National Caucus of Environmental Legislators

Energy Affordability Briefing Book

NCEL
National Caucus of
Environmental Legislators

2026

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Briefing Book Overview

This Briefing Book explores the drivers of rising energy bills and provides three major categories of policy options for state legislators to address energy affordability. **Section 1** examines near-term solutions to deliver immediate relief to households and businesses — including holding data centers accountable for their costs, providing direct bill assistance, and shifting the cost of climate change off of residential ratepayers. **Section 2** explores how to protect customers and reform the utility regulatory system to ensure spending is examined, transparency is increased, and risk is fairly distributed. **Section 3** outlines how building a low-cost clean energy system addresses the structural drivers of high bills over the long term, from removing deployment barriers to improving transmission planning and expanding distributed energy resources.

Table of Contents

A NOTE ON LEGISLATION: All legislation in this Briefing Book marked with **two asterisks "**" indicates bipartisan sponsorship**.

NCEL is grateful for the support and expert knowledge of S2 Strategies in the creation of this Briefing Book. NCEL also thanks the following organizations for their review and contributions: Evergreen Collaborative, Just Solutions, Citizens Utility Board, Energy Policy Institute, Gridlab, Grid Strategies, R-Street Institute, Model Climate Laws Initiative, and many others.

Setting the Scene: Energy Affordability in the U.S.

There are many pressure points on Americans' pocketbooks right now as they are increasingly concerned about affordability and cost-of-living pressures (health care, rent, groceries, etc.). One of the most acute cost pressures is energy affordability. Energy powers everything — from homes and hospitals to schools and businesses.

Americans pay the cost of energy via their electricity and gas bills — monthly costs they cannot avoid, negotiate, or opt out of. Paying these bills, already a difficult kitchen table discussion, has become a major source of financial stress for an increasing number of households. Electricity rates are up an average of 33% over the past five years nationwide, adding roughly $420 per year to household bills. This Briefing Book will focus on electricity affordability, but it's important to note that gas bills are also increasing drastically.

Energy costs are rising due to a combination of aging infrastructure, volatile fossil fuel costs, a surge in data center development, impacts of climate change, and rising utility spending on capital projects — all of which get passed on to ratepayers.

Many state legislators across the country are hearing the same thing from constituents: their energy bills are becoming unaffordable, and they want relief. This Briefing Book is designed to help legislators understand the landscape: what affordability means, why bills are rising, and what state policy can do to bring electricity prices down.

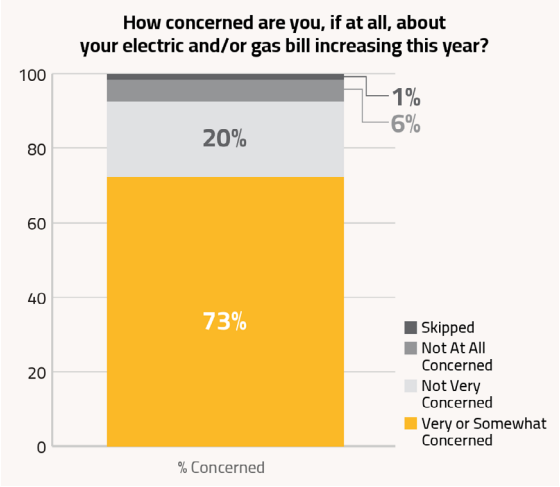


Figure 1: *More than 70% of Americans report feeling concerned about their rising electric bill. Source: PowerLines.*

Economics of Clean Energy

- **Clean is Affordable:** Utility-scale solar and onshore wind remain the fastest and most cost-effective forms of new-build electricity generation, even on an unsubsidized basis. This is especially true when solar and wind are paired with battery storage.

- **Use Less, Pay Less:** Energy efficiency policies, like appliance upgrades and home weatherization, can be effective tools for reducing demand on the grid, improving indoor and outdoor air quality, and increasing resilience to extreme weather. These policies are also an especially impactful tool for low-income households to lower energy costs. Energy efficiency upgrades can lower bills by up to 25%.

What is Energy Affordability?

Affordable energy allows residents to maintain a good quality of life. High and volatile energy costs make it harder for people to get by, limit people's sense of freedom, and hamper economic growth.

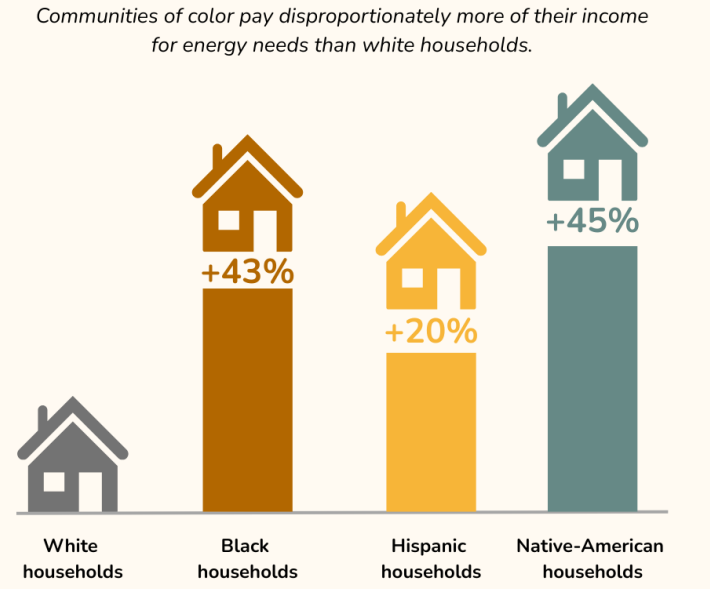


Figure 2: *Energy burden is not experienced equally. These disparities reflect decades of disinvestment and discriminatory housing policy. The same households that face high energy burdens are often the ones most affected by fossil fuel pollution. Source: ACEEE.*

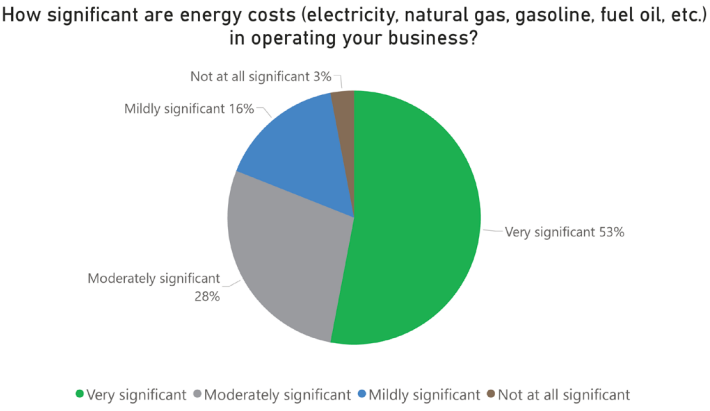


Figure 3: *Energy affordability is not only a household issue. About 80% of small business owners reported that energy costs significantly impact their business. Source: NFIB.*

A key metric to assess energy affordability is called "energy burden" — the share of a household's income spent on home energy costs. The threshold most widely used by researchers and policymakers is 6% of income: households spending more than 6% on energy are considered to have a "high burden." Those spending more than 10% face what researchers call a severe energy burden.

By this standard, tens of millions of American households are already facing significant energy burdens. One in four low-income households spends more than 15% of their income on energy, with low-income residents in some regions experiencing energy burdens above 20%.

Energy affordability encompasses all kinds of energy use, including how much people and businesses pay for electricity, gas, oil, and other fuels used to heat buildings and fuel their cars. While the causes of rising costs across different energy types are related, this Briefing Book primarily focuses on *electricity affordability*, explaining why power bills are rising and what legislators can do about it. Power bills are already a major expense for households and businesses, and as more people buy electric vehicles and switch to electric appliances, electricity affordability will become an even more important consideration.

States can achieve energy affordability by (1) curbing widespread price increases, (2) reducing energy costs for the most burdened households, and (3) ensuring a transparent, low-cost energy system that provides reliable service at a reasonable cost.

