National Caucus of Environmental Legislators

Utility Briefing Book

NCEL
National Caucus of
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Introduction

Utility policy plays a pivotal role in the pursuit of climate goals and the transition from a fossil fuel-based economy to a clean energy economy. The utility sector is a primary source of greenhouse gas emissions, with the power sector contributing 25% to total U.S. emissions. Currently, about 60% of electricity generation is still derived from fossil fuels such as coal, natural gas, petroleum, and other gasses. By creating and implementing effective utility policies, legislators can help steer the energy industry away from fossil fuels and towards cleaner, more sustainable practices. The benefits from the transition to a clean energy economy cannot be achieved without investing in an efficient, optimized, and modern grid that can effectively utilize new technologies and resources, while also responding to customer needs and decreasing customer costs. The electrical grid plays a pivotal role in the clean energy future by enabling the reliable integration, distribution, and utilization of clean energy resources on a large scale.

NCEL is grateful for the support and expert knowledge of the following organizations during the creation of this briefing book: Regulatory Assistance Project (RAP), Energy and Policy Institute, and Grid Strategies.

*All legislation in this briefing book marked with **two asterisks "**" indicates bipartisan sponsorship.***

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Overview

Utilities may provide services across three main segments: generation, transmission, and distribution of electricity. **Generation** is when power plants burn fossil fuels or clean energy facilities harness energy like wind or solar to generate electricity. This electricity is transmitted on high-voltage power lines from power plants to local areas or regions. These **transmission** lines form the network known as the power grid, which connects different parts of the country and facilitates the movement of electricity. Electricity moving through the transmission system is reduced in voltage through transformers, and then sent through the **distribution** lines connected to homes, businesses, and other customers.

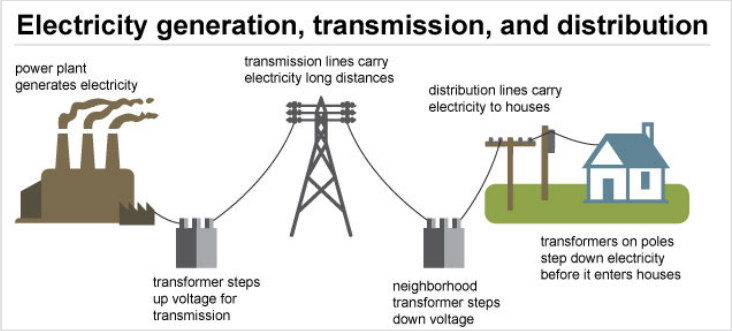


Figure 1: *Electricity generation, transmission, and distribution visualized. Source: US Energy Information Administration (original).*

In some cases, a utility might be vertically integrated, meaning that they are responsible for generation, transmission, and distribution of electricity. In other cases, there are retail utilities that buy electricity from various sources, including generating companies, and sell electricity directly to the end consumer. Utilities also perform a variety of other roles such as customer service and billing, energy efficiency programs, renewable energy integration, and grid modernization. The roles that a utility provides typically are determined by the type of utility and the market structure of any state.

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Utility Ownership

There are three main types of utility ownership models: Investor-Owned Utilities, Publicly-Owned or Municipal Utilities, and Rural Electric Coops.

Investor-Owned Utilities (IOU)

- For profit, shareholder owned
- Regulated by the state Public Utilities Commission (PUC)
- Governed by independent directors elected by corporate shareholders

Publicly-Owned Utilities (POU) or Municipal Utilities

- Not for profit, community owned
- Regulated in very limited instances by the PUC
- Governed by elected/appointed boards- mayors, city council members, and citizens

Rural Electric Cooperatives (Co-Ops)

- Not for profit, member owned
- Regulated some by the PUC
- Governed by member-owner elected boards

Utility Regulation

Utilities, mainly Investor-Owned utilities (IOU), are subject to regulation by state public utility commissions (PUCs), also known as public service commissions (PSCs) because of the monopoly characteristics of the industry. Utility regulators ensure the utilities provide safe and reliable energy while balancing the compensation for the utilities through rates. These regulatory bodies oversee utility operations, review rate proposals, approve investments, and establish rules and standards.

In the case of Publicly-Owned Utilities (POU) and rural electric cooperatives, the rate-setting process differs. Since they are owned and operated by government entities, such as municipalities, counties, or public utility districts, customers of these utilities can have varying levels of involvement and influence in the rate-setting process compared to investor-owned utilities. Rural Electric cooperatives (co-ops), are member-owned utilities, meaning the rate-setting process can involve members, assessing cost-of-service, and board decision-making.



