.

2. **Shared Renewables** – Due to building and property attributes and ownership issues, many customers are unable to install renewable energy technologies where they live or work. Allowing shared, or community, renewable energy projects addresses these barriers. These projects have multiple owners or subscribers who pay for a portion of the project or the generation provided by the system. To expand program participation, the state might consider adopting a virtual net metering policy. Virtual net metering allows a customer to receive credits from a shared system as if the generation were on site. Virtual net metering is different from a power purchase agreement (PPA), which pays the customer for the proportion of power they produce. Because it is treated as a credit on the customer’s bill, the customer can avoid the tax implications of a PPA payment – which can adversely affect the economics of the system (and may come as a surprise to the participant).

Several utilities in Wisconsin offer community solar programs. In 2015, the PSC [approved](#) programs for Northern States Power Company-Wisconsin (NSPW), New Richmond Municipal Utility, and River Falls Municipal Utility. A year later, the Commission [approved](#) Madison Gas and Electric’s (MGE) program. In June 2019, the PSC [approved](#) a new shared solar program for Alliant Energy and allowed MGE to expand their program with the addition of a [5 MW solar array](#). MGE’s program is fully [subscribed](#), as of 2021. In 2023, Rock County and Alliant Energy

⁶ For a detailed discussion of the IRA’s tax provisions, see: A.S. Levin-Nussbaum. 2022. “Update: President Biden Signs Historic Legislation Providing Expansive Clean Energy Tax Incentives.” *The National Law Review*. 17 August. Available: <https://www.natlawreview.com/article/update-president-biden-signs-historic-legislation-providing-expansive-clean-energy>.

⁷ PSC Wisconsin, Strategic Energy Assessment Draft 2020: https://www.wpr.org/sites/default/files/viewdoc_19.pdf

[announced](#) partnership on a community solar project alongside a customer-hosted project in Janesville. According to the [2020 Strategic Energy Assessment Draft](#), customer subscriptions to community solar projects consistently exceed 85% of available capacity.

In 2023, several legislators [introduced](#) a community solar [bill](#) that would allow private developers to offer community solar. A similar bill died in 2021 and faced opposition from utilities.

Low credit ratings often deter participation in renewable energy markets; this can affect low- and moderate-income (LMI) households' adoption of renewable energy solutions. Supportive policies for shared renewables can be designed to encourage participation by LMI households; this can increase adoption of renewable technologies and reduce energy costs. Low-income participation can be ensured either through a percentage mandate for the overall annual contracted capacity, or by offering a higher rate of payment for the portion of shared solar capacity attributed to LMI customers. States that have a shared renewable program may want to coordinate this program with implementation of the federal [Weatherization Assistance Program](#) to provide recipients of assistance with participation in a shared system.

In 2021, the PSC [announced](#) that it would require Wisconsin utilities to report household energy burden data by county by June 1, 2021. This data will ensure that programs are developed to address disproportionate energy burden.

A [number](#) of financial incentives and financing options are available to Wisconsin's citizens, businesses, and public entities. There are [additional policy options](#) that policymakers might consider to promote renewable energy uptake by LMI consumers. Generally, successful state policies should be tailored to these customers, be cost-effective and financially sustainable, have measurable performance indicators, and be flexible enough to allow later changes in design.⁸

3. **Adapt Energy Assistance Programs** – Programs such as the Low-Income Home Energy Assistance Program ([LIHEAP](#)) and [WAP](#) provide assistance for paying utility bills and reducing household energy costs. Including distributed energy resources as eligible for funding under these programs can reduce energy costs and increase energy security for those LMI families who are able to benefit from WAP and LIHEAP. [Colorado](#), for example, includes [rooftop solar in their WAP program](#). For approval to add solar to a state's implementation of WAP, a state must show that the investment would be [cost-effective](#) – achieving a Savings to Investment Ratio (SIR) of 1.0 or more.⁹ Since 2015, Wisconsin has received \$76.8 million from WAP and \$8.4 million from the [State Energy Program](#) (SEP) which has helped to fund a [number of energy initiatives](#) in the state.

In 2021, We Energies donated \$4 million to the [Keep Wisconsin Warm/Cool Fund](#), a state-wide non-profit that works with several agencies to help low and fixed-income households with energy costs.

4. **Fund Distributed Generation (DG) for Community Organizations** – Organizations or groups that provide support services for LMI communities can be provided funding to install solar or other distributed energy resources. Sites such as homeless shelters, food banks, clinics, and community centers often have enough rooftop area for solar installations. After installation, these resources can reduce an organization's utility bills, freeing up funds for other activities that support the community.
5. **On-Bill Financing/Pay As You Save (PAYS)** – [On-bill Financing and Repayment](#) programs enable consumers to invest in energy upgrades with no upfront payment. The utility or a third party will pay the initial costs to install the upgrade with the cost of that upgrade recovered through the utility bill. Because repayment includes consideration of the cost savings resulting from the energy upgrade, customers can see monetary benefits almost immediately. Once equipment costs are recovered, the equipment belongs to the customer. State policies that

⁸ In May 2021, the University of Michigan's Urban Energy Justice Lab [unveiled](#) their [Energy Equity Project](#), which intends to create a standardization framework for the evaluation of equity in clean energy programs. The project aligns with the Biden administration's [Justice40 Initiative](#), which aims to ensure that 40% of climate investment benefits (which include renewable energy) are realized by disadvantaged communities.

