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INTRODUCTION

This Blueprint provides a starting point for individual states to implement customized policy that adds affordable, clean capacity within each state's unique circumstances.

The United States is adding new power to the grid at a record pace with solar, wind, and storage making up more than 90% of the total capacity added over the last two years.[1] Yet even that record buildout is not enough to meet growth from data centers, manufacturing, and electrification, which could increase demand by more than 30% by 2030.[2] The grid and the institutions that govern it were built for an era of flat demand and are not keeping pace. Falling behind on demand means higher bills for households and greater risks of reliability issues like blackouts.

The good news is that we have the technology and supply to grow the grid for the needs of today. Yet, the rules, processes, and incentives that govern how projects are approved, connected, and paid for remain a bottleneck to progress. This Blueprint provides a starting point for individual states to implement customized policy that adds affordable, clean capacity within each state's unique circumstances; it is not an exhaustive list of policies. The tools included tackle three core pillars of state policy action that can clear the largest barriers to clean energy thriving as a fast and cheap option to meet rising demand, drive economic growth, and keep costs low.

- **Unlock Clean Energy at Scale** addresses the siting, interconnection, and investment barriers that slow large wind, solar, and storage projects.
- **Unlock Customer and Local Clean Energy** covers small-scale solar, batteries, and flexible demand that can come online in months, along with the planning, compensation, and financing needed to coordinate them.
- **Unlock the Wires** focuses on rapidly increasing existing transmission system capacity through advanced transmission technologies, and aligning utility incentives to deploy them.

The three pillars are designed to work together to accelerate cost-effective clean energy resources at the speed and scale required by America's current and future energy needs. The same challenges span all three pillars: slow approval processes, opaque and costly grid access, planning that lags behind demand, and utility business models that reward capital spending over efficient grid use. This status quo slows the deployment of cheap renewable resources, blocks customer-sited and local clean energy, and limits efficient use of the grid.

1 Based on analysis of EIA 860M data. U.S. EIA, "Preliminary Monthly Electric Generator Inventory (Based on Form EIA-860M as a Supplement to Form EIA-860)," September 2026 data, October 23, 2026, https://www.eia.gov/electricity/data/eia860m/.

2 John D. Wilson, Sophie Meyer, Zach Zimmerman, and Rob Gramlich, *Power Demand Forecasts Revised Up,* GridStrategies, November 2025, https://gridstrategiesllc.com/wp-content/uploads/Grid-Strategies-National-Load-Growth-Report-2025.pdf.

Taken together, unlocking the grid is an opportunity to enable demand growth and cut consumer costs. When more electricity supply can reach customers, prices fall, new demands get power, and the grid becomes a foundation of economic growth, rather than a constraint on it.

States can act now and act quickly. The policy tools emphasize levers controlled directly by state-level decisionmakers: governors, legislatures, public utility commissions, state energy offices, and siting agencies. States do not operate in a vacuum, and they share jurisdiction over the grid with regional grid operators and independent system operators (RTOs and ISOs) and the Federal Energy Regulatory Commission (FERC). These entities set the rules for much of the bulk power system, including how large power plants connect to the grid, how markets function to ensure electricity service at a reasonable cost, and how utilities plan and share the costs of high-voltage transmission networks. Grid operator action and federal reform are critical to making many of these state recommendations stick, but states have the power to use their role in RTO/ISO governance and policies to push for change. New transmission is also desperately needed across the country and the Blueprint identifies near-term tools that add capacity on existing lines while progress is made towards building new transmission.

STATES CAN ACT NOW AND ACT QUICKLY.

The policy tools emphasize levers controlled directly by state-level decisionmakers: governors, legislatures, public utility commissions, state energy offices, and siting agencies.

Each pillar includes a short summary of the problem with a set of policy tools, the pathway for enacting them, state examples, and a case study showing how a policy works in practice. State policymakers can use these resources to identify which reforms fit their state's needs, grid conditions, market structure, and politics. Enacting a policy is just a first step which must be followed by smart implementation from state agencies, regulators, and utilities. Unlock the Grid intends for this Blueprint to start conversations with state leaders and lay the groundwork for more targeted support from our network of experts as states design, pass, and implement reforms.

UNLOCK CLEAN ENERGY AT SCALE



HOW BIG IS **A GIGAWATT?**

- A gigawatt (GW) of generation capacity provides enough energy over the course of the year to power more than 800,000 homes[3]
- The U.S. had a total of 1,280 GW of generation capacity installed as of the end of 2025[4]
- The U.S. met a peak electricity demand of 759 GW in July 2025[5]



The United States is building new power generation capacity at record pace, with 86 gigawatts (GW) of new generation capacity expected to be added to the grid in 2026, an annual rate of additions that is more than twice as fast as the last decade.[6] The backbone of this buildout is solar, wind, and energy storage, which together account for over 90% of expected additions to the grid in 2026 and 2027. These resources are leading the market because they are cheap, quick to build, and independent from volatile commodity fuel markets.

Clean energy additions are keeping the lights on, but demand growth is outpacing the rate we can add new resources to the grid.

3 Calculated based on average household electricity usage in the U.S. EIA, "How much electricity does an average American home use?" *Frequently Asked Questions*, accessed November 13, 2026, https://www.eia.gov/tools/faqs/faq.php?id=97&t=3.