Why Are Energy Bills Increasing?

Understanding what is driving electricity bill increases requires understanding what makes up a bill. A residential electricity bill is not a simple charge for power consumed — it is a bundled cost that reflects the entire electricity system, from the point of generation to the meter on the side of a house.

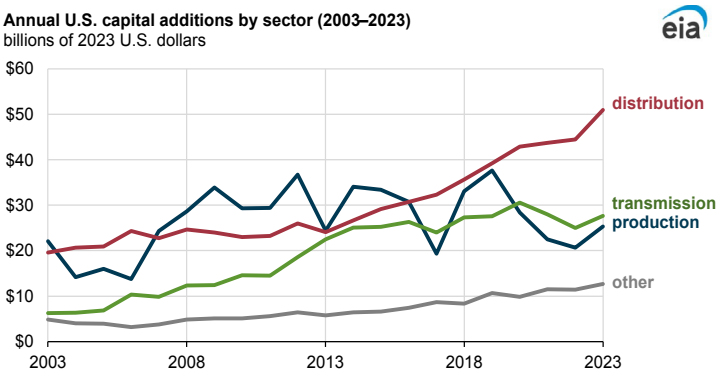


Figure 4: *Annual spending by major utilities to produce and deliver electricity. Source EIA.*

Who Determines these Costs?

Federal, regional, state, and local entities are responsible for regulating utilities and managing the markets that affect electricity bills.

- **Federal:** The Federal Energy Regulatory Commission (FERC) regulates interstate transmission lines and electricity markets, setting the rules for how electricity is transmitted and sold across states.
- **Regional:** Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs) exist in many parts of the country to plan and operate the transmission grid, plan new transmission lines, and run electricity markets that determine generation costs.
- **State and Local:** State Public Utility Commissions (PUCs) — and, in some cases, local governments or cooperative boards — evaluate utility spending plans, approve rates for different customer classes, and ensure compliance with state policy.

- **Production (reflected as supply in a bill)** is the cost of generating electricity — building and operating the power plants that convert energy sources into electricity.
- **Transmission (reflected as delivery in a bill)** costs come from the price to move electricity over long distances using high-voltage lines from power plants to local substations where electricity is distributed.
- **Distribution (reflected as delivery in a bill)** covers the "last mile" — the local lines, poles, transformers, and meters that deliver electricity directly to homes and businesses.
- **The "Other" Category: A Growing Wild Card**

  An often overlooked component of electricity bills is the "Other" category. This includes taxes, regulatory fees, insurance, wildfire mitigation, environmental programs, and low-income assistance surcharges. It also includes increased costs of climate change — more expensive insurance to account for worse storms and wildfires, infrastructure upgrades to make the grid more resilient, and the enormous cost of rebuilding after storms, all of which are currently passed onto customers.

  The 75% of households served by investor-owned utilities also pay for the utility profit margin — the "return on equity" (ROE) that state regulators allow utilities to earn on their capital investments. All these "other" costs are reflected in an electricity bill in varying ways for customers.

NCEL Energy Affordability Briefing Book

Section 1
Delivering Near-Term Relief

Section Overview

The public is concerned with high energy bills. To address those concerns, constituents are calling for leaders to respond quickly with policies that curb near-term bill increases and provide relief to struggling households and businesses.

States can show quick results by holding technology companies accountable for the impact of data centers on power prices, providing direct assistance to customers, and shifting costs off residential customers.

Topics covered in this section: (A) Addressing Data Center Impacts, (B) Providing Direct Relief to Customers, and (C) Shifting Costs of Climate Change Off of Residential Customers.

Overview

Rapid data center expansion will drive up electricity use over the next few years, raising prices for customers because utilities and grid operators must turn to more expensive power plants to meet the additional demand. Data center electricity demand could rise to 106 GW by 2035, which would use as much electricity as about 80 million households — or 60% of all U.S. homes.

State policymakers can ensure that data centers not only pay for the costs of grid upgrades needed to power their facilities, but also help unlock more low-cost clean energy deployment and benefits for local communities.

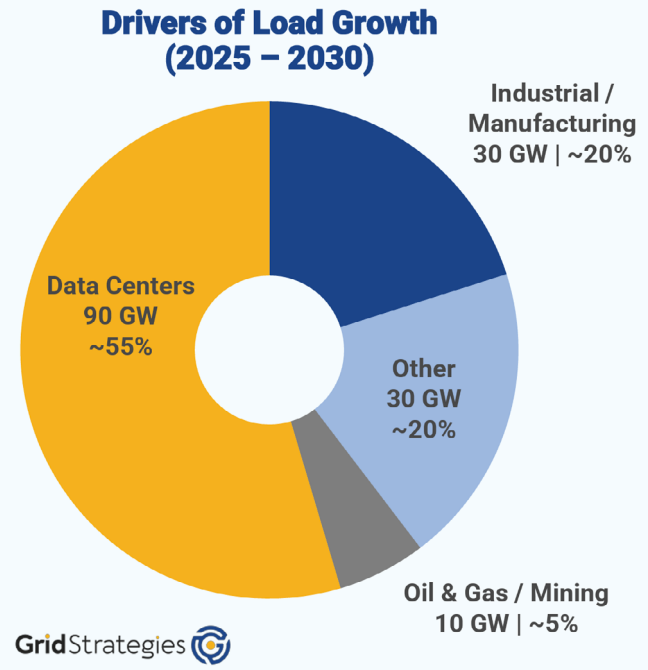


Figure 5: *Data centers are the largest drivers of load growth for the next five years. Source: Grid Strategies.*

Policy Options

Protect Households and Businesses from Costs: States can help ensure that data centers pay their fair share for the generation and grid upgrades required to meet the new demand. This can be done by updating rules to allocate costs between customers (known as "tariffs," or for data centers, "large load tariffs").

- **South Dakota SB 135 (Enacted 2026)** requires utilities to establish rules requiring data centers to cover the costs they incur on the system, even in the case that the project falls through or requires less electricity than projected.
- **Pennsylvania HB 1834 (Passed Committee 2025)** requires the PUC to set new rules that would prohibit cost-shifting to other customer classes by establishing a separate rate class for large data centers.

Require Data Centers to Bring Their Own New Clean Energy: Even the strongest large load tariffs cannot fully protect customers. Data centers can buy power from existing generation projects, thereby indirectly raising prices for other customers. To provide additional protection for customers, states can require data centers to procure new clean energy, avoiding the higher costs and increased price volatility caused by new gas plants.

- **Maryland HB 1532/SB 841 (Enacted 2026)** establishes a fast-track interconnection process for data centers that meet 80% of their demand with new clean energy and additional perks for those that achieve 100%, creating a major incentive for technology companies to bring their own clean energy.

Require Data Centers to Operate Flexibly: To fully protect customers and support a reliable grid, states can require or incentivize data centers to operate flexibly. This means reducing operations during periods when electricity use is highest to avoid straining the grid and activating the most expensive sources of power.

- ****Texas SB 6 (Enacted 2025)** requires the PUC to establish protocols to directly reduce data center demand during emergencies and develop a demand response program to pay for demand reductions from data centers during periods of high demand.

Require Data Centers to Support Customer-Owned Clean Energy: Even with large-load tariffs and clean energy requirements, data centers can still increase bills by reducing other customers' access to affordable clean energy and driving utilities to buy power from more expensive projects. To further protect customers, states can require data centers to pay to install customer-owned clean energy resources (also known as distributed energy resources), such as rooftop solar, small-scale batteries, and efficient appliances. Doing so can help to ensure that nearby communities benefit from data center projects while reducing the cost of upgrading the grid to meet large new demands.

- **Illinois SB 4016/HB 5513 (Introduced 2026)** would require data centers to submit clean energy supply plans to procure sufficient new clean energy that can be delivered to the facility, including through local customer-owned resources like rooftop solar, small batteries, and energy efficiency.
- **New York A 9297 (Introduced 2026)** would require data centers to fund home upgrades and customer-owned clean energy to meet a portion of their electricity use.