A Closer Look: Rate Setting

Rate setting is an important function of utility regulation. The regulatory process involves evaluating the costs incurred by utilities, including investments in infrastructure, fuel costs, maintenance, and other operating expenses. Rates are then set to recover these costs and provide a reasonable return on investment for the utility that is sufficient for fulfilling the obligation to serve.

Overview

Utility companies are often considered natural monopolies due to their high upfront costs, which create barriers to entry and make it economically inefficient to have multiple competing providers. To address this, each state has its own regulatory body, known as Public Utility Commissions (PUCs), that oversees and regulates utilities at the state level. The primary responsibility of PUCs is to protect the public interest by ensuring safe, reliable, and accessible utility services.

PUCs play a crucial role with regards to utility regulator mandates through rate setting and approval, service quality oversight, consumer protection, infrastructure planning and investment, policy development, regulatory compliance and enforcement, and public outreach. Over the past 130 years, PUC mandates have focused almost exclusively on rate setting, but with the dynamic nature of the energy system today, other factors such as explicit considerations of the public, environment, and equity should be within their purview.

Although PUCs are the main regulators of utilities, legislatures can play a role in regulating by setting directives. Legislators can mandate PUCs to consider legislative goals such as affordability, equity, reliability, and clean energy. Without legislative action, PUCs may not be able to expand their role.

Additional Resources

- **The Role of State Utility Regulators in a Just and Reasonable Energy Transition** | *National Association of Regulatory Utility Commissioners (NARUC)*
- **Rocky Mountain Institute (RMI)** has a **Regulatory Resources Dashboard** with relevant research and tools for state public utilities commissioners to decarbonize the grid.
- **State Energy and Environment Guide to Action: Electric Utility Regulatory Frameworks and Financial Incentives** | *Environmental Protection Agency (EPA)*

Legislation

- ****Colorado S.B.236 (enacted 2019):** Instructs the PUC to approve utilities' Clean Energy Plans only if they found them to be in the public interest including: achieving reductions in carbon dioxide and other emissions, bringing environmental and health benefits, and increasing the reliability and resilience of Colorado's electric system.
- ****Massachusetts S.9 (enacted 2021):** Expands the scope of the Department of Public Utilities to include security, equity, and the reduction of greenhouse gasses.
- **Maine L.D.1682 (enacted 2021):** Adds the reduction of greenhouse gas emissions and mitigation of disproportionate energy burdens to the purposes of the Commission and directs the adoption of rules to implement this new purpose.
- **Maryland H.B.1393 (enacted 2024):** Mandates the PSC to report on projects related to greenhouse gas reduction, renewable energy, and energy system resiliency, along with requiring the PSC to adopt regulations for pursuing federal funds and investing in demand-side reliability and efficiency improvements
- **Minnesota S.F.4942 (enacted 2024):** Mandates the PUC to establish standards for sharing utility costs for system upgrades, ensuring fair cost-sharing and advancing state renewable and carbon-free energy goals along with provisions for energy conservation programs for low-income households

Overview

Clean energy siting and permitting is crucial to meet clean energy and climate goals. Expansion of clean energy is complex and faces permitting obstacles at the state and local levels inhibiting or delaying projects. Communities may oppose projects due to visual or location concerns; statewide complicated environmental reviews may burden or block projects. Permitting obstacles also exist for transmission infrastructure. To learn more about transmission specifically, see NCEL's Transmission Briefing Book.

Although a streamlined permitting process is imperative, public interest concerns including environmental justice, tribal sovereignty, and environmental impacts should not be overlooked. Meaningful community engagement can help address local opposition to projects.

Legislation

Incentives for Streamlining Clean Energy Siting & Permitting:

- **Colorado S.B.212 (enacted 2024):** Provides resources to local governments to assess, site, and permit utility-scale renewable energy projects while setting best management practices to avoid, minimize, and mitigate wildlife and land impacts.
- ****Indiana S.B. 411 (enacted 2022):** Establishes voluntary default standards for siting wind power projects and commercial solar projects. If a community adopts the default standards or standards less restrictive than the default standards, communities are designated as a solar or wind ready community to make clear which communities are ready for renewables.

Creating Standards & Authority for Streamlining Clean Energy Siting and Permitting:

- **Minnesota S.F. 4942 (enacted 2024):** Streamlines the energy permitting process by creating two separate review processes: a standard review for smaller wind and solar projects and power lines and a more intensive review for larger projects.
- ****Washington H.B.1216/S.B.5380 (enacted 2023):** Streamlines permitting by establishing the Interagency Clean Energy Siting Coordinating Council, expediting environmental reviews by amending the State Environmental Policy Act, and establishing a new program for the designation of Clean Energy Projects of Statewide Significance.