⁹ For guidance on the state approval process, see, the [Solar Template for Incorporating Solar Photovoltaics into WAP](#), and the [Preliminary Assessment Guide for Integrating Renewable Energy into Weatherization \(2019\)](#).

reduce lending risk by creating a loan loss reserve and/or a credit enhancement fund can encourage lending to customers that might otherwise not qualify for a loan and can keep interest rates low.

- 6. Corporate Procurement** – Many Fortune 100 and 500 companies have established either climate goals or commitments to purchase renewable energy. Since 2014, [over 64 gigawatts \(GW\) of renewable energy](#) has been procured by corporate entities. In the first half of 2022, corporations entered contracts for [21 GW](#). This is leading policymakers to provide additional avenues for businesses to procure renewable energy. Policymakers might also consider incorporating corporate renewable procurement targets into the state’s IRP process. By integrating these renewable purchase commitments into the IRP process, utilities can avoid over-building resources and stranding generation assets.

In 2019, Ashley Furniture [announced](#) a \$29 million investment in renewable energy to offset 35% of their energy use. Organic Valley, Dr. Bronner’s, and Clif Bar are joined other companies and the city of Madison to purchase the energy credits associated with the [Butter Solar Project](#). [Over 60](#) other companies with operations in Wisconsin have also made commitments to purchase renewable energy. [Wisconsin’s policy](#) allows companies to purchase renewable energy credits (RECs), purchase renewable energy through the wholesale market, and develop or lease onsite renewable energy projects. [MGE](#), [Alliant](#), and [We Energies](#) provide [green power pricing programs](#).

Utility-Oriented Policies

Some states have created programs that aim to reduce greenhouse gas (GHG) emissions and increase investments in clean energy resources. Utilities are also setting their own GHG reduction goals and are increasingly investing in clean energy resources. Wisconsin’s five investor-owned utilities have [pledged](#) to have carbon-free power mixes by 2050. Governor Evers [joined](#) the U.S. Climate Alliance in February 2019 and created the [Governor’s Task Force on Climate Change in August 2019](#). The Task Force was charged with developing a plan to meet the 100% carbon-free by 2050 goal. The State of Wisconsin Clean Energy Plan was published in 2022, and a recent progress report was [released](#) in May 2023.

To support utility adoption of clean energy technologies, Wisconsin’s policymakers might consider the following:

- 1. Emissions Standards** – Emissions targets can take a technology neutral approach that looks at the total emissions of the utility portfolio and drives emissions down with a combination of renewables, traditional fuels, efficiency, and technological advances. Emissions reductions can be achieved through (1) a carbon portfolio standard approach, or (2) a market-based approach. A portfolio emissions standard sets emissions reduction targets to be achieved over time. This can be implemented through the IRP process or by establishing a maximum allowable rate of emissions per unit. Under a market-based approach, a state or a group of states might set a certain emissions reduction target, for example, 50% below 2005 levels by 2030. This reduction is achieved by the distribution of annual emission allowances that decrease to the point that the standard is met in 2030. One of the advantages of a market-based program is that it is designed to reduce emissions in the most economically efficient manner possible. Such a standard can also address other concerns such as pollution, asthma risk, environmental justice, and water use.
- 2. Accelerating and Amending Renewable Portfolio Standards** – One of the oldest and most successful advanced energy policy tools, [renewable portfolio standards](#) (RPSs), usually set a target for a specific percentage of renewable electric generation to be achieved by a specific date (for example, 50% renewable energy by 2030). The RPS was designed to build the market for renewable energy, which, at the time when most states were adopting these standards, was more expensive than conventional electricity sources. Today, states and utilities are in a much different situation for most land-based, utility-scale renewable energy resources (primarily wind and solar). These technologies are increasingly economical on a direct kilowatt hour (kWh) cost and are being aggressively pursued by most utilities for this reason. In general, RPSs require utilities to procure the lowest-cost qualifying resources and cap expenses under the program, which has helped deployment of more mature wind and solar technologies. However, this does not automatically promote resource diversity necessary to enhance system resilience and invest in emerging but promising clean energy technologies of the future like offshore wind, storage, and others.

Wisconsin's RPS set a target of 10% renewable energy by 2015. Utilities [met the target](#) early, in 2013. Wisconsin could amend its previous RPS to establish new target dates and increased targets to continue to spur the development of renewable resources and save ratepayers money. Further, states might add one or more [carve-outs](#) to incentivize the development of distributed and offshore resources. Embedding an RPS within a broader clean electricity or emissions standard can allow technological flexibility.

- 3. Transmission Development Policies** – Renewable energy resources rely heavily on robust transmission networks that connect generation to demand. For states within regional transmission organizations (RTOs), state governments can fund utility commission and energy office engagement in RTO processes, and generally support transmission build-out through these channels. In non-RTO states or single-state RTOs like New York and California, one successful model has been the creation of a state transmission authority, which handles state transmission planning in cooperation with incumbent utilities. [New Mexico's Renewable Energy Transmission Authority](#) provides an instructive example – it informs transmission investments to push forward key transmission projects that achieve the state's clean energy goals cost-effectively.
- 4. Competitive Procurement Requirements** – In most states, consumers have little choice about where their electricity comes from. As utilities find that renewable energy is increasingly the lowest-cost electricity source, they have to decide how much they should buy and when. Unfortunately for customers, utilities may have either a vested interest in continuing to operate fossil plants, or they doubt the efficacy of new renewable resources. States can overcome reluctance to renewable energy by requiring utility procurement decisions to undergo a competitive process, revealing the lowest cost alternatives to the utility's existing contracts and fleet of power plants. A best practice is "[all-source procurement](#)," a process that allows all resources to compete to fill a system need identified by the utility.