Charge Data Centers for Direct Bill Assistance: States can also require data centers to contribute to funds for direct bill assistance and weatherization upgrades for low-income households, which helps protect the most vulnerable customers from bill increases.

- ****Minnesota SSHF 16 (Enacted 2025)** requires data centers to pay a fee that goes into a fund to provide direct assistance to low-income customers, taking pressure off households that are bearing the brunt of rising utility costs.

Additional Resources

- **Data Centers | National Caucus of Environmental Legislators (NCEL)**
- **Extracting Profits from the Public: How Utility Ratepayers Are Paying for Big Tech's Power | Harvard Law School**
- **Seizing the Data Center Buildout for Grid Modernization | Searchlight Institute**
- **Homegrown Energy: How household upgrades can meet 100 percent of data center demand growth | Rewiring America**
- **Fast, Flexible Solutions for Data Centers | RMI**

Overview

For many people across the country, high utility bills are not new. Even before recent rate increases, nearly 30% of households reported some form of energy insecurity, including sometimes sacrificing basic needs like food or medicine to keep the lights on. Failure to pay bills risks utility disconnection, which can have cascading consequences for already-struggling households. More than 13 million residential electric customers were disconnected at some point in 2024. Rising costs will intensify this dynamic. Direct relief through bill assistance and other protections for customers struggling to pay their bills can be a valuable affordability solution.

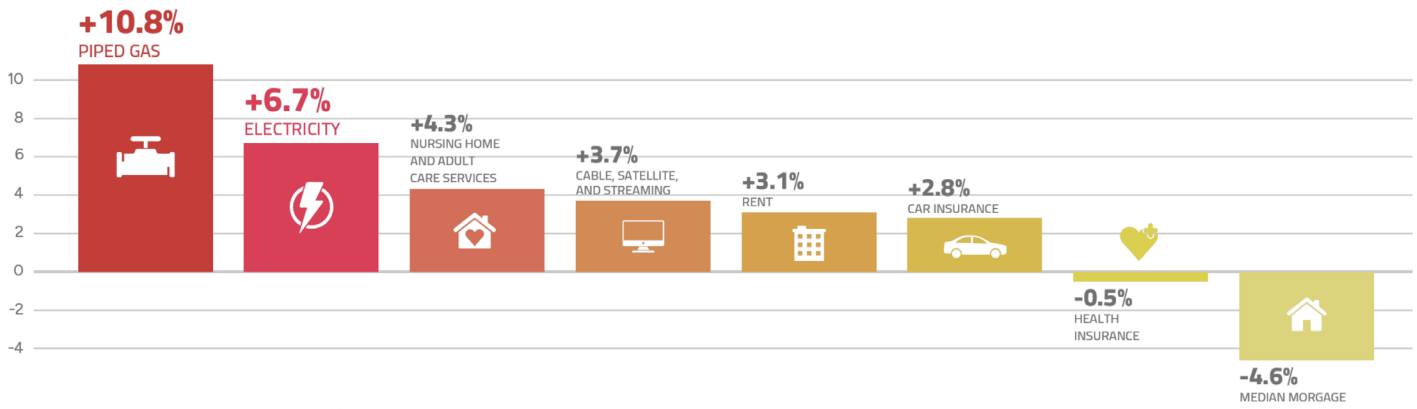


Figure 6: *Gas and electricity bills are the two fastest drivers of inflation. Source: PowerLines.*

Policy Options

Expand Customer Rebates: States can establish or expand funds to provide rebates to certain customers (e.g., households below a certain income level or that pay greater than a specified share of their income on utility bills).

- **Maryland HB 1532/SB 841 (Enacted 2026)** directs the state to implement the Electric Universal Service Program to assist electric customers with annual incomes at or below 200% of the federal poverty level.

Adopt Rate or Bill Caps for Vulnerable Customers: States can cap rates or bills for a subset of customers (e.g., through a percentage-of-income payment program) or set lower rates for certain customers.

- **New Mexico HB 91 (Enacted 2025)** authorizes the PUC to work with utilities to set lower rates for low-income customers.

Expand Weatherization and Energy Efficiency Programs: States can provide funding to fix energy leaks, replace old insulation, and upgrade inefficient appliances. Weatherization saves the average household nearly $400 per year, and every dollar spent leads to $1.72 in energy savings on average.

- **Illinois SB 25 (Enacted 2025)** requires utilities to expand their weatherization and energy efficiency rebate programs to increase energy savings. Directs utilities to prioritize low-income customers most in need of bill reductions.

Ban Utility Shutoffs and Provide Fee Waivers: Until structural changes are in place to curb rate increases, states can issue moratoriums on electricity shutoffs and waive late fees.

- Colorado HB 1234 **(Enacted 2025)** prohibits the disconnection of service under certain circumstances, including during periods of extreme temperatures or poor air quality, and for customers with vulnerability due to medical risk.

Additional Resources

- **As the Government Shutdown Freezes Low-Income Assistance Funds, PUCs Can Help I RMI**
- **Utility Bill Credits and Percentage-of-Income Payment Plans I Just Solutions**
- **Low-Income Energy Efficiency Programs I ACEEE**

Overview

Households are increasingly paying for climate-related risks on their energy bills. Customers foot the bill for upfront resilience investments, liability insurance, and rebuilding the grid after climate-fueled wildfires and hurricanes. In California, for example, customers paid about $27 billion from 2019 to 2023 for wildfire prevention and insurance. Customers in Florida have similarly faced major rate increases after hurricanes. In Louisiana, customers are still paying fees for six prior hurricanes and winter storms, amounting to about $20 per month on the average household bill. States can address this growing driver of high bills by (1) shifting climate resilience and recovery away from residential customers to other sources of funding and (2) prohibiting utilities from profiting from disaster recovery expenditures.

Policy Options

Shift Costs to State Budgets: States can shift some rising energy bill costs off of their utility ratepayers and onto state budgets when certain criteria are met.

- ****Connecticut SB 4 (Enacted 2025)** authorizes up to $125 million a year in general obligation bonds to cover the costs of unpaid energy bills accumulated during the COVID-19 pandemic. Separately, an earlier proposal (SB 1560) would have removed a "public benefits charge" from customers' bills entirely and paid for it through state-issued bonds capped at $800 million a year.

Charge Polluters and Shareholders for Grid-Hardening Investments and Insurance: States can shift disaster resilience investments and liability insurance off of customers by charging major polluters through cap-and-invest programs or bespoke fees. Given that large polluters increase the risk of wildfires and other disasters, these policies seek to charge them for that risk and take the burden off households.

- **New York S2129B (Enacted 2024)** and ****Vermont S 259 (Enacted 2024)** establish new programs, funded by large fees on major polluters, for significant investments in climate-resilient infrastructure — taking these costs off of taxpayers and ratepayers.
- **California SB 254 (Enacted 2025)** extends the state's Wildfire Fund via $9 billion from ratepayers and $9 billion from shareholders, and limits utilities' ability to earn a profit from wildfire resilience investments to reduce impacts on ratepayers.