Key Facts

1. The leading causes of cancellation for solar and wind projects are local ordinances or zoning, grid interconnection, and community opposition.
2. More than 300 counties have banned or instituted moratoria on wind or solar projects.
3. The majority of states (37) give local governments authority to set clean energy siting standards (tip heights, setbacks, etc.).

Additional Resources

- **Transmission Briefing Book** | *NCEL*
- **Siting Clean Energy: An Inventory of State Policies and Permitting Authorities** | *Berkeley Lab*
- **Siting of Large-Scale Renewable Energy Projects** | *Department of Energy*
- **Eight facts about permitting and the clean energy transition** | *The Hamilton Project*
- **Warp Speed Clean Energy: Expediting Permitting and Equitable Grid Deployment Without Congress** | *Evergreen* Action

Overview

Performance-based regulation (PBR) refers to regulatory frameworks that seek to improve utility performance by shifting the dynamics around how utilities make money. PBR may build on or supplant traditional based methods of regulation like cost of service regulation (COSR). The COSR structure allows utilities to increase profits through building out infrastructure, generally fossil fuel, which can burden consumers with higher costs and makes it more challenging to meet climate goals. Through performance-based regulations, utilities can be encouraged to improve efficiency, customer service, adopt new technologies, and achieve clean energy goals. These regulations can create a win-win scenario by aligning the financial interests of utilities with societal and state policy goals.

Approaches to Performance-Based Regulation (PBR)

There are four primary components to PBR. However, utilities have co-opted many of these approaches for their own benefit making it important for legislators to understand and specify how these approaches are used.

1. **Revenue Decoupling:** Decoupling breaks the link between the amount of energy a utility delivers to customers and the revenue it collects, thus minimizing the utility's incentive to sell more energy. Public Utilities Commissions (PUCs) and utilities agree on a fixed revenue and then allow rates to change based on energy consumption in order to meet the fixed target.
2. **Performance Metrics:** Metrics that are clear and measurable used to monitor and incentivize performance such as reliability, customer service quality, and energy efficiency.
3. **Multiyear Rate Plans (MRPs):** MRPs allow utilities to set rates and revenue targets for multiple years instead of going through an annual rate-setting process.
4. **Incentives for Underused Practices:** Financial incentives that encourage utilities to pursue new solutions that they might not normally pursue due to risk.

Legislation

- ****Connecticut H.B.7006 (enacted 2020):** Requires the Public Utilities Regulatory Authority to investigate, develop, and adopt a framework for implementing performance-based regulation of each electric distribution company.
- ****Colorado S.B. 218 (enacted 2024):** Encourages investment by tying the utility's Distribution System Planning (DSP) directly to cost recovery; the utility must prioritize investments in areas at or near hosting capacity limits, including improving infrastructure for income-qualified or disproportionately impacted communities; requires the commission to tie performance incentives to meeting interconnection timelines.
- ****Indiana H.B.1007 (enacted 2023):**Decisions concerning Indiana's electric generation resource mix must take into account the following attributes of electric utility service: (1) reliability, (2) affordability, (3) resiliency, (4) stability, and (5) environmental sustainability. Requires the Indiana Utility Regulatory Commission (IURC) to study performance-based regulations.
- ****Virginia S.B.966 (enacted 2018):** Introduces performance-based regulations to incentivize utilities in Virginia to achieve specific performance targets related to renewable energy deployment, energy efficiency, and grid modernization.
- ****Washington S.B.5295 (enacted 2021):** Transforms the regulation of gas and electrical companies toward multiyear rate plans and performance-based rate making.

Additional Resources

- **Performance-Based Regulation: A Toolkit for Policymakers** | *National Association of Regulatory Utility Commissioners (NARUC)*
- **Next-Generation Performance-Based Regulation: Emphasizing Utility Performance to Unleash Power Sector Innovation** *(Overview)* | *Regulatory Assistance Project (RAP)*
- **Next-Generation Performance - Based Regulation Emphasizing Utility Performance to Unleash Power Sector Innovation** *(Full Report)* | *National Renewable Energy Laboratory (NREL)*
- **Performance-Based Regulation: Harmonizing Electric Utility Priorities and State Policy** | *National Conference of State Legislatures (NCSL)*

Overview

Publicly owned utilities power more than 2,000 cities and towns, serving more than 48 million people in the United States. The goal for public utilities is to provide customers in the community with safe, reliable, and not-for-profit electricity at a reasonable price.

Since public utilities are owned by and operated for the citizens they serve, policymakers have more power in the decision-making process. Local regulation and governance can help to ensure that utilities reflect the needs and desires of the community.