States can start by requiring utility commissions to begin a participative planning process that links planning outcomes to procurement decisions and ensures that state policy objectives are included in system planning. For some states, this might mean setting up a planning process. For others, it might involve revisiting planning and procurement rules and asking whether the current process results in policy-aligned procurement. States might amend existing rules to require utility commission approval of utility plans or require consideration of public comments. Regulators may need explicit direction to consider objectives beyond reliability, affordability, and safety.



ENERGY STORAGE

Energy storage offers a unique opportunity to dynamically manage supply and demand while also maximizing the value of grid resources. By deploying storage to strategic locations, utilities can more effectively manage their energy portfolios. First, storage allows utilities to manage intermittent demand – helping reduce peak demand requirements. Because the generation resources that provide peak power are the system's most expensive, reducing peak demand can save consumers money. Second, the responsiveness of energy storage can allow utilities to implement voltage regulation and other ancillary services, which improve system efficiency. Third, because storage technologies can both store and dispatch power, storage enables better integration of intermittent power generation resources, like wind and solar, to the grid.

The flexibility of battery storage combined with advanced metering infrastructure can allow customers to control how and when they use energy from the grid or from solar panels installed on their home or business. In most cases, this can provide greater cost savings than standalone solar systems. Combined with [time-varying rates](#) or real-time pricing programs, state policy can further support customer choice and open a new market for energy services. Prices that better reflect the time-varying and location-dependent costs of producing and delivering electricity can also lead to a number of economic and environmental gains.

Energy storage can also help the commercial sector avoid [demand charges](#), which establish an incremental cost above energy usage based on the highest period (highest 15 minutes, for example) of demand during the month. Eliminating spikes in demand with storage can reduce these costly charges for businesses. As utilities around the country consider implementing or extending demand charges to other sectors, energy storage will become more relevant as both a customer cost-saving investment and a system efficiency measure.

Declining costs and technological advancements in battery storage have contributed to increased deployment. The [EIA expects](#) total battery storage deployment to nearly triple from 7.8 GW in 2022 to 30 GW in 2025. State policies can further encourage this by establishing both a framework for easy integration of energy storage resources onto the grid and a marketplace that monetizes the benefits of energy storage for cost-effective investment.

Wisconsin [does not](#) currently have an energy storage procurement target or goal. However, Wisconsin is positioned to grow its energy storage capacity. The University of Wisconsin-Madison [researches and develops](#) energy storage technologies. A handful of firms in the state manufacture storage technologies. In addition to Xcel Energy's [Resiliency as Service Pilot program](#), which will expand BESS capacity by a maximum of 30 MW, WEC Energy Group's recently released renewable energy investment [plan](#) includes 600 MW of additional battery storage capacity. As part of this 600 MW, the Koshkonong Solar project, proposed to the PSC in June 2021, would include [165 MW of battery storage](#) and would be the [largest](#) renewable energy project in Wisconsin. In September 2022, Alliant Energy [announced](#) plans for its first utility-scale battery storage systems at two solar projects, for a total of 175 MW of storage. Alliant also [plans](#) to deploy a 99 MW BESS at a coal plant which is scheduled to retire in 2025. The state is hosting [several other](#) energy storage projects. Dairyland Power Cooperative is [collaborating](#) Mine Storage International AB and Michigan Technological University to evaluate the development of pumped storage hydropower on retired mine sites in the Upper Midwest.

The IIJA provides a unique opportunity for funding energy storage projects. The IIJA provides [\\$505 million](#) for grants to support energy storage demonstration projects, [more than \\$7 billion](#) for building out the U.S. battery supply chain, and [\\$14 billion](#) for grid resilience programs that include energy storage as a qualified technology. The [IRA](#) extended the ITC to include standalone energy storage systems. When the ITC is replaced by the technology neutral Clean Electricity Investment Tax Credit (CEITC) in 2025, qualified storage facilities placed in service after 2024 will remain eligible. The advanced manufacturing production credit will apply to battery cells and modules and the critical minerals used in their production. The \$27 billion GHG Reduction Fund, also established by the bill, will provide funding enabling low-income or disadvantaged communities to adopt zero-emission technologies including energy storage.

There are several policy opportunities to take advantage of the growing technological advances in and declining costs of energy storage and build upon recent federal initiatives. The recommendations here draw heavily from the Interstate Renewable Energy Council's (IREC) 2017 report, "[Charging Ahead – An Energy Storage Guide for Policymakers](#)." Policymakers in Wisconsin could consider the following:

1. Amend [existing interconnection policy](#) to ensure that storage can connect to the grid through a transparent and simple process. [IREC](#) has produced a series of interconnection protocols that states can easily adopt. The state could establish best practices for interconnecting storage in statute, or legislation could provide an instruction to the PSC to adopt new rules.

Wisconsin's interconnection standards and processes were established in 2004. In December 2020, a proposal was issued regarding opening a rulemaking docket to update to Wisconsin's [interconnection rules](#). The governor [approved](#) the first [Statement of Scope](#) in February 2021 and in April 2021, the PSC approved the final Statement of Scope, which creates an advisory committee for the rulemaking. At the end of April, the PSC [appointed 19 members](#), representing 19 organizations, to the technical advisory committee. In May 2022, the advisory committee released its recommendations, which the PSC used to develop [proposed rule changes](#).