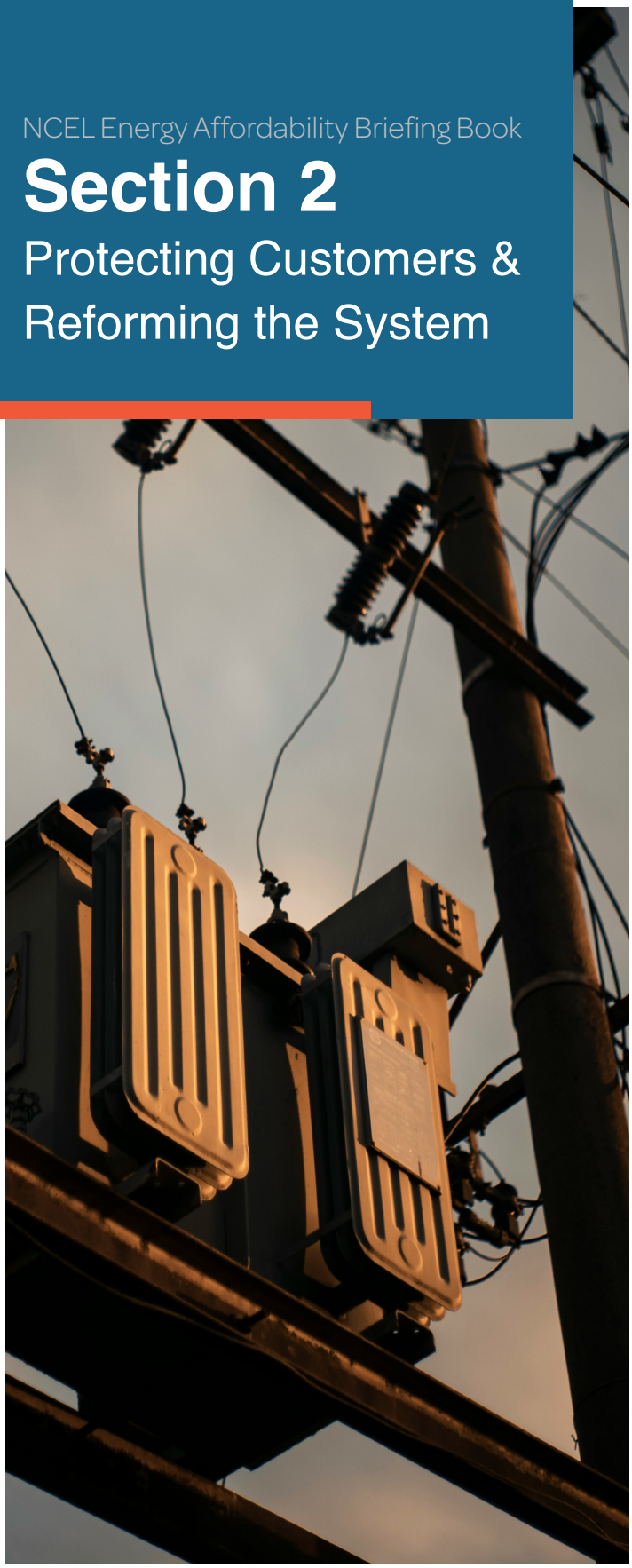
Additional Resources

- **How Cap-and-Invest can provide billions to reinvest in local communities, lower energy bills for households | Switchbox**
- **How States Are Filling the Federal Climate Funding Gap | NCEL**
- **The Fossil Fuels Behind Forest Fires: Quantifying the Contribution of Major Carbon Producers to Increasing Wildfire Risk | Union of Concerned Scientists**

NCEL Energy Affordability Briefing Book

Section 2

Protecting Customers & Reforming the System



Section Overview

Existing business models commonly encourage utilities to maximize infrastructure spending and allow for costs and risk to be passed onto customers. All U.S. utilities are monopolies. Many utilities are "vertically-integrated" monopolies, meaning they face no competition for generating power or operating transmission and distribution lines. Other utilities are monopolies over only the distribution system, meaning they buy power from a competitive market but do not face competition in delivering power. Therefore, utilities have no economic incentive to keep prices low.

As a result, utility spending is increasing rapidly — private investor-owned utilities plan to spend $1.4 trillion on grid investments through 2030 — and households will pay the price, unless guardrails are put in place. Customers also shoulder the various risks involved in managing the grid: when gas prices spike, bills go up to cover the utility's increased fuel costs; when wildfires damage the grid, customers end up paying to rebuild it; when a project goes over-budget, customers often absorb those costs.

Energy bills can be made more affordable and predictable through improved regulator capacity and processes, decisionmaking transparency, and customer-focused investments and programs.

Topics covered in this section: (A) Strengthening Utility Regulation, (B) Auditing Utility Spending and Increasing Transparency, (C) Protecting Customers from Volatile Fuel Prices, (D) Exploring Public Ownership to Increase Accountability to the Public, and (E) Improving and Expanding Competitive Electricity Markets.

Overview

Since utilities face no competitive pressure to lower energy prices, regulators serve as the only check on utility plans that determine customer bills. Regulators — the Public Utility Commission (PUC) for most customers, or a local government body for municipal utilities — assess, revise, and approve utility plans. However, many regulators have historically not been well-equipped, well-staffed, or politically willing to rigorously interrogate utility proposals.

In addition, current rules encourage companies to spend more money on traditional infrastructure and avoid investment in solutions that do not earn the company a profit, such as consumer-owned distributed resources and grid flexibility. Investor-owned utilities earn profit through a fixed Return on Equity (ROE) on qualifying expenditures (most capital upgrades like power lines, substations, and power plants where utilities own generation), which are set through PUC proceedings. Federal and many state laws require that these returns are set only high enough to attract investors and to avoid providing excess profit. However, recent research shows that ROEs are higher than necessary, providing investors with high profits at the expense of consumers.

Changing utility profit motives and strengthening the checks on utility proposals can help to ensure that companies are leveraging the full range of solutions to maintain reliability, reduce costs, and meet load growth. While PUCs lead the regulatory process, legislatures play an important role by providing PUCs with expanded mandates, new authority to proactively address bills, and specific direction and resources.

Policy Options

Expand the Mandate and Capacity of Public Utility Commissions: PUC mandates have primarily focused on evaluating utility ratemaking proposals, but legislators can expand PUC mandates to address rising energy bills directly through proceedings focused on affordability, clean energy, utility investments, utility business models, and more. States can increase funding for PUCs, allow PUCs to attract and hire experts, and explore ways to use state agency expertise to support PUC analysis of utility proposals.

- **Minnesota SF 4942 (Enacted 2024)** provided funding and direction for the PUC to run a proceeding on a new cost-sharing mechanism to improve the grid interconnection process for distributed generation that can reduce grid spending and save customers money.
- **Maryland HB 1393 (Enacted 2024)** mandates the Public Service Commission (PSC) to report on projects related to greenhouse gas reduction, renewable energy, and energy system resiliency. Requires the PSC to adopt regulations for pursuing federal funds and investing in demand-side reliability and efficiency improvements.

Rightsize Utility Profit Through Return on Equity (ROE) Reform: States can lower bills by requiring PUCs to revisit ROE to ensure it is based on the most recent information regarding the minimum level necessary to attract investors.

- ****Pennsylvania HB 2224 (Introduced 2026)** would index ROE to the government bond market, capping returns at the ten-year Treasury yield plus two percentage points.
- **Florida SB 354 (Introduced 2025)** would require the PSC to set the ROE near the minimum allowable level.

Revise Utility Profit Model: States can adjust rules to reward utilities for performance rather than investment. States can pursue Performance-Based Regulation (PBR) designed to incentivize utilities to minimize costs, increase efficiencies, and support customer-ownership of energy resources. However, for PBR to effectively reduce bills, PUCs can establish stringent performance metrics and incentives that can overcome the existing profit motive to maximize spending on traditional infrastructure.

- **Connecticut HB 7006 (Enacted 2020)** directs the Public Utilities Regulatory Authority to establish metrics for utility performance and set penalties if those metrics are not met.
- **Hawaii SB 2939 (Enacted 2018)** directs the PUC to implement PBR to delink profit and capital investment.
- **California SB 905 (Introduced 2026)** would direct the PUC to establish performance-based metrics for utilities and tie a minimum of 20% of executive compensation to affordability metrics.

Limit Utility Power to Fully Drive Decisions: States can ensure the public is represented in key decisions by (1) increasing funding for consumer advocates through intervenor compensation funds, (2) expanding the role of dedicated ratepayer advocate staff or ombudsmen at PUCs, and (3) prohibiting utilities from using ratepayer money for lobbying and political expenses.