4 U.S. EIA, "Electricity Generation, Capacity, and Sales in the United States," *Electricity Explained*, accessed October 27, 2026, https://www.eia.gov/energyexplained/electricity/electricity-in-the-us-generation-capacity-and-sales.php.

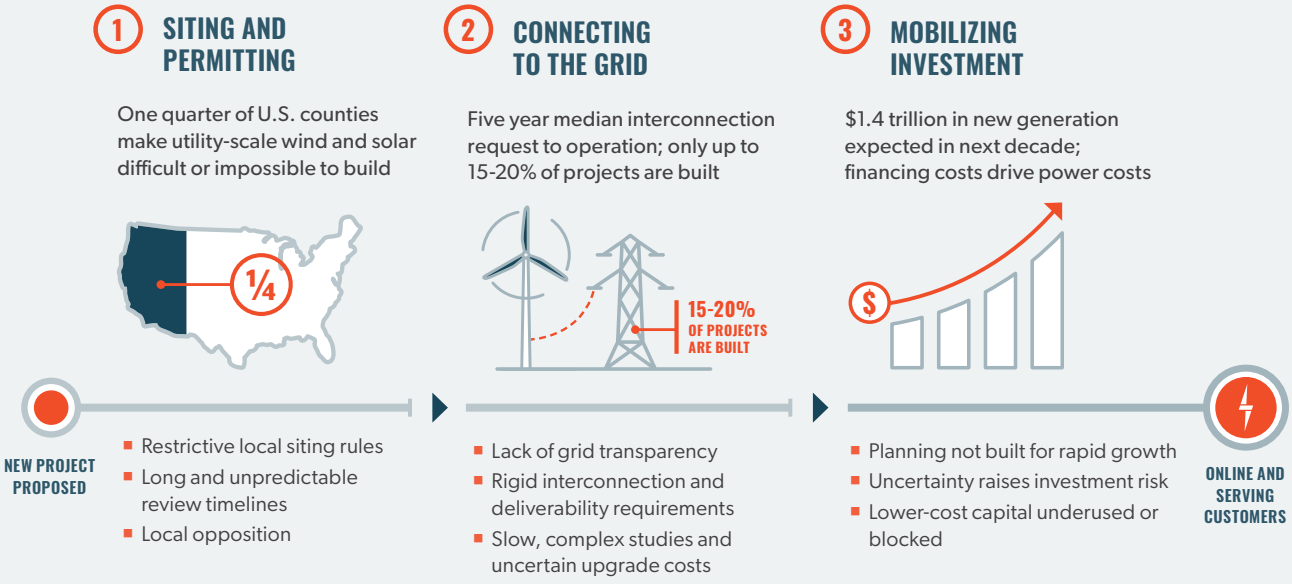
5 U.S. EIA, "U.S. Electricity Peak Demand Set New Records Twice in July," *Today in Energy*, August 5, 2025, https://www.eia.gov/todayinenergy/detail.php?id=65864.

6 U.S. Energy Information Administration (EIA), "New U.S. Electric Generating Capacity Expected to Reach a Record High in 2026," *Today in Energy*, February 20, 2026, https://www.eia.gov/todayinenergy/detail.php?id=67205.

UNLOCKING LARGE-SCALE PROJECTS

WHERE PROJECTS GET STUCK ON THE WAY TO THE GRID

Each barrier adds time and cost before a new project can deliver power to customers.



Structural barriers are preventing clean energy resources from realizing their full potential:

- **Siting and permitting is too complex.** Developing new large-scale power projects involves navigating a complex maze of state and local siting processes, proliferating siting restrictions on solar, wind, and energy storage, and uncertain and unpredictable federal policy environment.
- **The interconnection queue is jammed.** Over 2,000 GW of capacity remains stuck in line, waiting an average of five years to connect to the grid.[7]
- **Clean energy investment and deployment is uneven.** California and Texas account for nearly 40% of solar, wind, and energy storage built since the start of 2025[8], driven by these states' policy and market environments. Meanwhile, PJM, the largest electricity market in the U.S., has experienced anemic growth in new capacity despite three years of capacity price spikes that hurt consumers across the region.[9]

7 Lawrence Berkeley National Laboratory (LBNL), "Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection," 2026 edition, accessed October 27, 2026, https://emp.lbl.gov/queues.

8 Based on analysis of EIA 860M data. U.S. EIA, "Preliminary Monthly Electric Generator Inventory (Based on Form EIA-860M as a Supplement to Form EIA-860)," September 2026 data, October 23, 2026, https://www.eia.gov/electricity/data/eia860m/.

9 Nikhil Kumar, "Interconnection Bottlenecks Cost PJM Customers $3.5 Billion," GridLab, November 6, 2025, https://gridlab.org/interconnection-bottlenecks-cost-pjm-customers-3-5-billion/.

Americans deserve clean, reliable energy. This section outlines actions state policymakers can pursue in three areas: siting and permitting, connecting to the grid, and mobilizing investment. Progress across *all three* of these areas will unlock large-scale clean energy to power this moment and the future.

As of 2026, up to 24% of U.S. counties had rules making it difficult or impossible to build utility scale wind and solar, an increase from 15% two years earlier.