Key reasons for public power legislation include empowering local control and community ownership, emphasizing public interest and welfare, protecting consumers by ensuring fair rates, ensuring service reliability and resilience, increasing local economic development, and improving public accountability and transparency.



State Highlight: Nebraska

Nebraska provides a unique and interesting case study for the benefits of publicly owned utilities. Nebraska is the only state in the U.S. where all major electric utilities are publicly owned and governed by boards of directors. The boards of directors are chosen directly by voters, allowing Nebraskans to elect officials that support strong wind and solar development. This has created the ability for the state's utilities to adopt goals for net-zero carbon emissions from generation resources. With these goals, Nebraska is on track to see large social, environmental, and economic benefits.

Legislation

- ****Maine L.D.1708 (passed both chambers 2021):** Authorizes the replacement of the state's two largest electricity companies with a publicly owned utility.
- **New York S.4006C (enacted 2023):** Directs the New York Power Authority (NYPA) – the largest state public utility in the country – to build renewable energy projects to help reach the state's climate goals - originally introduced as a standalone bill.

Additional Resources

- **American Public Power Association (APPA)** is a national organization representing community-owned electric utilities in the United States.
- **Electric Municipal Utilities & the Transition to a Clean Energy Future: A Guide for Municipal Utility Leaders** | *Climate Cabinet Education*
- **Rural Electric Cooperatives and the Transition to a Clean Energy Future: A Guide for Cooperative Leaders** | *Climate Cabinet Education*

Overview

While utilities will play a large role in the transition away from fossil fuels and towards clean energy, some are fighting against this transition using tools funded by ratepayers. Utilities have used strategies such as direct spending on legislation, lobbying, trade associations, politically motivated charitable spending and spending on "social welfare" organizations, and public relations and marketing.

To protect customers and reign in utilities, policymakers can utilize rules that will prevent utilities from using ratepower money for any political activity. Policymakers can also require mandatory disclosures on utilities' political spending, and can set up explicit enforcement mechanisms including fines for violations.

Strategies

- Pass tighter, updated rules to prevent utilities from using ratepayer money for any political activity.
- Require regular mandatory disclosures that provide greater visibility into utilities' political spending.
- Set up explicit enforcement programs, including effective fines for violations, to deter utilities from breaking rules.

Legislation

- **Colorado S.B.291 (enacted 2023):** Prohibits investor-owned utilities from charging their customers for any membership dues in trade associations, legislative lobbying expenses, or any other activities influencing legislation, ballot measures, and other regulatory actions.
- ****Connecticut S.B.7 (enacted 2023):** Prohibits investor-owned utilities from charging customers for lobbying, trade association dues, public relations expenses, and efforts to argue for rate increases; provides funding for non-utility stakeholders to intervene in proceedings at the Public Utilities Regulatory Authority (PURA).
- **Maine L.D.325 (enacted 2023):** Prohibits investor-owned utilities from charging customers for lobbying, trade association and chambers of commerce dues, charitable contributions, and public relations expenses.
- **New York S.B.1556 (enacted 2021):** Prohibits utilities from recovering from customers the costs of any trade associations that engage in any legislative lobbying.

Additional Resources

- **Open Secrets** tracks and reports the yearly amount spent by electric utilities on federal lobbying.
- **Getting Politics Out of Utility Bills: How policymakers can protect customers from being forced to fund utilities' political machines** | *Energy and Policy Institute*
- **Strings Attached: How utilities use charitable giving to influence politics and increase investor profits** | *Energy and Policy Institute*
- **Can State PUCs Lead in the Clean Energy Transition? Lessons From Six States** | *Climate and Development Lab at Brown University*
- **Federal Regulators Urged to End Utility Practice of Funneling Ratepayer Money to Anti-Environment Trade Groups** | *Center for Biological Diversity*

Overview

Intervenors are parties who engage in utility policy proceedings that involve important decisions regarding utility rates, policies, infrastructure investments, or other significant matters. Traditionally, utilities are able to hire attorneys and expert consultants to support their position in regulatory proceedings whereas other stakeholders, such as customers or civil society organizations, might not have the economic resources needed to intervene in proceedings to protect their interests. It is important to ensure stakeholder participation in these proceedings, because utilities typically argue for matters that involve an increase in costs to ratepayers.

Intervenor compensation is a mechanism designed to support active participation by consumer stakeholders in utility policy proceedings. This mechanism is typically a program designed to offer individuals or organizations that actively participate in utility proceedings with financial support or reimbursement. It is designed to offset the costs associated with intervenor participation and facilitate meaningful engagement in regulatory processes. As of 2021, 16 states have an authorized intervenor compensation program in statute or administrative code.