2. Instruct the utilities commission to evaluate the value of energy storage in multiple strategic locations across the utility system and consider a requirement to deploy storage where it is cost-effective or identify the price point at which it will be cost-effective. Ensure that cost-effectiveness calculations include all of the benefits storage can deliver to the system, including frequency regulation and avoided investments in new infrastructure.
3. Require the inclusion of energy storage as a critical piece of the energy system as both a demand and supply management resource. Some states have required that utilities evaluate the cost effectiveness of [non-wires alternatives](#) to large transmission and generation investments. Alternatively, states might want to require that utilities develop a distribution investment plan that identifies the locations on the distribution system where energy storage or other distributed resources would offer the greatest value.

The Mid-Continent Independent System Operator’s (MISO) [Renewable Integration Impact Assessment](#) (RIIA), published in February 2020, assessed the potential impacts of incorporating renewable energy into the MISO region of the grid. Included in this is a review of non-wires alternatives. They found, “MISO’s current transmission infrastructure is inadequate to support full access by the diverse resources across the MISO footprint” and concluded, “energy storage, paired with renewables or used as non-wires alternatives, can help [optimize](#) energy delivery.”

4. Consider creating a mandatory energy storage procurement target or requirement for energy storage with a documented process for periodic review of progress towards that goal. Procurement targets can limit the amount of utility-owned storage; require that a certain amount of storage be targeted to low-income customers; and create carve-outs for storage at the transmission, distribution, and customer levels. Procurement targets can jump-start market creation, spur fast learning, and guide the development of a regulatory framework.
5. Add energy storage as an eligible technology under existing clean energy policies like renewable portfolio standards or energy efficiency programs. Massachusetts was the first state in the nation to include energy storage in its [three-year energy efficiency plan](#) in 2019.
6. Finance and incentivize energy storage for customers and utilities. Incentives can enable customers to use storage to manage their electric load and store locally produced renewable energy. Incentives in the form of rebates, grants, and tax credits can provide a bridge to scalable deployment of storage. Incentives can be designed to decline as storage values become more readily monetized and/or as the cost of storage decreases. Policymakers could allow utilities that provide incentives to customers to recover the costs of installing smart meters. This would enable dynamic and time-varying energy management from multiple distributed battery systems. This could also signal to customers the value of leveraging storage and better align customer costs with system costs. Financing energy storage installations for commercial customers could help reduce their demand charges. Policymakers might want to start first with a policy that provides grants to pilot projects. Incentive programs might also target solar system owners. Financial incentives should be designed to ensure that the state will meet other goals including emissions and peak demand reductions, and equitable access to clean energy.
7. Clear data access policies that allow third parties to provide energy management services based on signals from the utility can greatly increase the value of efforts to monetize the value stream offered by energy storage. State policy should include measures to protect customer data, while also encouraging the use of this information to facilitate additional improvements to grid management and customer services. To address this, policymakers can develop legislation or rules that clarify who owns the energy data associated with customer energy usage; protect customer privacy; outline the process for allowing direct access to data by third parties; and promote access to the highest resolution of data possible.
8. Consider taking advantage of the “direct pay” option available to state and local governments for energy storage investment tax credits (ITC) available in the IRA. The direct pay option allows states (or other qualified entities without tax obligations) to be directly refunded a 30% ITC from the federal government after the project is online. The IRA also allows for up to a 70% credit for projects that incorporate domestic components, serve low-moderate income communities, and/or are located in [energy communities](#).



THE BUILT ENVIRONMENT

In the U.S., buildings consume nearly 40% of total energy used.¹⁰ Because it reduces energy demand and emissions and creates savings for utility customers, energy efficiency¹¹ often plays a prominent role in state energy and climate policies. Coupled with [beneficial electrification](#), which involves replacing direct fossil fuel use with electricity, there is even greater potential to reduce energy costs and pollution, and provide more resilient, comfortable, and healthy buildings. This is especially the case in states where increasing levels of low carbon resources are supplying the electric grid. When policies are adopted to shift energy sources for such things as space and water heating, to highly efficient electric alternatives, states can maximize achieving the dual objectives of increased energy efficiency and reduced emissions. In some cases, this can also result in lower energy costs.

¹⁰ For additional information, see [ACEEE Building Policies and Codes](#).

¹¹ Energy efficiency includes a multitude of measures to reduce energy consumption. These measures range from behavioral changes to installing energy efficient appliances to full building renovations, including updating a building’s envelope.

The PSC establishes energy efficiency goals every four years. Established in 1999, the [Focus on Energy](#) program was established to save residents and businesses money by reducing energy usage. As of 2022, all IOUs and municipal utilities participate in the Focus on Energy program. Wisconsin's PSC is currently going through the [Quadrennial Planning Process](#) to evaluate state and utility efficiency programs. The 2021 Energy Efficiency and Renewable Resource Program Activities in Wisconsin [report](#) gives an overview of Focus on Energy's impact. A recent [report](#) notes that the Focus on Energy program generates \$2-\$4 for every dollar spent.

[Wisconsin](#) is taking steps to increase energy efficiency in state buildings and through local governments. The Department of Administration is tasked with promoting energy conservation in state facilities and the State of Wisconsin Building Commission oversees the State Building Program. Contracts set a minimum energy usage savings that will be met by the project. New projects to be approved by the Commission must incorporate a solar or other renewable energy system unless not cost efficient. Under former Governor Scott Walker's [Executive Order 63](#), all new state facilities are required to be 10% more energy efficient than required by the commercial code, as long as the measures are cost effective. Wisconsin allows Energy Saving Performance Contracts (ESPCs), in which upfront costs of efficiency upgrades are paid for and energy savings are guaranteed by the energy service company. [Wisconsin](#) allows local governments to use performance contracts with specified providers in order to obtain reduced energy usage. The [Office of Energy Innovation](#) provides ESPC expertise to Wisconsin municipalities.