SENSIBLE SITING AND PERMITTING

State and local siting and permitting has become a primary barrier for clean energy projects around the country, as land-use conflicts, delays, and restrictions have risen significantly in recent years. Many of these barriers are at the local level: as of 2026, up to 24% of U.S. counties had rules making it difficult or impossible to build utility scale wind and solar, an increase from 15% two years earlier.[10] Local siting restrictions for battery energy storage are also emerging in many localities. Nearly three out of every four recent wind and solar projects facing opposition were challenged only at the state or local level and not federally.[11] These barriers compound federal permitting uncertainty and delays.

Siting policy must balance the needs of the localities that host new infrastructure with public policy objectives. Well-designed siting policy should be a win-win. Towns, counties, and cities should benefit while projects should gain the certainty required to develop. While every state has its own legal and institutional starting point, there are common siting policy approaches that can help unlock large-scale projects that will power the local, state, and federal economy.

Siting and permitting solutions can be organized around the problems they solve:

- **Restrictive and inconsistent local siting rules** can be addressed through enacting sensible statewide standards that local governments need to meet, while creating a state-level backstop siting process if localities fail to meet these standards or review permit applications in a timely way. Michigan and Illinois are examples of states that have recently enacted reforms to prevent bans and restrictive setbacks for renewable energy, while also creating a state backstop siting process. Illinois's approach is described on page 7.
- **Long and unpredictable timelines** can be addressed by requiring agencies to process reviews on a clear and reasonable timeline, while providing the funding, staff and technical expertise necessary to evaluate permit applications efficiently. Simplification of permit processes, for instance by automating permitting for projects that meet specific standards, can lower the burden on permitting decision-makers.
- **Local opposition** can delay the permitting process for projects. Meaningful engagement and community benefit frameworks, as well as up-front analysis and identification of the lowest-impact areas for project development, can help ensure that host communities benefit from development.

10 "Wind, Solar Power Face a Common Foe—Creative Local Governments," *USA TODAY*, February 21, 2026, https://www.usatoday.com/story/news/nation/2026/02/21/restrictions-wind-solar-energy-bans-setbacks-government/85952104007/.

11 Lauren Bauer, Wendy Edelberg, Cameron Greene, Olivia Howard, and Linsie Zou, "Eight Facts about Permitting and the Clean Energy Transition," Brookings Institution, May 22, 2024, https://www.brookings.edu/articles/eight-facts-about-permitting-and-the-clean-energy-transition/.

These solutions are outlined in the table below, and page 35 of the Appendix contains more detail on specific policy actions, actors, and examples.

UNLOCKING LARGE-SCALE PROJECTS

KEY POLICIES

1 SITING AND PERMITTING

RESTRICTIVE AND INCONSISTENT LOCAL RULES

Create one-stop shop consolidated permitting
Combine permitting, siting into one state process for large projects

Enact sensible siting standards
Set statewide standards that prevent overly-restrictive local rules

Create state siting backstop authority
Enable state agency to permit projects under certain conditions

LONG AND UNPREDICTABLE REVIEW TIMELINES

Require clear and reasonable review timelines
Set clear permit application review timelines, clear outcomes if timelines not met (e.g., automatic approval)

Provide resources for permitting agencies
Provide funding, staff, and technical assistance to enable faster review

Enable permit-by-rule for low impact projects
Automatic permit approval for projects meeting standards, accelerated project review with minor deviations

Fast track / pre-approve priority development areas
Fast-track brownfield permitting, site pre-development, proactive leasing of state land for projects

LOCAL OPPOSITION

Expand use of community benefit frameworks
Require community benefit agreements, development agreements, payments in lieu of taxes

Develop public mapping of low-impact development zones
Consult local communities to identify low-impact, low-conflict development zones with streamlined approval process



STATE EXAMPLE
REDUCING PERMITTING BARRIERS IN ILLINOIS



Statewide standards reduce project barriers while preserving local permitting authority

In 2023, the University of Illinois found that nearly a third of the 102 total counties in Illinois had ordinances that severely restricted or prohibited development of utility-scale wind or solar projects.[12] Some counties banned new wind outright, while others implemented setbacks and visual rules so restrictive they functionally acted as bans. In response, the state enacted HB 4412 in 2023 which established statewide standards for utility-scale wind and solar projects that counties had to meet when setting their own local ordinances.[13] The state simply limited counties' ability to put overly restrictive requirements on projects while maintaining local permitting authority. The bill also established reasonable timelines for county permitting processes.

The 2023 bill lacked a strong enforcement mechanism or a backstop process that projects could use if counties did not make a decision on a project in a timely fashion. In 2026, the state took action again as part of the Clean and Reliable Grid Affordability Act (SB 25) and created a backstop that would allow the state utility regulator (the Illinois Commerce Commission) to make a decision on a wind, solar, or energy storage project of 50 MW or larger if local governments either do not comply with the siting standard, or fail to make a permitting decision on projects within 90 days (60 days to hold a hearing, and an additional 30 days to make a final decision).[14] These provisions became effective as of June 2026 and projects are just starting to work their way through the new process.

READ MORE ON CLEAN ENERGY SITING AND PERMITTING

- Calderwood, Cayla, Natalie Malouf, and Stella Favaro. **"**No Time to Read 36 Resources on State Permitting Reform? We Built an Easy-to-Use Tool That Will Do It for You**."** RMI, April 3, 2026. .
- Enterline, Shawn, Andrew Valainis, and Ben Hoen. *Laws in Order: An Inventory of State Renewable Energy Siting Policies*. Lawrence Berkeley National Laboratory, June 2024.
- Hartman, Devin, Josiah Neeley, and Philip Rossetti. *State and Local Permitting for the Energy Sector: Challenges and Opportunities*. R Street Institute, November 19, 2024.
- National Caucus of Environmental Legislators. *Clean Energy Siting and Permitting Fact Sheet*. October 11, 2024.
- Siting Solutions Project. *Renewable Energy Siting Policy Field Guide*. December 2025.