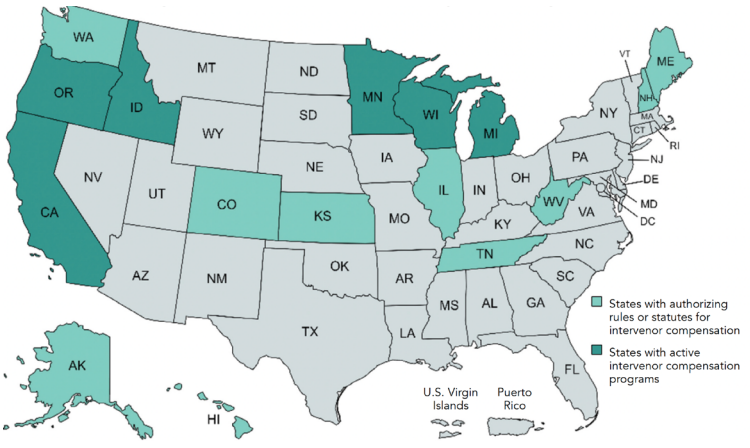


Figure 2: *State Status for Intervenor Compensation Programs as of December 2021. Source: National Association of Regulatory Utility Commissioners (NARUC) (original).*

Legislation

- **California S.B.512 (enacted 2016):** Expands intervenor compensation provisions to enhance public participation in utility regulatory proceedings by providing financial support to eligible intervenors.
- **Illinois S.B.2408 (enacted 2019):** Provides for a Consumer Intervenor Compensation Fund ("CICF") to support participation including lay or expert testimony concerning the expenses, investments, rate design, rate impact, or other matters.
- ****Oregon H.B.2475 (enacted 2021):** Authorizes Public Utility Commission to consider differential energy burden and other inequities of affordability in rates.
- ****Michigan S.B.437 (enacted 2016):** Creates intervenor compensation program and the only program that is independent of its state commission (Michigan Public Service Commission).

Additional Resources

- **State Approaches to Intervenor Compensation** | *National Association of Regulatory Utility Commissioners (NARUC)*
- **Low Income Solar** put together a **policy guide** on the varying state intervenor compensation programs.

Microgrids

As storms become stronger and electricity demand increases, the traditional electricity grid needs innovation and development to keep up. Microgrids, localized grids that can disconnect from the traditional grid to operate independently, can strengthen grid resilience and help mitigate grid disturbances. Microgrids are built to run independently, with the ability to generate, store, and distribute energy separate from or in addition to a conventional power grid.

Accessing energy and separating from the energy grid at large is called "islanding." Islanding allows microgrids to function even if the main power grid is down. This allows microgrid operators, such as housing developments, local government buildings, or commercial businesses, to maintain power during outages. Additionally, it helps to alleviate pressure on the main grid, as microgrids can offload and use their own energy during periods of peak demand.



Microgrids Example: Blue Lake Rancheria Tribe - The Blue Lake Rancheria Tribe owns a casino resort in Northern California, set on the 76-acre reservation. The tribe runs a microgrid powered by solar panels, with energy stored in Tesla batteries. Not only does the microgrid save 175 tons of carbon emissions per year, but it also has kept electricity running during blackouts. In 2019, amid wildfires in the state, 13,000 people fled to the casino during a planned blackout. The microgrid was able to provide the energy needed to power medical devices and fuel a municipal water system.

Photo Credit: Blue Lake Rancheria

Virtual Power Plants (VPPs)

A virtual power plant (VPP) is a collection of small-scale energy sources that, combined, can provide energy to the grid similarly to traditional power plants. VPPs can generate their own energy, often through solar panels, electric vehicle chargers, and smart water heaters. These energy sources come from thousands of households and businesses, linked together into a unified system by advanced software and technology. This process adds to the energy supply, alleviating pressure from power plants during high demand.

VPPs are deemed "virtual" due to their lack of a central physical facility. Instead, they aggregate energy from several smaller-scale producers. VPPs are able to skirt typical transmission and distribution bottlenecks by building and deploying technology quickly.



VPPs Example: Rocky Mountain Power Program - The Rocky Mountain Power company, based out of Salt Lake City, runs a program that allows customers to participate in a VPP. Customers who generate solar power receive additional benefits if they opt to install battery storage systems as well. These battery storage systems allow stored energy to flow to the greater electric grid. The customers benefit from lower rates while Rocky Mountain Power is able to use the collectively stored energy in times of peak demand (as opposed to requesting more energy from overrun power plants).