- **Illinois SB 2408 (Enacted 2021, Amended 2025)** created a compensation fund for intervenors representing consumer interests in front of the Illinois Commerce Commission (ICC). The 2025 amendment made the compensation fund more effective by removing a provision that allowed the ICC to take back intervenor compensation if the intervenors were unsuccessful.
- **New York S 6277 (Passed 2025, Vetoed)** would create a state office of the utility consumer advocate with expansive authority to advocate for customers on state and federal regulatory decisions affecting rates.
- **California AB 1167 (Enacted 2025)** prohibits utilities from recovering political spending and advertising expenses from customers, creates a penalty for utilities that violate this rule, and requires utilities to report the source of funding for all public messages.

Additional Resources

- **Utility Briefing Book I NCEL**
- **Main Character Energy: Make Regulators Main Characters in Planning and Ratemaking I Federation of American Scientists**
- **The Nuts and Bolts of Performance-Based Regulation: Tools to Build a More Affordable, Reliable, and Equitable Grid I RMI**
- **Customers saving millions in states that banned utility political costs I Energy & Policy Institute**
- **Office of the People's Counsel: What We Do I State of Maryland**

Overview

Utilities earn a rate of return on capital projects, incentivizing them to maximize spending on high-cost infrastructure, rather than increasing efficiencies and investing in lower-cost solutions. Rigorous auditing of utility proposals can provide a check on utility spending and ensure that companies are only spending money on necessary infrastructure. Additionally, utility bills often include surcharges for specific purposes on top of what's required for generating and distributing power, and these surcharges are growing rapidly.

Bills will also often include undisclosed or unnecessary fees that drive costs up further. In most states, utilities provide limited public information on spending and performance, the location and type of infrastructure upgrades conducted, implementation of low-income programs, and more. Auditing grid spending, removing unnecessary fees, and bolstering the capacity of regulators are effective tools to rein in rate hikes, increase transparency, and ensure that utilities are spending money on solutions for customers.

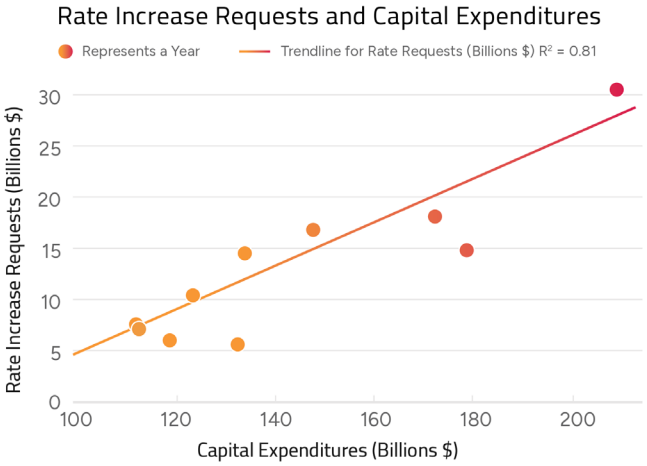


Figure 7: *Utility infrastructure spending is correlated with increases in residential bills. Source: PowerLines.*

Policy Options

Audit Grid Spending: States can require the PUC to audit distribution system spending — which is a major driver of recent bill increases — to investigate why spending is going up and where alternatives (e.g., small-scale energy storage, grid-enhancing technologies, or distributed solar) can reduce spending on poles and wires.

- **Pennsylvania HB 416 (Enacted 2025)** requires the PUC to investigate and independently assess load forecasts submitted by utilities to ensure that system planning reflects accurate information and to avoid overbuilding costly infrastructure.
- **New York S 5593 (Passed Senate 2026)** would allow the PSC to extend rate cases to further examine utility proposals, identify savings opportunities, and prevent retroactive rate increases for customers.

Increase Bill Transparency and Remove Unnecessary Fees: States can require full transparency on fees included on utility bills and end any unnecessary or excessive fees.

- **Maryland HB 0540 (Introduced 2026)** would increase transparency by requiring the PSC, in consultation with the state's consumer advocate, to produce an annual report on granular drivers of rate increases for each utility.
- **California SB1098 (Introduced 2026)** would limit the ability of utilities to automatically and retroactively charge customers for expenses made outside of rate cases.

Additional Resources

- **Electric Utility Distribution Costs | Lawrence Berkeley National Laboratory**
- **Utility Spending Is Rising: A Review of Utility Capital Expenditure Plans | Powerlines**
- **Customers saving millions in states that banned utility political costs | Energy and Policy Institute**

Overview

Volatile gas prices are a leading cause of acute spikes in electricity bills. Gas power plants are most often the "marginal generating resource", meaning they set the wholesale price of electricity for a given region or utility territory. When fuel prices increase, the price of power from gas plants responds in turn, and customers pay more. The current regulatory construct takes that risk off of utility companies and puts it on customers, generally allowing utilities to recover the full cost of fuel price swings. Utilities have no incentive to manage the risk of fuel price fluctuations because they are allowed to pass any additional costs to customers.

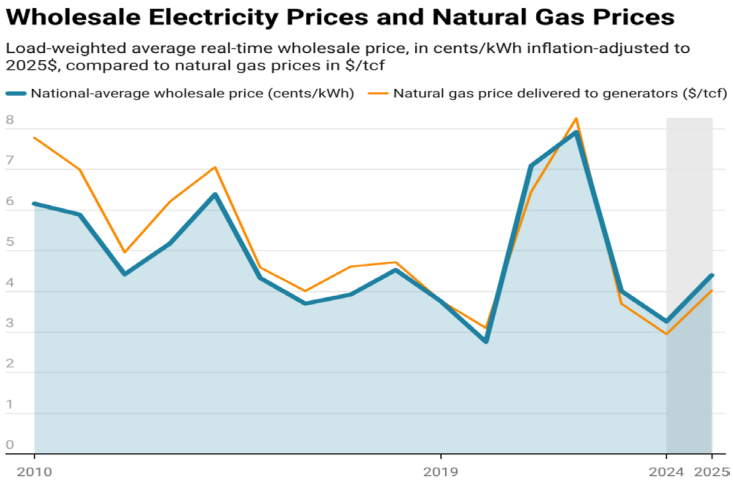


Figure 8: *Gas was one of the largest drivers of bill increases in 2025, as gas prices increased by 36% from 2024. Source: Lawrence Berkeley National Laboratory.*

Policy Options

Require Utilities to Share in Fuel Price Risk: States with vertically integrated utilities can change cost recovery rules to create some fuel price risk for utilities (e.g., through fuel cost sharing policies that allow utilities to recover only a portion of higher fuel costs from customers rather than the full increase). These policies can dampen unpredictable swings in customer bills and create an incentive for utilities to more effectively manage fuel price risk, including by diversifying the generation fleet by including more clean energy.

- **Washington** has a fuel cost-sharing program that prevents the utility from recovering increased fuel costs up to a certain amount.
- **Colorado's** PUC established a fuel performance incentive mechanism in 2025 to share the risk of gas price increases between the utility and customers.

Additional Resources

- **Strategies for Encouraging Good Fuel-Cost Management I RMI**
- **Understanding What's Really Driving Energy Costs I Acadia Center**
- **Retail Electricity Price Trends and Drivers I Lawrence Berkeley National Lab**

Overview

Private utilities are incentivized to maximize spending on traditional infrastructure to earn the highest returns for their shareholders. That profit motive discourages the use of alternative solutions like Distributed Energy Resources (DERs), demand flexibility, and upgrades to existing transmission lines, which can reduce bills by dampening total grid spending. While stronger utility regulation (Section 2A) and improved requirements, incentives, and planning (Sections 3B, C, and D) can help address these incentive structures, states can also use public ownership to realign utility operations with the public interest.

Public not-for-profit utilities do not have the same profit motive as investor-owned utilities and, with effective governance structures, face fewer barriers to affordability and clean energy solutions. Publicly-owned utilities provide more affordable electricity on average than investor-owned utilities. In 2024, rates for households served by public power were 14% lower than for those served by private utilities, and inflation-adjusted public power rates *decreased* by 8.7% from 2019 to 2024, compared to a 2% increase for private utilities.

Policy Options

Explore Utility Municipalization: States can explore options to enact public control over parts of the grid to fully align utility planning and operation with the public interest. One option is full municipalization, where the government owns and operates the grid.