12 Shannon Anderson, "The End of Local Zoning for Wind in Illinois?," University of Illinois Urbana-Champaign, January 31, 2023, https://storymaps.arcgis.com/stories/4c555e7132d049d89348429e79f90280.

13 Illinois General Assembly, H.B. 4412, 102nd General Assembly, enacted January 27, 2023, as Public Act 102-1123, https://www.ilga.gov/Legislation/BillStatus?DocNum=4412&GAID=16&DocTypeID=HB&SessionID=110&GA=102.

14 Houtan Moaveni, *Gap Analysis of Permitting Reforms in California, Illinois, New York, and Washington* (Grid Strategies, April 1, 2026), https://gridstrategiesllc.com/wp-content/uploads/GS_Gap-Analysis-Permitting-Reforms-Report.pdf. Illinois General Assembly, S.B. 25, House Amendment No. 5, 104th General Assembly (2025), https://www.ilga.gov/documents/legislation/104/SB/PDF/10400SB0025ham005.pdf.

CONNECTING TO THE GRID

Over 2,000 GW of new resources are actively seeking a connection to the grid, enough capacity to roughly double the size of the U.S. electricity generation fleet.[15] But the process as it stands today is a gauntlet. This current process takes a project five years from requesting an interconnection before it comes online, and only 15 to 20% of projects that request an interconnection end up being built.[16] Many projects spend years waiting in the queue just to have a grid operator assign grid connection costs that render projects uneconomic. From 2018 to 2024, the cost of interconnecting new generation resources to the grid increased by 200%.[17] Projects that withdraw from the queue tend to have substantially higher grid connection costs.[18] After decades of little load growth and stagnating grid expansion, the lack of high-voltage transmission capacity has led to a piecemeal approach to interconnecting new resources resulting in a lack of transparency and efficiency in resource deployment.

There are several core reasons the current "invest-and-connect" process is slow and expensive: [19]

- **Lack of grid transparency.** Project developers request a grid connection with little certainty about where they can deliver power onto the grid from that interconnection point. They must wait for grid operators and utilities to conduct lengthy, bespoke system impact studies before they know whether their site has potential. The Federal Energy Regulatory Commission's (FERC) Order 2023 intended to fix this lack of transparency by requiring transmission owners to release public "heat maps" of "good" or "bad" interconnection points.[20] In practice these static maps provide little distinction between points, showing almost all of the grid as a "bad" location due to lack of proactive planning. Developers remain stuck making speculative interconnection requests.
- **Rigid interconnection and deliverability requirements.** Resources seeking interconnection are generally required to demonstrate "firm" deliverability, which is the ability to move power where it is needed, including at peak times and under extreme outage situations. Such a requirement necessitates substantial grid upgrades, which will often delay project construction and interconnection timelines even if that resource could interconnect today and provide valuable energy or capacity before the grid upgrades are made. It is like waiting for a new lane to be built for every car during rush hour, even if those cars could still make progress in managed traffic.
- **Slow, complex study process and uncertain upgrade costs.** The interconnection process has increased in complexity over the last 20 years. What was originally a single queue, where generators were studied in order of application, has become a matrix of interdependent clusters requiring constant re-study and process amendments. When projects withdraw from the queue, which is becoming more common because of uncertain and rising costs, grid operators adjust studies to remove those projects, which then adds time. The cost of upgrading the transmission system to deliver power from new generation to load is generally assigned to the first project or cluster of projects that triggers new "network upgrade costs." These costs are uncertain, and can be cost-prohibitive to the marginal project that triggers these upgrades, leading to withdrawals. The interconnection process was never meant to substitute for proactive and holistic regional and inter-regional transmission planning.

Texas is the fastest place for a project to get connected to the grid, due in large part to its "connect-and-manage" process instead of "invest-and-connect". While most states lack the unique regulatory conditions (lack of FERC jurisdiction) that make this approach possible in Texas, other processes exist that states can take advantage of to get more energy on the grid faster.

15 LBNL, "Queued Up."

16 LBNL, "Queued Up."

17 Joachim Seel et al., *Generator Interconnection Costs to the Transmission System in non-ISO Balancing Authorities* (Lawrence Berkeley National Laboratory and Exeter Associates, February 2026), https://eta-publications.lbl.gov/sites/default/files/2026-02/lbnl_2026.02.23_ba_interconnection_costs.pdf.

18 LBNL, "Generator Interconnection Costs to the Transmission System," accessed October 27, 2026, https://emp.lbl.gov/interconnection_costs.

19 Sarah Toth Kotwis, Katie Siegner, Abigail Weeks, and Chaz Teplin, "Powering New Loads and Lowering Electricity Costs with Connect-and-Manage Interconnection," RMI, July 14, 2026, https://rmi.org/resources/powering-new-loads-and-lowering-electricity-costs-with-connect-and-manage-interconnection/.

20 Federal Energy Regulatory Commission (FERC), *Improvements to Generator Interconnection Procedures and Agreements*, Order No. 2023, 184 FERC ¶ 61,054 (July 27, 2023), https://www.ferc.gov/media/order-no-2023.