Wisconsin's [Energy Efficiency Resource Standard](#) (EERS) is established every four years by the PSC. The state has limited funding from Focus on Energy to 1.2% of revenue, a limit which has led to a reduction in goals. The PSC set a lifecycle savings goal for electricity and natural gas. When a minimum of 90% of the fuel-specific goal is met, the last 10% can be met through either fuel. Wisconsin [allows](#) natural gas companies to propose cost recovery mechanisms and utilities can propose incentives in rate cases. In 2022, the PSC directed a series of [convenings](#) examining performance-based regulation.

The IJA provides \$500 million for grants to fund energy efficiency and renewable energy upgrades in public schools, \$3.5 billion for the Weatherization Assistance Program, and increases funding for the [Energy Efficiency and Conservation Block Grant](#) program by \$550 million and the [State Energy Program](#) by \$500 million. The [IRA](#) appropriates \$4.3 billion to DOE for an energy efficiency rebate program that will be administered through state energy offices. Another \$4.3 billion appropriation will fund electrification rebates for single- and multi-family homes. The bill also extends the tax credits for residential energy efficiency improvements and new efficient home construction and increases the maximum deduction for energy efficient commercial buildings. A \$837.5 million appropriation will be used by the Department of Housing and Urban Development (HUD) for resiliency, energy efficiency, renewable energy, and grid integration projects at public housing units.

Policymakers in Wisconsin can consider a variety of policies to encourage energy efficiency and beneficial electrification:

Energy Efficiency Policies

1. **Building Codes** – The DOE projects that, over time, improvements in building codes can have the greatest single impact on energy efficiency within the built environment. On average, commercial buildings waste 30% of energy used.¹² Because buildings will be around for generations, energy efficiency within the built environment is a matter of statewide and long-term importance. States can set requirements for energy systems, require statements of energy use, and set performance standards for energy use or emissions. Building codes can be required by state legislation or implemented through 'home rule', where local governments set their own standards or adopt more strict building codes than those mandated by the state. [Wisconsin](#) has a state-developed residential code which cannot be modified by local governments. The Wisconsin Clean Energy Plan [includes](#) strategies for ensuring building codes remain up to date, consider emissions goals, and begin the transition to implementing IECC 2021 residential codes. [Wisconsin](#) last updated its commercial code in May 2018.

The IJA includes a \$225 million appropriation for a competitive grant program to support the "sustained cost-effective implementation of updated building energy codes." The grant program will run for five years, through

¹² For more information, see the Office of Energy Efficiency & Renewable Energy's [Commercial Buildings Integration \(CBI\) Program](#).

fiscal years 2022 – 2026. In December 2022, DOE issued the [Resilient and Efficient Codes Implementation Funding Opportunity Announcement](#) to support the adoption of updated building energy codes. Approximately \$45 million is available for this competitive grant program. The program requires the participation of a “relevant state agency” and projects must be tied to “an updated building energy code.”

2. **Appliance Efficiency Standards** – [Appliance efficiency standards](#) set minimum requirements for efficiency in everything from washing machines to water heaters. Efficiency standards save consumers money on utility bills and reduce energy demand on the grid, most importantly reducing peak energy demand. Some states have elected to adopt the federal appliance standards that were in effect on January 1, 2017.¹³ These include, among other things, standards on metal halide lamp fixtures, residential furnaces and boilers, and external AC to DC power supplies.
3. **Low-Income Energy Efficiency Programs** – While equity should be incorporated into all policy development, it is often necessary to ensure that specific programs are targeted towards historically underserved populations. Recent research suggests that weatherization improvements can reduce energy use by [25-35%](#), allowing households to reduce their financial energy burden. The federal [WAP](#) program provides energy efficiency upgrades for income qualified homeowners. However, there might be difficulty in reaching individuals who are eligible. Policymakers might require outreach and education programs targeted at eligible groups.

[Wisconsin’s Home Energy Assistance Program](#) (WHEAP) offers assistance with heating and electrical bill payment, energy crises, and furnace services.

4. **Energy Efficiency Resource Standards (EERS)** – EERSs require utilities to demonstrate a reduction in energy demand from programs offered to their consumers. Because this means selling less energy and reducing revenues, there is not always an incentive for the utility to make their consumers more productive or efficient users of energy. If legislatures want to ensure a more productive and efficient energy distribution system that takes advantage of the latest technological innovations, they may want to require that a utility demonstrate a percent reduction in demand through efficiency or “demand side” programs. Wisconsin’s EERS is discussed above. Legislators can also instruct their utility commissions to consider energy efficiency when approving rate cases by allowing cost-recovery of energy efficiency improvements through utility bills.
5. **Revenue Decoupling and Performance-Based Incentives** – Utilities earn revenue by selling energy. As a result, there is little to no incentive for them to promote energy efficiency because it leads to a reduction in sales, and therefore a reduction in revenue. Revenue decoupling disconnects revenue from the amount of energy sold. This provides utilities a set amount of revenue regardless of the amount of energy sold. While this does not directly incentivize energy efficiency, it does remove the inherent disincentive to promote energy efficiency. The PSC held convenings on performance-based regulations in 2022.

Incentive policies can be layered on top of a decoupling policy. For example, if a utility meets set energy reduction targets, then performance-based incentives can provide monetary rewards for meeting those targets. While Wisconsin allows decoupling for natural gas utilities, as noted above, as the energy mix changes, it is important to incorporate a regular review of decoupling and other incentive policies to ensure they are still meeting their intended purpose.