- ****Maine LD 1646 (Introduced 2019)** would have created a consumer-owned utility to take over two investor-owned utilities and operate them under public control.

Enable Public Development of Clean Energy: States can create and empower public institutions to build clean energy projects, providing a revenue stream for the government and creating competition for private developers to ensure the lowest-cost electricity for customers.

- **Connecticut SB 1243 (Enacted 2011)** established Connecticut's green bank, which has served as a public developer to build solar projects on public schools throughout the state.
- **New York A 00279/S 04134 (Enacted 2023)** authorizes a state-owned utility to build and operate renewable energy projects to drive deployment at lower costs.

Allow Municipalities to Buy Their Own Power: States can allow municipal governments to buy their own generation for their residents separately from the utility. Doing so can provide the public with more control to choose the most affordable and cleanest energy sources.

- **Maine LD 2112 (Enacted 2026)** allows municipalities to form community choice aggregators (CCAs) to purchase their own generation, making Maine the latest of 11 states that allow CCAs.

Additional Resources

- **Forming A Public Utility | American Public Power Association**
- **Encourage Public Power and Municipal-Owned Utilities | American Economic Liberties Project**

Overview

About two-thirds of Americans are served by utilities that participate in competitive wholesale electricity markets operated by Regional Transmission Organizations (RTOs). The remaining third of the population — mostly located in the southern and western states — is served by utilities that face no pressure from competition to ensure they buy power from the lowest cost producers. In fact, monopoly investor-owned utilities benefit from more expensive power plants, as their shareholders earn more profit from greater spending. Private monopoly utilities are also incentivized to prioritize power plants that they build and operate themselves instead of importing electricity from other regions, as they do not earn a profit on imports. As a result, customers are not benefiting from the significant savings potential of a more competitive and interconnected grid.

Expanding wholesale markets to regions without competition could reduce bills by making it more likely that utilities procure the lowest-cost electricity. For example, establishing an RTO in the Southeast could save customers $384 billion by 2040. Colorado could save $230 million per year by joining an RTO. Establishing a western regional market is projected to save Californians $1 billion per year.

Policy Options

Join Regional Markets or Form New Ones: States without RTOs or with limited interstate coordination can join existing RTOs or work with other states to form new markets to improve competition and coordination.

- **California AB 825 (Enacted 2025)** authorizes the California grid operator to work with other western states to establish a new entity to run a regional electricity market.
- ****South Carolina H 4940 (Enacted 2020)** formed a legislative committee to evaluate participation in a statewide or regional wholesale market.

Engage with Regional Transmission Organizations to Improve Markets: States can engage with RTOs to support market reforms, increase transparency, and promote interconnection reform and transmission planning. Doing so can lower costs and improve reliability in their regional grid.

- **Maryland HB 0121 (Enacted 2025)** requires in-state electric utilities that are members of the PJM Interconnection (the 13-state regional RTO) to disclose to the PUC any recorded vote they make within that organization.

Additional Resources

- **Understanding RTOs: Southeast I NCEL**
- **Economic and Clean Energy Benefits of Establishing a Southeast U.S. Competitive Wholesale Electricity Market I Energy Innovation**
- **Red states missing out on better electricity market opportunities through RTOs I R Street**

NCEL Energy Affordability Briefing Book

Section 3

Building a Low-Cost Clean Energy Future

Section Overview

Clean energy and flexible grid technologies are the fastest and most affordable solutions to meet demand growth. Technologies like solar and batteries, and strategies like shifting demand away from peak hours, can efficiently reduce costs and protect customers from bill increases.

Deploying these technologies also makes energy costs more predictable for households. Clean energy reduces dependency on fossil fuels, whose volatile prices cause major swings in utility bills and make it hard for households to budget accurately. Because technologies like solar, wind, and geothermal do not rely on fuel, their costs are much more predictable than gas plants, whose power fluctuates in price significantly with fuel prices.

Many states are unable to take full advantage of clean energy and advanced grid solutions because of regulatory barriers, limited capacity to facilitate the adoption of these resources, and outdated utility incentives. States can address these barriers to build a low-cost clean energy system.

Topics covered in this section: (A) Removing Deployment Barriers for Utility-Scale Clean Energy, (B) Using Procurement, Incentives, and Public Finance to Lower Costs, (C) Expanding Distributed Energy Resources (DERs), and (D) Improving Planning to Make Best Use of Ratepayer Revenue.

Overview

While clean energy is most often the lowest-cost solution, projects are often delayed or derailed by non-financial barriers in siting, permitting, and interconnection processes. Developers are increasingly struggling to site projects due to inconsistent or prolonged siting processes, as well as opposition from local governments and communities — nearly a quarter of counties now restrict wind and solar development. Inefficient permitting processes, administered by under-resourced state agencies, extend development timelines while increasing risk. And long wait times to connect projects to the grid increase costs, uncertainty, and project cancellations. By addressing these barriers, states can accelerate clean energy deployment, reduce generation costs, and help bring down bills for customers.

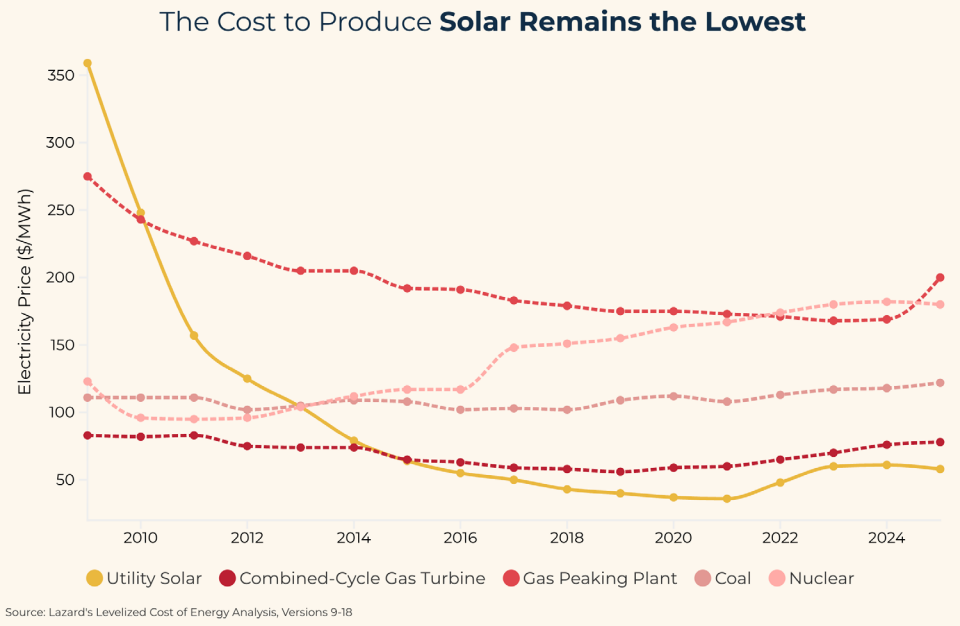


Figure 9: *The cost of utility-scale solar has decreased significantly in the past 10 years. It is now the lowest-cost energy on the market. Source: Solar Energy Industries Association.*

Policy Options

Improve Speed and Certainty in Siting Processes: States can set more predictable, informed siting processes by (1) setting up a state siting process for large projects, (2) setting minimum timelines and transparency requirements for municipal siting processes, (3) providing technical assistance for local governments to negotiate strong community benefit agreements, and (4) limiting local government restrictions on clean energy projects.

- **Michigan HB 5120 (Enacted 2023)** sets minimum standards for local siting ordinances for large clean energy projects and creates an alternative state siting process run by the PUC for projects in places that do not meet those minimum standards.
- **Massachusetts SB 2967 (Enacted 2024)** creates a state siting process for projects greater than 25 megawatts and allows local approval for smaller projects.

- **Arizona HB 2019 (Enacted 2023)** and **Illinois HB 4412 (Enacted 2023)** set minimum requirements for speed and responsiveness of local siting processes, and the Illinois law prohibits bans or moratoria on wind and solar projects.