GET CONNECTED FASTER

INVEST-AND-CONNECT | THE STATUS QUO

Under the traditional invest-and-connect interconnection approach, a generator seeking interconnection to the grid must be studied under peak load and a range of extreme stress conditions in order to determine whether or not the generator can deliver its full output during critical grid events. These time-consuming and complex studies generally identify significant grid upgrades that are required before the resource can be interconnected, sometimes rendering the project uneconomic or forcing long delays while new grid infrastructure is built out.[21]

CONNECT & MANAGE | THE TEXAS APPROACH

Alternatively, connect-and-manage is a flexible interconnection approach that allows for faster interconnection of resources. The connect-and-manage approach allows generators to interconnect without first completing all the network upgrades needed for full deliverability under stressed conditions. The tradeoff is that the grid operator is allowed to curtail the generator's output under certain grid conditions. This approach has enabled ERCOT to integrate significant amounts of new generation, nearly 30 GW in 2024 and 2025.[22]

ADDITIONAL INTERCONNECTION METHODS

Other states can take steps to separate physical interconnection from full deliverability, which enables resources to come online faster and cheaper while we continue to build out the grid. States can investigate a number of step-change approaches, including:

1. **SURPLUS INTERCONNECTION**
   When existing power plants aren't using their full interconnection capacity, allow a new resource to connect at the same point and share the interconnection capacity. Numerous RTOs and non-market regions have implemented Surplus Interconnection Service successfully, including MISO, SPP, and the non-RTO West.[23]

2. **FLEXIBLE INTERCONNECTION SERVICE OPTIONS**
   Allow resources to connect without requiring network upgrades, instead curtailing generation when network capacity is not available.[24]

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21 These types of resources are typically interconnected to the grid under the "Network Resource Interconnection Service" (NRIS) designation. In this case, projects are studied for deliverability and can qualify as capacity or resource adequacy resources. NRIS studies generally determine significant grid upgrades that are necessary to ensure those generators are deliverable.

22 Joshua D. Rhodes and Michael E. Webber, *The Texas Flex: How Connect and Manage Can Deliver Speed to Power for Generation and Load* (GridLab, July 2026), https://gridlab.org/portfolio-item/the-texas-flex/.

23 Miles Farmer, Abe Silverman, and Casey Baker, *Surplus Interconnection: A Tool to Immediately Deploy New Electricity Supply to Enhance Grid Reliability and Affordability*, GridLab, n.d., https://gridlab.org/wp-content/uploads/2025/01/GridLab_Surplus-Interconnection.pdf.

24 These resources are often designated as Energy Resource Interconnection Service (ERIS), which allows generators to interconnect to the grid without requiring full deliverability. Under this approach, generators can often avoid costly grid upgrades and grid operators will curtail this resource as necessary to respond to grid conditions.



While FERC Order 2023 has compelled some progress on grid transparency and interconnection studies since it was issued in 2023, there is an important role for states to play in creating a fast, fair, and predictable process for generation projects to connect to the grid. States have many opportunities to address these barriers even as FERC ultimately has jurisdiction over the interconnection rules that grid operators adopt. At the same time, states have an important role to play in pressuring regional grid operators and FERC to improve interconnection policy and address fundamental issues that are driving up retail rates and restricting state control over where their power comes from.

States can direct utilities to utilize novel interconnection approaches within their resource planning and procurement processes, while pushing regional grid operators to adopt better interconnection practices that address underlying issues. For example, many states have encouraged the adoption of Surplus Interconnection policies, which allows new electricity generation resources to connect to the grid using the same grid infrastructure that serves already existing generators. Sharing existing infrastructure can bypass the existing interconnection queue process, eliminating years of study and delay. FERC Order 845 already requires transmission providers to offer Surplus Interconnection Service, but additional implementation and analysis support is necessary to ensure that utilities take advantage of the offering.[25]

While this section focuses on improving the process for interconnecting new resources to the grid, Chapter 3 *Unlock the Wires* details the barriers and solutions to getting more out of our existing transmission system through Advanced Transmission Technologies.

In addition to reforming the generator interconnection process, many states and utilities are also working on steps to improve the load interconnection process, which largely falls within state jurisdictions. Regulators can encourage utilities to co-locate new large loads with generation, and offer incentives for non-firm generation or flexibility. Such improvements are critical to ensure that load interconnection improvements match enhancements on the generation side.

25 Federal Energy Regulatory Commission, *Reform of Generator Interconnection Procedures and Agreements*, Order No. 845, 163 FERC ¶ 61,043 (April 19, 2018), https://www.ferc.gov/sites/default/files/2020-06/Order-845.pdf.

The figure below outlines policy approaches state policymakers can take to help projects connect to the grid faster. These focus on addressing the transparency, deliverability, and cost uncertainty issues described above.

Page 37 of the Appendix contains more detail on specific policy actions, actors, and examples.