Similarities

- Both Microgrids and VPPs are able to generate distributed renewable energy, and store this energy at the distribution level.
- Both Microgrid and VPPs can save facilitators and ratepayers large sums of money through energy generation and lower pressure on the grid.

Differences

- Microgrids can "island" from the greater power grid, functioning independently. VPPs are often tied more strictly to the electricity grid.
- Microgrids rely more heavily on physical materials and innovations while VPPs depend more heavily on smart metering and information technology.
- Microgrids are typically constrained to a smaller geographic location. VPPs are able to operate across broader geographic areas.
- Microgrids face large political and legal constraints. VPPs are able to better navigate regulatory hurdles.

Legislation

Virtual Power Plants

- ****Colorado S.B.24-218 (enacted 2024):** Encouraged forward looking investment by tying the utility's Distribution System Planning (DSP) directly to cost recovery; creates a virtual power plant program.
- ****Colorado H.B.22-1013 (enacted 2022):** Appropriated $3.5 million to the Colorado Department of Local Affairs and the Colorado Energy Office for rural electric cooperatives and municipal utilities to develop microgrids in areas at risk from natural disasters.
- **Texas S.B.1699 (enacted 2023):** Requires the Texas PUC to establish a demand reduction goal and establish an aggregated distributed energy resources (or VPP) pilot program. Provides retail electric providers the ability to create VPP programs; authorizes the Texas PUC to establish rules for VPP providers; clarifies that VPP program operators are not power generation companies.
- **Virginia H.B.2346 (enacted 2025):** Requires the creation of a statewide Virtual Power Plant pilot program.

Microgrids

- ****New Hampshire S.B.230 (passed Senate 2025):** Empowers the NH public utilities commission to approve dedicated public purpose multi-customer microgrids. In most states, these are currently unable to be developed due to outdated statutes.
- ****Colorado H.B.1013 (enacted 2022):** Appropriated $3.5 million to the Colorado Department of Local Affairs and the Colorado Energy Office for rural electric cooperatives and municipal utilities to develop microgrids in areas at risk from natural disasters.
- ****Texas S.B.2627 (enacted 2023):** Established the Texas Backup Power Program, a pilot program to fund the deployment of microgrids at critical facilities, including groceries stores, gas stations, nursing homes, public safety buildings, and more.

Overview

Currently, the U.S. has immense congestion along transmission lines and lacks transmission capacity, especially in the case of integrating clean energy resources. This leads to the inability to deliver electricity from current and projected clean energy resources. Also, the regions where clean energy resources are vast, are often far from cities and the existing grid, meaning there needs to be thousands of miles of new high-voltage transmission lines built. There is no single entity for organizing the grid and transmission lines often require extensive permitting and approval of multiple regional authorities.

State legislators can play a crucial role in long-term transmission planning, strengthen ties between regions, and propose new legislation for transmission development.

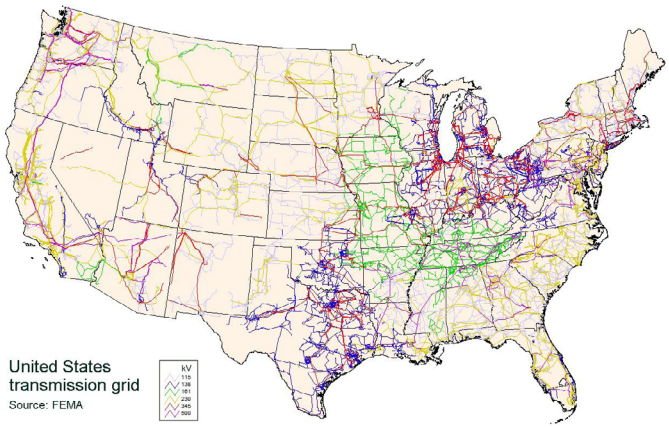


Figure 3: *United States Electric Transmission and Distribution Network. Source: FEMA (original).*

Legislation

- ****Colorado S.B.072 (enacted 2021):** Created the Colorado Electric Transmission Authority (CETA) along with requiring transmission utilities to join an organized wholesale market by 2030 and modernize the state's electricity grid system.
- **Colorado S.B.212 (enacted 2024):** Provides resources to local governments to assess, site and permit utility-scale renewable energy projects, including transmission facilities, while setting best management practices to avoid, minimize, and mitigate wildlife and land impacts.
- **Minnesota S.F.4942 (enacted 2024):** Requires transmission owners to identify areas of congestion over the past 3 years and the next 5 years, the increased cost to ratepayers as a result of that congestion, the technical feasibility and cost of installing GETs to address congestion, and propose an implementation plan to install GETs at such points. Allows the Commission to approve cost recovery mechanisms for GET investments. Requires the Public Utilities Commission to consider locating a route for a high-voltage transmission line on an existing high-voltage transmission route and using parallel existing highway right-of-way.
- **New York A.8808C (enacted 2024):** Transfers jurisdiction of siting of electric transmission facilities from the Public Service Commission to the Office of Renewable Energy Siting (ORES); require ORES to adopt uniform permit terms for electric transmission facilities; exempts lines in existing ROWs from siting application.