Create Fast, Consistent, and Predictable Permitting: States can increase certainty and reduce risk for projects by (1) standardizing permitting timelines and processes, (2) setting clear goals and requirements, (3) increasing government resources to run permitting processes, and (4) reducing requirements for low-impact solutions like upgrading existing transmission lines.

- **Arizona HB 2003 (Enacted 2024)** allowed utilities to replace conductors without applying for an environmental certificate.
- **Minnesota HF 4700 (Enacted 2024)** shortened timelines for the state government to issue key decisions for clean energy projects.

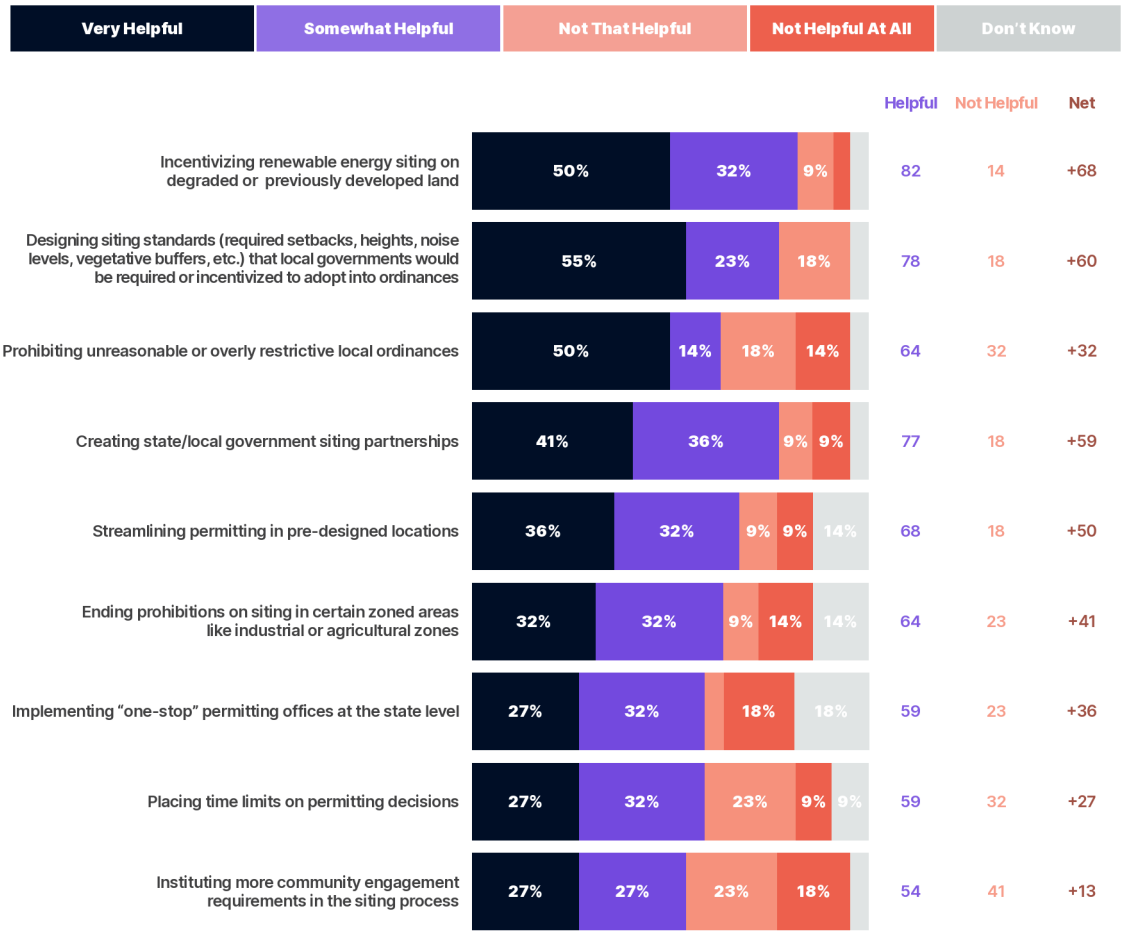


Figure 10: *In a 2025 survey of siting stakeholders, policies aimed at setting siting standards and prohibiting restrictive ordinances were seen as most helpful. Source: Siting Solutions Project.*

Accelerate Interconnection: While states have limited control over interconnection rules, which are set by transmission owners and approved by FERC, they can help projects take advantage of surplus interconnection rules by requiring utilities to evaluate these opportunities. These rules can provide separate, faster processes for connecting projects to the grid at the site of existing generators that do not fully use their grid connection.

- **Indiana SB 240 **(Enacted 2026)** requires utilities to incorporate opportunities to use surplus interconnection capacity into planning.
- Virginia SB 508 **(Enacted 2026)** requires the PUC to publish an assessment of the interconnection capacity available across the transmission and distribution system, including the surplus capacity available at the sites of existing generators.

Additional Resources

- **Clean Energy Siting and Permitting Fact Sheet | NCEL**
- **Renewable Energy Siting Field Guide | Clean Tomorrow**
- **What Is Surplus Interconnection? And Why It Could Unlock the U.S. Power Grid | Energy Innovation**
- **Four Innovations Driving Climate Progress in State Government | Federation of American Scientists**

Overview

Clean energy projects require large upfront investment, backed by credit from investors and paid off via market revenues, rates, or long-term contracts with customers. High cost of capital, unpredictable markets, and limited offtake all dampen investment and make it harder to build clean energy projects, even if those projects are the least-cost new generation in the long-run. In order to bring down bills, states can make it easier to finance clean energy and energy efficiency projects.

Policy Options

Adopt Energy Storage Standards and Procurement: States can require utilities to deploy a minimum amount of storage to provide greater investment certainty.

- **Illinois SB 25 (Enacted 2026)** directs the Illinois Power Agency to procure 1,038 megawatts of energy storage to come online before 2030.
- **Massachusetts SB 2967 (Enacted 2024)** directed utilities to open solicitations for 5,000 megawatts of energy storage by 2030.
- **Virginia HB 895 (Enacted 2026)** requires utilities to build more than 20,520 megawatts of energy storage (including 16,000 megawatts of short-duration and 4,000 megawatts of long-duration storage) by 2045, 4,520 megawatts of which must be under contract by 2030.

Adopt Energy Efficiency Resource Standards and Clean Electricity Standards: Energy Efficiency Resource Standards (EERS) require utilities to achieve a minimum level of energy savings from the adoption of energy efficiency measures. While many states have EERS, many can be updated to increase savings requirements and encourage switching from fossil fuels to efficient electric appliances. Clean Electricity Standards (CES) require utilities to procure an increasing share of power from clean sources, creating demand certainty for developers.

- **Virginia HB 1526/SB 851 (Enacted 2020)** set an EERS that required Dominion Energy to achieve savings equal to 5% of total electricity sales and Appalachian Power to achieve 2% by 2025.

Wield Public Finance: States can use public finance mechanisms, such as green banks or state bond banks, to accelerate deployment and reduce project costs by limiting the need for more expensive private capital.

- **California SB 254 (Enacted 2025)** created a new authority to publicly finance new transmission lines, replacing more expensive private capital.
- ****Washington ESSB 5998 (Enacted 2026)** provides an investment of $25 million for the state's new green bank.

Additional Resources

- **Energy Storage Policy for States Blog | Clean Energy for States Alliance**
- **Public Option Solar for K-12 Schools | Public Renewables Project**
- **Faster and Cheaper: Demand-Side Solutions for Rapid Load Growth | ACEEE**

Overview

Today's grid primarily relies on large, centralized power plants. While these utility-scale power plants will remain important, technology advancements have now enabled smaller-scale "distributed" resources to help operate the grid reliably. These distributed energy resources (DERs) include rooftop and community solar, small batteries, and efficient appliances that can operate flexibly to reduce peak demand. DERs connect to the distribution grid rather than the bulk transmission grid, and are often owned by customers like households or small businesses. These resources not only reduce energy costs for the customers that own them but also can reduce the amount of total spending on traditional infrastructure like power lines, substations, and large power plants, which reduces costs for all customers.