UNLOCKING LARGE-SCALE PROJECTS

KEY POLICIES

2 CONNECTING TO THE GRID

LACK OF GRID TRANSPARENCY

Assess Surplus Interconnection in utility planning
Require assessment of opportunities to add resources to existing interconnection points

Improve regional surplus offerings
Seek clearer eligibility, studies, and participation rules via regional process

Evaluate replacement at retiring generators
Evaluate replacement resources before existing generators retire

Publish actionable interconnection information
Publish updated data on potential connection locations, constraints, service options

RIGID INTERCONNECTION AND DELIVERABILITY REQUIREMENTS

Enable flexible generation interconnection and procurement
Procure resources that connect before full deliverability upgrades are complete

Improve regional energy-only interconnection
Seek energy-only pathways with clearly defined studies and upgrade requirements

Establish flexible load interconnection
Allow earlier connection subject to defined operating limits and flexibility obligations

SLOW, COMPLEX STUDY PROCESS AND UNCERTAIN UPGRADE COSTS

Coordinate utility resource, transmission, and load planning
Evaluate generation, transmission, and large-load needs together

Advance regional planning and predictable upgrade contributions
Coordinate regional upgrades and make applicants' contributions more predictable

Evaluate third-party interconnection software
Evaluate tools that automate and accelerate interconnection analyses

State capacity to engage at RTOs
Fund state agency expertise and participation in regional grid processes

STATE EXAMPLE | ENABLING FASTER ENERGY INTERCONNECTION IN GEORGIA

Testing processes that connect new power faster, with grid upgrades later



Utilities in the non-ISO Southeast are exploring ways to bring new generation online before all upgrades needed for firm transmission delivery are complete, which can cut interconnection timelines to get new power online fast.[26] Today, procurement requirements can limit these opportunities because utilities often require full network deliverability as a condition of purchasing a project's output. Instead of requiring full deliverability through the invest-and-connect approach, states and utilities can take advantage of the connect-and-manage process, which allows generation to connect without firm deliverability. New projects can interconnect subject to applicable reliability requirements and potential curtailment until the necessary transmission upgrades are made. Georgia Power recently procured over 1,000 MW of non-firm Power Purchase Agreements, enabling five solar projects to come online and utilize short-term network service (similar to ERIS) while grid upgrades are being made.

States have the ability to direct procurement processes and broaden the interconnection requirements for the resources that can be procured. This can be a powerful tool for states to increase the speed of interconnecting new, clean, lowest cost resources. States and utilities should continue to evaluate resource procurement rules related to ERIS and NRIS, and identify opportunities to accelerate transmission and interconnection studies.

READ MORE ON IMPROVING INTERCONNECTION

- Gorman, Will, Fredrich Kahrl, Tyler Norris, and Dalia Patiño-Echeverri. **"A Review of United States Energy-Only Generator Interconnection Service Policy and Considerations for Reform."** *Energy Policy* 219 (December 2026): 115554.
- GridLab. **"Surplus Interconnection Policy Explainer."** December 19, 2024. Power Strategies. *Energy Resource Interconnection Service in the Southwest Power Pool*. GridLab, August 2026.
- REW Power Strategies. *SPP's Consolidated Planning Process (CPP): Explanation and Application to Other Planning Regions*. GridLab, August 2026.
- Rhodes, Joshua D., and Michael E. Webber. *The Texas Flex: How Connect and Manage Can Deliver Speed to Power for Generation and Load*. GridLab, July 2026.
- Solomon, Michelle. **"What Is Surplus Interconnection? And Why It Could Unlock the U.S. Power Grid."** Energy Innovation, March 25, 2026.
- Toth Kotwis, Sarah, Katie Siegner, Abigail Weeks, and Chaz Teplin. **"Powering New Loads and Lowering Electricity Costs with Connect-and-Manage Interconnection."** RMI, July 14, 2026.

26 Will Gorman, Fredrich Kahrl, Tyler Norris, and Dalia Patiño-Echeverri, "A Review of United States Energy-Only Generator Interconnection Service Policy and Considerations for Reform," *Energy Policy* 219 (December 2026): 115554, https://doi.org/10.1016/j.enpol.2026.115554.

MOBILIZING INVESTMENT AND REDUCING COSTS

In the next decade, analysts expect nearly $1.4 trillion of investment in new U.S. power generation to meet the growing demands on the grid. Policy tools are needed to deploy this capital quickly, ensure it benefits all customers, and avoid upward pressure on prices.[27]

The investment cycle for large-scale generation looks different from one state to another, depending on whether new generation investment is directed by state-regulated utilities or competitive wholesale electricity markets. Increasingly, large customers like data centers facing long wait times for grid connections are investing directly in massive off-grid power generation facilities.

For nearly half of the U.S. electricity grid, investment in new power plants is largely controlled by regulated, vertically integrated utilities, which own or contract for the generation resources to meet customer needs. For these utilities, new generation investment depends on utility planning and procurement practices, and the utility's own preferences and interests influence what gets built.

In other parts of the U.S. grid, investment in new power plants is competitive, driven by economics, state procurement targets, and wholesale market rules that shape the profitability and risk of different types of generation investments, such as capacity markets in the PJM region.

Across these varied regulatory contexts there are several common key challenges:

- **Planning processes are not designed for rapid growth.** As market conditions change quickly, including changing demand forecasts, resource costs, fuel prices and more, utility planning processes and market mechanisms are often playing catch-up. Demand growth uncertainty is driving more risk of timing mismatches between demand and supply, which can either lead to costly overbuilds or supply shortages. Planning processes and markets need to adapt to incorporate the most accurate up-to-date assumptions, identify least-regrets investments, and retain flexibility.
- **High levels of uncertainty are raising risk.** Deploying low-cost, long-term capital requires policy frameworks that create certainty and reduce risk, even when there is a strong long-term demand signal. Policy tools to mitigate risk include statutory procurement targets, addressing development barriers like permitting and interconnection, and encouraging utilities and large customers to enter long-term contracts.
- **Alternative, lower-cost capital sources are not used to their full potential.** The cost of financing is a significant determinant of the cost of electricity from new resources. The cost of capital for new large-scale generation can be lowered by reducing the risk profile of projects; enabling greater use of public financial mechanisms like low-interest loans, ratepayer-backed bonds, or public financing authorities; and opening up market access in regions where non-utility project development is restricted.