Electrification Policies

1. **Strategically Target Beneficial Electrification** – Target areas of beneficial electrification in buildings include space and water heating systems and other systems and appliances that typically use natural gas or another fossil fuel as an energy source. According to the Environment and Energy Study Institute, new electric heat pump technology can heat space and water at efficiencies of 200 to 300 percent, compared to 67 percent efficiency in typical Energy Star gas water heaters.¹⁴ This not only allows savings on energy bills, but it also results in reduced GHG emissions and improved indoor air quality.

¹³ Based upon research conducted by the Center for the New Energy Economy.

¹⁴ For more information, see [EESI’s Beneficial Electrification](#).

2. **Adopt Tools for Advancing Electrification** – Building codes and financial incentive programs can be used to advance beneficial electrification. While in some states, local governments are primarily responsible for adopting and implementing building energy codes, in other states, a state legislature, or a code commission tasked by the legislature, adopts and implements statewide standards. Incentive programs established and implemented by states, local governments, or utilities can target replacing systems and appliances that traditionally rely on fossil fuel resources with high efficiency electric systems and appliances including water heaters, furnaces, ovens, and ranges. As an example, [heat pump water heaters](#) and space heating systems can serve as high efficiency replacements for traditionally fossil-based equipment. In conjunction with utility regulatory policy, these technologies can also serve as [demand response](#) tools.

As a note, cities across the country are implementing new building codes promoting beneficial electrification by limiting or banning the installation of natural gas in new construction. State legislatures can pass enabling legislation, allowing municipalities to make independent decisions on beneficial electrification. On the other hand, some states have adopted pre-emptive legislation, banning local governments from adopting policies that limit utility service.¹⁵

Programmatically, there will always be greatest benefit by combining measures – incentives that bundle improvements will generate greater gains than individual measures. For example, a high efficiency heat pump will be much more effective and efficient when coupled with improved building insulation. Rather than only realizing the gains of the new mechanical component, this combination of measures will increase the efficiency of the entire system.



ELECTRIFICATION OF THE TRANSPORTATION SECTOR

Bloomberg New Energy Finance [estimates](#) that nearly 80% of new car sales in the U.S. will be electric by 2040. Therefore, a key part of building a modernized grid involves designing infrastructure that will facilitate easy connection of electric vehicles (EVs) to the grid. One of the most important barriers to increased adoption of EVs is the consumer’s awareness of the availability of EV charging stations. Ultimately, drivers want to be sure that their car will get them where they need to go. The good news is that both supportive policies for developing charging infrastructure and technological advancements have eased “range anxiety.”

The American Council for an Energy Efficient Economy (ACEEE) published a [State Transportation Electrification Scorecard](#) in 2021 that evaluates states’ progress in electrifying transportation in six key policy areas and offers nationally applicable policy recommendations. Wisconsin is unranked in the 2021 report; however, the report does provide an overview of the current state of Wisconsin’s EV policies and infrastructure.

A few [incentives](#) for alternatively fueled vehicles are currently [available](#) in Wisconsin. MGE offers a handful of [programs](#). The PSC [opened](#) an investigation in January 2019 to consider policies related to EVs and EV charging infrastructure. The investigation concluded in December 2020, and [encouraged](#) utilities to propose EV pilot programs to the PSC and provided a framework for utilities to use in developing proposals. In June 2020, the PSC [approved](#) an Xcel Energy program to expand, simplify, and lower the costs of residential and commercial EV charging stations. In June 2021, the PSC approved EV pilot programs for [We Energies](#) and [WPS](#), enabling residential and commercial customers to [finance](#) the costs of installing and maintaining charging stations through their utility bill. Both pilot programs have an enrollment cap of 7,500 residential customers.

In 2021, Governor Evers [proposed](#) \$5 million over the next two years for the development of electric charging infrastructure. In 2022, the Wisconsin Department of Transportation received federal approval for its [EV Charging Infrastructure](#) plan. In [2022](#), there were around 400 EV charging stations and over 9,000 EVs registered in the state.

Regional collaborations around the U.S. are emerging to coordinate the development of electric transportation infrastructure. Wisconsin is also a member of [Drive Electric USA](#), a coalition of states committed to serving as examples of how to build successful statewide strategies to incentivize the purchase and use of EVs. The [Michigan to Montana \(M2M\) Alternative Fuel Corridor](#), a project that began in 2017, will traverse Interstate 94 from Port Huron,

¹⁵ See: See: “States That Outlaw Gas Bans Account for 31% of U.S. Residential/Commercial Gas Use.” S&P Global, 9 June 2022. Available: <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/states-that-outlaw-gas-bans-account-for-31-of-us-residential-commercial-gas-use-70749584>.

Michigan to Billings, Montana, and is the first [alternative fuel corridor](#) (AFC) in the Midwest. A 110 mile southern stretch of Interstate 94 (from Madison, Wisconsin to the Illinois border in Kenosha County) was designated as “EV ready” and in 2020 the corridor was [marked with signs](#) to indicate [EV charging stations every 50 miles](#) (with stations no more than 5 miles off of the interstate). Wisconsin might consider the potential for designing policy to complement this regional initiative. In 2022, the Federal Highway Administration [approved](#) six new AFCs, which supports Wisconsin’s commitment to equitable access to alternative fueling and charging across the state.

The IIJA provides nearly [\\$5 billion](#) over the next five years to support the electrification of the transportation sector. In 2022, \$615 million was made available for the installation of charging stations along designated alternative fuel corridors, through a new [National Electric Vehicle Infrastructure](#) (NEVI) formula grant program. To be eligible to receive this funding, states must have submitted a NEVI plan to the Federal Highway Administration (FHWA) by August 2022. All 50 states plus D.C. and Puerto Rico submitted a NEVI plan. In July 2022, the state submitted a [Wisconsin Electric Vehicle Infrastructure Plan](#), which was approved by the U.S. Department of Transportation in September 2022. [Wisconsin](#) will receive an estimated \$16,753,057 in Fiscal Year 2023.