Additional Resources

- **Transmission Briefing Book** | *NCEL*
- **Why Transmission Matters** | *Americans for a Clean Energy Grid*
- **Transmission Planning and Development Regional Report Card** | *Grid Strategies*

What is an RTO?

Regional Transmission Organizations (RTOs) or Independent System Operators (ISOs) are one type of wholesale energy market in the US. They oversee the generation, transmission, resource adequacy, and reliability functions of the grid. An RTO enables individual operators of different generation sources, such as wind farms or solar arrays, to submit offers to run their electricity to power the grid on a competitive basis.

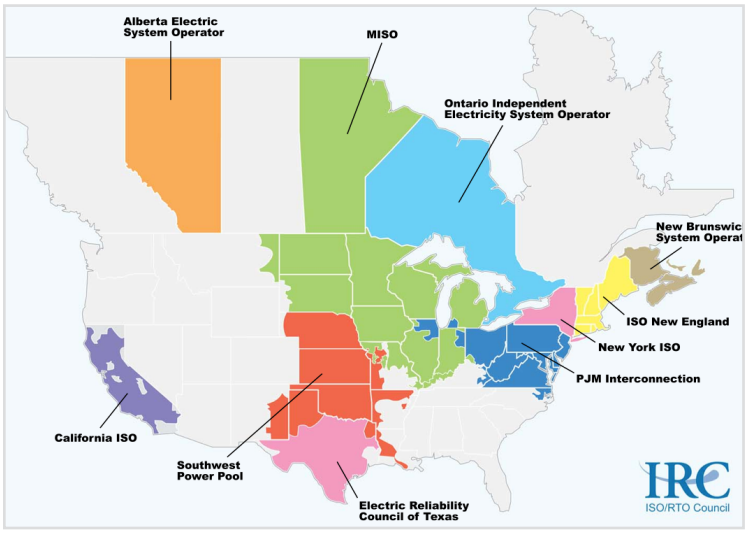


Figure 4: *Map of RTOs nationwide. Areas in gray do not contain RTOs or ISOs and are currently run under bilateral markets. Source: EIA (original).*

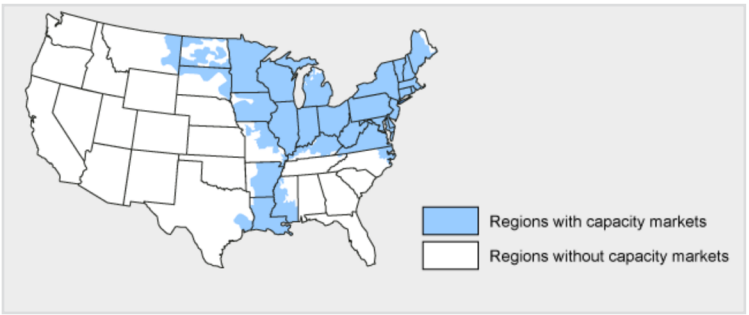


Figure 5: *The areas in the United States with Capacity Markets. This area encompasses the r5gions covered by the RTOs PJM, ISO-NE, NYISO, and MISO. Source: FERC (original).*

Why should legislators pay attention to their RTO?

Regional Transmission Organizations can have positive impacts on the reliability, resilience, affordability, and cleanliness of the grid.

- **Keeping Rates Stable:** Geographic variability allows RTOs to help sunnier states access renewable electricity from a more windy state and vice versa.
- **Reliability During Extreme Weather:** During major weather events, utilities can experience blackouts and increased demand. With expanded transmission, regions can broaden the pool of available resources, making the grid more reliable, affordable, and efficient, particularly during extreme weather events.
- **Capacity Markets:** Some RTOs operate capacity markets, which are used to identify the types of resources used for peak electricity demand longer term (see Figure 5). If state legislators are creating policies to promote renewables or reduce pollution in environmental justice communities, it is important to ensure the capacity market is not working counter to their interests by propping up fossil fuels.
- **Opportunity for New RTOs:** Currently, the West and Southeast do not have RTOs. There is vast opportunity to create RTOs for both the West and Southeast that are regionally focused and contribute to more reliable, efficient, and affordable energy.