Most places in the country are not receiving the savings and other benefits of DERs due to (1) outdated market design and utility incentives, (2) burdensome permitting and interconnection processes, and (3) a lack of financing support for customer adoption. States have the power to address all of these barriers to increase the adoption and effective use of DERs.

Policy Options

Adopt and Expand Community Solar Programs: States can require utilities to establish programs that allow households and small businesses who may face barriers to owning rooftop solar systems to purchase power from small nearby solar facilities. This can reduce bills for subscribing customers as well as total grid spending.

- **New Jersey S 4530 (Enacted 2025)** directed the Board of Public Utilities to open registration for 3,000 megawatts of community solar by 2029.

Establish Virtual Power Plant Programs: DERs, when aggregated and operated strategically, can form Virtual Power Plants (VPPs) that can provide similar power service as a traditional utility-scale power plant. States can establish VPP programs to centrally operate resources like solar, batteries, demand response, and smart appliances, while compensating customers for their resources.

- ****Colorado SB 218 (Enacted 2024)** requires utilities to establish VPP programs.

Expand Incentives and Financing for Customer-Owned Resources: States can establish incentives for DER adoption, including (1) subsidies to reduce upfront costs, (2) rebates for smart appliances and enrollment in demand-response programs, (3) low-cost financing, (4) tailored financial support for low-income households and renters, and (5) net energy metering to pay customers for electricity generation from solar.

- **Rhode Island HB 7811 (Enacted 2024)** directs the Rhode Island Infrastructure Bank to develop initiatives to meet a new distributed storage target and increase adoption by low-income households.

Streamline Interconnection and Permitting for DERs: States can make it much easier for customers to install solar and batteries by reducing the required approvals, digitizing application processes (e.g., through instant permitting software), and streamlining interconnection. States can also allow customers to adopt "plug-in" solar modules, which are smaller than traditional rooftop solar installations and plug directly into power outlets.

- **Utah HB 340 (Enacted 2025)** exempts plug-in solar from interconnection agreements with utilities and allows customers to self-install certified devices.
- **New Jersey A 5264 (Enacted 2025)** requires the state to make available, and for local jurisdictions to adopt, an automated online software platform for approving residential solar and battery permits.
- **Florida HB 683 (Enacted 2025)** requires municipalities to allow private providers to use instant permitting software to expedite the permitting process for residential solar and battery systems.
- **Vermont HB 431 (Enacted 2021)** simplifies the interconnection process for small energy storage projects.

Reform Utility Incentives to Support DERs: States can increase utility support for DERs by (1) creating performance incentives and requirements for companies to support customer adoption of DERs, (2) developing mechanisms for utilities to benefit from DER investments, and (3) ensuring that market and planning rules reflect the reliability benefits of DERs.

- In **Minnesota**, the PUC approved Xcel Energy's proposal to run a Distributed Capacity Procurement to build small-scale batteries and pay households, businesses, and non-profit organizations to host them, allowing the utility to earn a return on DERs.

Additional Resources

- **Distributed Solar and Batteries I NCEL**
- **Instant and Third-Party Permitting Fact Sheet I NCEL**
- **How Virtual Power Plants Unlock Cleaner, More Affordable Electricity System I RMI**
- **Plug-In Solar for Every Home I Bright Saver**

Overview

Limited transmission capacity is a major barrier to clean energy deployment, and expanding the transmission grid can bring low-cost clean energy resources to more places. Grid congestion is already costing customers on the order of $10-20 billion per year. Transmission buildout has been hampered by several barriers, including ineffective coordination across jurisdictions and stakeholders. Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs) operate and plan the transmission system, but their current planning processes are generally insufficient to unlock the transmission necessary to build a low-cost clean energy system. Government-led planning processes can help to optimize and accelerate transmission buildout.

In addition, building a low-cost electricity system is made easier through strategic and well-informed decisions about which generation and grid projects to build. To minimize costs, utility decisions about which power plants to build can be coordinated with grid expansion plans. Planning processes can also include all solutions — including distributed energy resources (DERs) as well as grid flexibility and advanced transmission technologies.

Policy Options

Integrate Generation and Transmission Planning: States with vertically integrated utilities can require them to integrate transmission and generation planning to ensure that decisions about new power plants take into account planned grid expansion. Doing so can allow the utility to choose the lowest-cost resource mix.

- **Nevada SB 448 (Enacted 2021)** directs a Nevada utility to incorporate planned transmission projects into generation planning.

Require Grid Flexibility and Advanced Transmission Technologies in Planning: Utilities tend to focus on the solutions that earn a profit, which means they often leave out opportunities to efficiently utilize the existing grid or upgrade existing infrastructure (e.g., through advanced conductors that can save $85 billion across the country). States can require utilities to evaluate these solutions and adjust incentives to encourage companies to use them.

- **Minnesota HF 5247 (Enacted 2024)** requires utilities to submit a biennial transmission report documenting the sites of major grid congestion and, for each site, evaluating the potential for grid-enhancing technologies to reduce congestion.
- **Virginia SB 621 (Enacted 2026)** requires utilities to establish metrics for utilization of the existing grid and submit plans to increase utilization.
- **Montana HB 729 (Enacted 2023)** allows utilities to earn a return on investments to upgrade existing transmission lines with advanced conductors to increase grid capacity.

Require DERs in Planning: Utilities often leave out opportunities to take advantage of customer-owned DERs when planning to meet load growth, as these technologies do not earn companies a profit. States can require utilities to consider these solutions in planning processes.

- New Hampshire HB 1431 **(Enacted 2024)** requires utilities to evaluate opportunities to use DER deployment to meet demand growth in distribution planning processes.

Establish State Transmission Planning Authorities: States can establish planning authorities to identify priority transmission corridors, lead siting and permitting processes, and help channel investment to support lines in those corridors.

- **Colorado SB 072 **(Enacted 2021)** creates a transmission planning authority to facilitate financing and construction of transmission lines that can reduce costs and expand clean energy.

Increase Participation in Order 1920 Planning Processes: States can engage productively with regional planning processes run by Regional Transmission Organizations to support transmission expansion and ensure planning processes align with clean energy and affordability goals.

Additional Resources

- **Transmission Briefing Book I NCEL**
- **Modernizing Transmission Planning: Integrating Silos To Deliver Multi-Driver, Multi-Value Outcomes I Energy Systems Integration Group**
- **Transmission Congestion for 2024 I Grid Strategies**
- **Playbook: Grid Enhancing Technologies I WATT Coalition**

State Legislators and Energy Affordability

Electricity bills have surged in recent years, fueled by a wave of increased utility spending, soaring demand from data centers, climate-fueled extreme weather, and unpredictable fossil fuel prices. But this is not inevitable. State legislatures can take action to reduce rate increases and build a clean energy grid that keeps bills low and predictable for the future.

Key Takeaways

This Briefing Book provides a three-pronged framework to address energy affordability:

1. **Delivering Near-Term Relief:** Legislators can help customers immediately by addressing data center impacts on households and businesses, while providing direct relief through rebates, energy efficiency, and special low-income rates.
2. **Protecting Customers & Reforming the System:** An outdated regulatory system and incentives for monopoly utilities have led to a wave of utility spending and shareholder profits paid for by households and small businesses. Legislators can strengthen utility regulation and realign utility incentives to ensure energy is affordable.
3. **Building a Low-Cost Clean Energy Future:** Clean energy is the most affordable source of new power and offers much more predictable prices than gas. But utilities are not building clean energy fast enough to meet new demand. Legislators can accelerate the buildout of clean energy through efficient siting and permitting, public finance, empowering customers to use distributed clean energy and energy efficiency, and improved grid planning to expand transmission.

The policies outlined in this Briefing Book offer practical examples of how states can protect customers now while building an affordable, clean energy future.

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Energy Affordability Briefing Book

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