It is worth [noting](#) that in Wisconsin, charging stations that are privately owned charge users by the minute. However, there are IIJA provisions that require states that use federal funds to [charge by the kilowatt hour](#). Because Wisconsin only [allows](#) regulated public utilities to sell electricity to the public, there will likely need to be a change to state law if the state plans to use federal funding. The Governor recommended these changes in his proposed [2023-2025 transportation budget](#).

The IIJA also provides approximately \$1.1 billion for grants to state and local governments to assist with the purchase or lease of low- or no-emission vehicles for transportation fleets. To be eligible, a state must have a [Zero-Emission Fleet Transition Plan](#) in place.

[The IRA](#) extended the \$7,500 EV tax credit for purchases of new plug-in EVs through 2032 and removed the eligibility cap based on number of vehicles sold by manufacturers. The Act includes requirements for material sourcing that must be met by manufacturers starting in 2027. The IRA also created a new \$4,000 refundable tax credit for the purchase of used EVs and a new credit for commercial EVs. Appropriations in the Act include \$1 billion for replacing medium- and heavy-duty vehicles with EVs, \$3 billion to fund projects to reduce transportation sector emissions, and \$3 billion to procure alternatively fueled vehicles for the federal fleet.

There are several policy opportunities to further encourage and prepare for increased market penetration of EVs in the state, including:

- 1. Utility Investment in “Make-Ready” Infrastructure and Utility-Run Programs** – “Make-ready” means building and upgrading the infrastructure necessary for the installation of a charging station. RMI [recommends](#) that policies providing incentives for utilities to invest in make-ready infrastructure or charging infrastructure itself should be performance-based and encourage investments in locations that are unlikely to be targeted by the private sector, such as low-income and multi-unit dwellings. Additionally, utilities can incentivize EVs by incorporating charging rate incentives and [time of use rates](#) to reduce the cost of electricity used for charging. Eligibility for a charging rate incentive may be limited to users with separate or advanced metering systems. Some utilities also offer financial incentives for the purchase of EVs or EV charging equipment. In some states, enabling legislation might be required to direct or authorize a public utilities commission to allow regulated utilities to recover the costs of providing these incentives.
- 2. Parking Infrastructure Requirements** – In tandem with the development of [Wisconsin’s NEVI plan](#), legislation could set requirements for parking lots and other infrastructure. Some states have adopted permitting standards for parking lots, requiring, for instance, that for every 100 parking spaces, there must be at least one EV charging space. Legislation could also incentivize utilities to develop make-ready locations. Wisconsin’s [building energy code](#) could also be updated to include requirements for EV charging infrastructure.
- 3. Rental Properties and HOAs** – Legislation can also make it easier for lessees, renters, and members of a homeowners’ association (HOA) to install charging equipment. Typically, lessors are directed to allow lessees, at their own cost, to install charging systems. In some cases, lessees are required to maintain additional insurance for the system. Legislation related to HOAs typically directs these organizations to avoid restrictions that would inhibit the installation of charging equipment.

4. **EV and Charging Equipment Financing and Financial Incentives** – Providing financial incentives and innovative financing options can help spur greater market penetration of EVs. Sales, property, and income tax credits are some of the simplest methods for addressing the high up-front costs of EVs and EV charging equipment. While sales tax credits are typically applied at the time of purchase, property and income tax credits may do less to address upfront cost barriers, as the credit is not applied at the time of purchase.¹⁶ States have adopted other financial incentives including low-interest loans, grants, vouchers, and rebates. A handful of states qualify EV charging equipment under their property assessed clean energy (PACE) programs. A simple solution is to increase and expand existing tax credits to incentivize commercial, publicly available charging stations. Wisconsin does offer some EV and charging incentives as discussed above.

States might consider adopting programs to incentivize the purchase of used EVs. With increasing battery capacities and falling prices, there are an increasing number of EVs with relatively low mileage that are being traded in. States might also consider programs that target low- and moderate-income (LMI) customers that may not qualify for a loan directly. Such a program could facilitate sales through such things as loan loss reserve and interest buy down programs.

5. **HOV and HOT Incentives** – Allowing EVs to use high-occupancy vehicle (HOV) or high-occupancy toll (HOT) lanes, regardless of number of passengers and without paying the toll, may make EV ownership more attractive. Most states require that EVs using these lanes display a decal or a particular license plate; others also limit eligibility to certain types of vehicles or to a certain number of vehicles.
6. **Fleet Mandates** – Some states require state agencies to acquire a fixed or growing percentage of electric, hybrid, and/or alternative fuel vehicles. For instance, [Massachusetts](#) required that its state fleet be no less than 50% hybrid or alternative fuel vehicles by 2018 and set the following [state fleet targets for zero emission vehicles \(ZEVs\)](#): 5% by 2025; 20% by 2030; 75% by 2040; and 100% by 2050. A City of Seattle [study](#) found that the city could save millions by switching to EVs.

Milwaukee [announced](#) in March 2023 that the city will purchase low- or zero-emissions vehicles. [MGE](#) aims to reach a 100% EV or hybrid fleet by 2030 and offers other businesses fleet analysis and an EV Fleet Rate.