27 Anna Shpitsberg, "Powering the Next Economy: Investment Surge or Cost Surge?," Wood Mackenzie, March 18, 2026, https://www.woodmac.com/news/opinion/powering-the-next-economy-investment-surge-or-cost-surge/.

*These solutions are shown in the table below, and **page 40** of the Appendix contains more detail on specific policy actions, actors, and examples.*

UNLOCKING LARGE-SCALE PROJECTS

KEY POLICIES

3 MOBILIZING INVESTMENT

PLANNING PROCESSES NOT DESIGNED FOR RAPID GROWTH

Improve demand forecasts
Base updated demand forecasts on milestones and financial commitments from large energy users

Use all-source procurement to identify new resources
Tap competition to allow all resources to compete and serve specific system needs

Require utilities to evaluate and share fuel price risk
Require fuel price uncertainty evaluation in planning, shift fuel price financial risk to utility

HIGH LEVELS OF UNCERTAINTY

Set procurement targets
Set specific, quantitative procurement targets to enable investment at scale

Enable 'bring your own new clean energy'
Allow clean transition tariffs and other mechanisms so large customers can procure new clean energy

ALTERNATIVE CAPITAL SOURCES ARE NOT USED TO THEIR FULL POTENTIAL

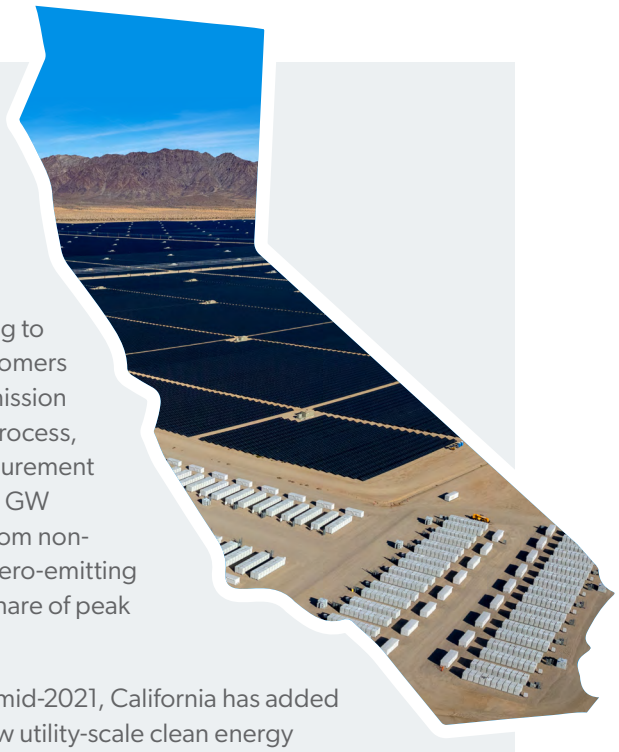
Expand wholesale markets
Create clear paths to market for new projects to sell power, optimize operations across larger regions

Finance projects with low-interest loans
Lower financing costs with low interest rates and other financial mechanisms

Leverage public development authorities
Issue bonds and low-cost financing from public agencies and authorities to support new generation investment



STATE EXAMPLE | ACCELERATING PROCUREMENT IN CALIFORNIA FOR CLEAN RELIABILITY



Clean energy procurement requirements improved grid reliability

In August 2020, extreme heat strained California's grid, leading to rotating outages that impacted hundreds of thousands of customers over two days. At the time, the California Public Utilities Commission (CPUC) was in the midst of a state-wide generation planning process, which culminated in June 2021 with its largest-ever single procurement order. The CPUC required electricity providers to procure 11.5 GW of new capacity coming online between 2023 and 2026, all from non-fossil resources: solar, storage, demand response, and other zero-emitting sources.[28] The obligation was split among providers by their share of peak demand, and phased in over time.

The result was a rapid build-out, especially of batteries. Since mid-2021, California has added 15 GW of utility-scale energy storage, and nearly 27 GW of new utility-scale clean energy resources. Grid conditions have improved alongside this growth. California's independent grid operator says peak grid capacity has risen from just over 50,000 MW to nearly 70,000 MW over the past five years. Wholesale electricity prices in the state are now among the lowest in the country, and the state hasn't called on consumers to conserve electricity in over four years, which officials largely credit to storage growth.[29]

READ MORE ON MOBILIZING CLEAN ENERGY INVESTMENT

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- Harvey, Hal, Mike O'Boyle, Anand Gopal, and Elli Newman. *Accelerating U.S. Clean Energy Deployment Through Investment-Grade Policy*. Energy Innovation, September 2023. .
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- Pierpont, Brendan, Matthias Fripp, and Michelle Solomon. *Let the Sun In: Clean Energy Is the Cheapest Way to Meet Rising Demand*. Energy Innovation, June 29, 2026.