Continue to next page for legislation and additional resources related to Regional Markets.

Legislation

- **Colorado S.B.072 (enacted 2021): Requires transmission utilities to join an organized wholesale market by 2030 and modernize the state's electricity grid system.
- Nevada S.B.448 (enacted 2021): Accelerates construction of a massive transmission project and requires that the state join a regional transmission organization by 2030.
- **South Carolina H.4940 (enacted 2020): Forms a committee to investigate a range of market-based reforms, including participation by SC utilities in a statewide or regional wholesale market.

Additional Resources

- **What are Regional Transmission Organizations and How do They Interact with State Climate Goals?** | *National Caucus of Environmental Legislators (NCEL)*
- **The Federal Energy Regulatory Commission (FERC)** has **extensive information on RTOs** on their website.
- **In Support of Western Regional Resource Transmission Planning Coordination** | *Center for New Energy Economy (CNEE) at Colorado State University*
- **Market Reforms Can Power the Energy Transition in PJM** and **MISO** | *ACORE*
- **Assessment of Potential Market Reforms for South Carolina's Electricity Sector** | *The Brattle Group*

UTILITY AND GRID ACRONYMS

- **ADMS:** Advanced Metering Infrastructure
- **AMR:** Automatic Meter Reading
- **BIL:** Bipartisan Infrastructure Law
- **BLM:** U.S. Bureau of Land Management
- **BOEM:** Bureau of Ocean Energy Management
- **BPA:** Bonneville Power Administration
- **CAISO:** California Independent Systems Operator
- **CETA:** Colorado Electric Transmission Authority
- **Co-ops:** Rural Electric Cooperatives
- **COSR:** Cost of Service Regulation
- **CPCN:** Certificate of Public Convenience and Necessity
- **DER:** Distributed Energy Resources
- **DOE:** U.S. Department of Energy
- **DR:** Demand Response
- **DSM:** Demand Side Management
- **EDAM:** Extended Day-Ahead Market
- **DSP:** Distributed System Planning
- **EIA:** U.S. Energy Information Administration
- **EIM:** Energy Imbalance Market
- **EPA:** U.S. Environmental Protection Agency
- **ERCOT:** Electric Reliability Council of Texas
- **FERC:** Federal Energy Regulatory Commission
- **GETs:** Grid-Enhancing Technologies
- **GRIP:** Grid Resilience and Innovation Partnership
- **GW:** Gigawatts
- **HPC:** High Performance Conductor
- **IDP:** Integrated Distribution Planning
- **IEA:** International Energy Agency
- **IIJA:** Infrastructure Investment and Jobs Act
- **IOU:** Investor-Owned Utility
- **IPP:** Independent Power Producer
- **IRA:** Inflation Reduction Act
- **IREC:** Interstate Renewable Energy Council
- **IRP:** Integrated Resource Planning
- **ISO:** Independent System Operator
- **ISO-NE:** Independent System Operator New England
- **MISO:** Midcontinent Independent System Operator
- **MRP:** Multiyear Rate Plans
- **NARUC:** National Association of Regulatory Utility Commissioners
- **NASEO:** National Association of State Energy Officials
- **NERC:** North American Electric Reliability Corporation
- **NESCOE:** New England States Committee on Electricity
- **NM RETA:** New Mexico Renewable Energy Transmission Authority
- **NREL:** National Renewable Energy Laboratory
- **NY ISO:** New York Independent System Operator
- **OMS:** Organization of MISO States
- **OPSA:** Organization of PJM States, Inc
- **PBR:** Performance-Based Regulation
- **PJM:** Pennsylvania-New Jersey-Maryland Interconnection
- **POU:** Publicly-Owned Utility
- **PPA:** Power Purchase Agreement
- **PSC:** Public Service Commission
- **PUC:** Public Utilities Commission
- **PURPA:** The Public Utility Regulatory Policy Act of 1978
- **REC:** Renewable Energy Credit/Certificate
- **ROI:** Return on Investment
- **ROR:** Rate of Return
- **ROW:** Right-of-Ways
- **RPS:** Renewable Portfolio Standard
- **RSC:** Regional State Committees
- **RTO:** Regional Transmission Organization
- **SEEM:** Southeast Energy Exchange Market
- **SPP:** Southwest Power Pool
- **TVA:** Tennessee Valley Authority
- **VPP:** Virtual Power Plant
- **WAPA:** Western Area Power Administration
- **WECC:** Western Electricity Coordinating Council
- **WMEG:** Western Markets Exploratory Group

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