7. **Federal Congestion Mitigation and Air Quality (CMAQ) Funds** – [CMAQ funds](#) (almost \$2.6 billion in fiscal year 2023) are available to states to assist them in meeting Clean Air Act requirements. State funds can be used to deploy EV charging infrastructure. There may be a unique opportunity to pair a request for CMAQ funds with a commitment from utilities to invest in charging infrastructure as a public/private partnership that would leverage the federal investment.

NEWS

- May 4, 2023: [Wisconsin Researchers Are Looking at Ways Solar and Agriculture Could Coexist on the Same Land](#)
- May 2, 2023: [When it Comes to Energy Independence on Wisconsin's Tribal Reservations, 'Actions are More Than Words.' How One Tribe is Taking Action.](#)
- April 27, 2023: [Dane County Becomes First in Wisconsin to Achieve 100% Renewable Energy](#)
- April 15, 2023: [Wisconsin Could Become an Electric Vehicle Production Powerhouse, Report Says](#)
- April 14, 2023: [New Wind Farm Comes Online in Rural Wisconsin, Generating Enough Energy to Power 50K Homes](#)
- April 4, 2023: [Wisconsin City Moves Towards Full Fleet Electrification](#)
- March 30, 2023: [New Coalition Wants to Fast Track Wisconsin's Transition to Clean Energy. Here's What to Know.](#)
- March 20, 2023: [Utility Regulators Approve \\$649M Purchase of Wisconsin's Largest Renewable Energy Plant](#)
- March 10, 2023: [We Energies and Foxconn Partner on Clean Energy Project in Wisconsin](#)
- February 2, 2023: [Utility Alliant Energy Plans c.400MWh BESS at Retiring Coal Plant in Wisconsin](#)
- January 30, 2023: [Solar for Good Program Enables Energy Savings for Wisconsin Schools, Nonprofits](#)

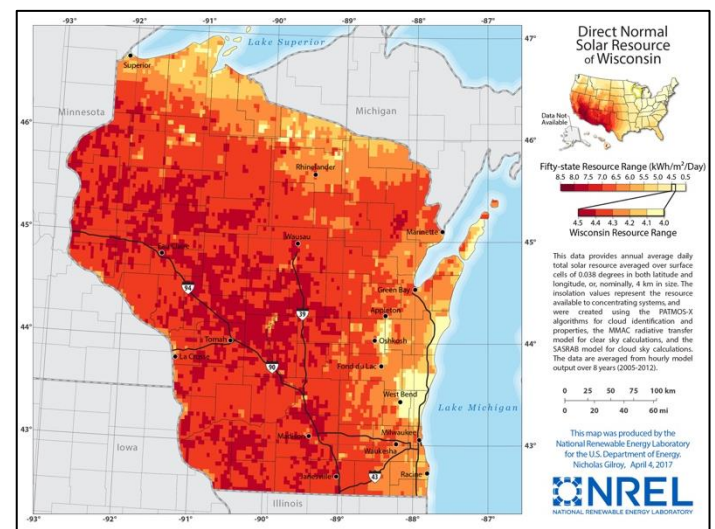
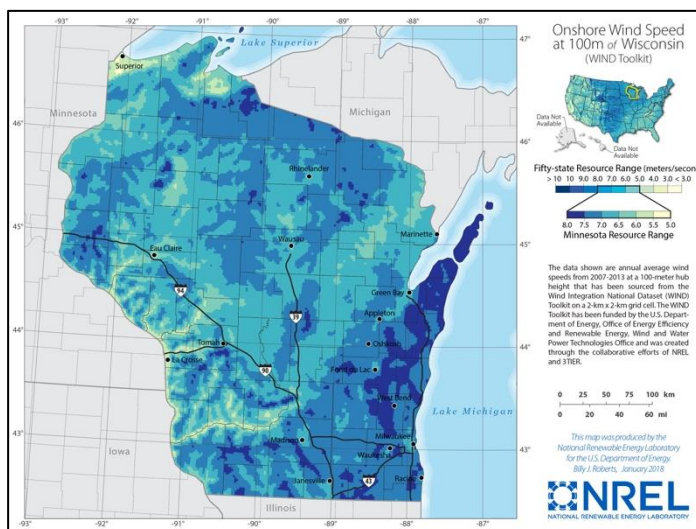
¹⁶ A [study](#) by the Congressional Research Service suggests that tax credits are important tools for ensuring increased adoption of alternative-fueled vehicles.

OTHER RESOURCES

- Wisconsin Office of Energy Innovation: <https://psc.wi.gov/Pages/Programs/OEI.aspx>
- RENEW Wisconsin: <https://www.renewwisconsin.org/>
- The American Council for an Energy-Efficient Economy State and Local Policy Database, Wisconsin: <https://database.aceee.org/state/wisconsin>
- The Database of State Incentives for Renewables and Efficiency, Wisconsin: <http://programs.dsireusa.org/system/program?fromSir=0&state=WI>
- U.S. Department of Energy's Alternative Fuels Data Center, Wisconsin: <https://www.afdc.energy.gov/states/wi>
- U.S. Energy Information Administration, Wisconsin: <https://www.eia.gov/state/?sid=WI>
- American Clean Power Association State Fact Sheets: <https://cleanpower.org/facts/state-fact-sheets/>
- SPOT for Clean Energy, Wisconsin: <https://spotforcleanenergy.org/state/wisconsin/>

WISCONSIN'S WIND AND SOLAR RESOURCES

WIND <https://windexchange.energy.gov/states/wi>



Our Resources

CNEE Homepage: <https://cnee.colostate.edu/>

The SPOT for Clean Energy: <https://spotforcleanenergy.org/>

The Advanced Energy Legislation (AEL) Tracker: <https://www.aeltracker.org/>

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