28 California Public Utilities Commission (CPUC), "CPUC Orders Historic Clean Energy Procurement to Ensure Electric Grid Reliability and Meet Climate Goals," June 24, 2021, https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-orders-clean-energy-procurement-to-ensure-electric-grid-reliability.

29 U.S. EIA, "Regional Wholesale Markets: August 2026," *Electricity Monthly Update*, October 23, 2026, accessed October 27, 2026, https://www.eia.gov/electricity/monthly/update/wholesale-markets.php.

UNLOCK CUSTOMER AND LOCAL CLEAN ENERGY



Customer and local clean energy projects — such as rooftop or community-scale solar, batteries, electric vehicles, smart thermostats and other home appliances — were once considered to be too expensive and difficult to scale to be as impactful on the grid as large-scale clean energy projects. But, their potential to serve as a key pillar to unlock the grid is clear as resource costs have fallen and new technology has made it easier to coordinate them. By connecting at a home, business, or on the local low-voltage distribution grid, these resources can add capacity unconstrained by long-range transmission traffic jams and can often be connected to the grid faster than large projects.

As of August 2026, small-scale solar deployment in the United States (considered to be projects < 1 MW) was at 62 GW, making up nearly a third of all solar installations in the country, and coordinated local resources provided 37.5 GW of capacity as of September 2025.[30] Together customer and local projects can quickly respond to grid needs, avoiding larger system costs while providing energy and capacity value.

The potential for customer and local power is enormous. According to the U.S. Department of Energy:

- **Coordinated local resources could:**
  - Provide 80-160 GW of peak capacity by 2030,[30] the equivalent of 100 to 200 large-scale power plants.
  - Meet peak demand at 56% of the cost of a gas peaking turbine and come online in less than six months.[31]
- **Local solar alone could grow to 190 GW with permitting and interconnection reform.[32]**

30 U.S. Energy Information Administration (EIA), "Table 6.1.A. Estimated Net Summer Solar Photovoltaic Capacity from Utility and Small Scale Facilities (Megawatts)," *Electric Power Monthly*, October 23, 2026, accessed October 27, 2026, https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=table_6_01_a. Wood Mackenzie, "Virtual Power Plant Capacity Expands 13.7% Year-over-Year to Reach 37.5 GW, According to Wood Mackenzie," September 17, 2025, https://www.woodmac.com/press-releases/virtual-power-plant-capacity-expands-13.7-year-over-year-to-reach-37.5-gw.

31 Yusuf Latief, "Tripled VPP Capacity Can Save $10B in Grid Costs Finds U.S. Energy Department," Renewable Energy World, September 20, 2023, https://www.renewableenergyworld.com/news/tripled-vpp-capacity-can-save-10bn-in-grid-costs-finds-us-energy-department/.

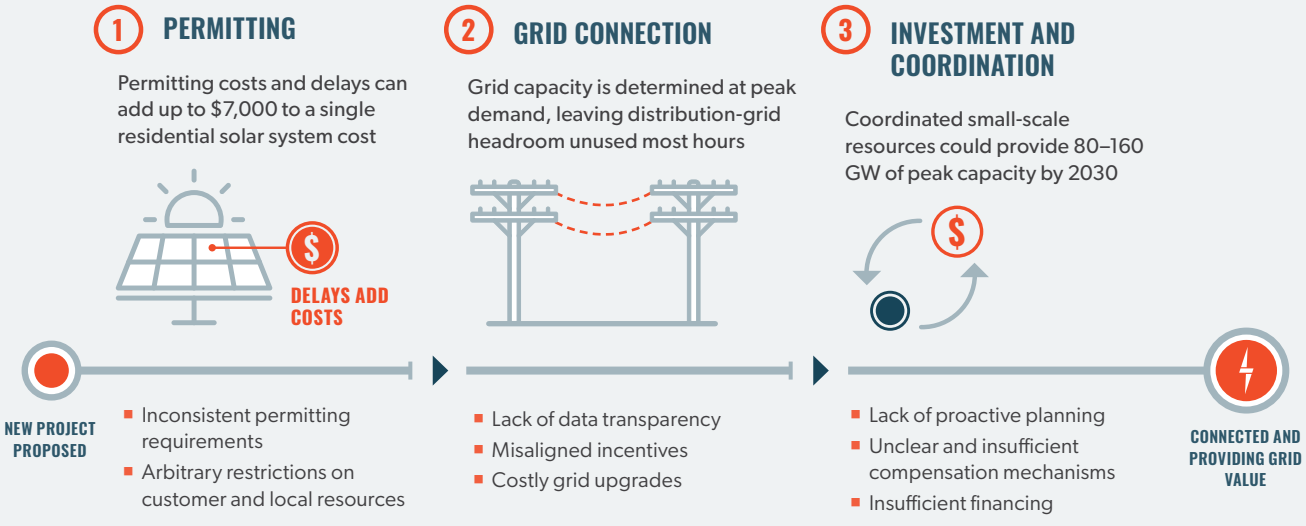
32 U.S. DOE, *Pathways to Commercial Liftoff: Virtual Power Plants 2025 Update* (January 2025), PDF p. 18, https://climateprogramportal.org/wp-content/uploads/2025/02/LIFTOFF_DOE_VirtualPowerPlants2025Update.pdf#page=18.

33 U.S. Department of Energy (DOE), *Distributed Energy Resource Interconnection Roadmap: Transforming Interconnection by 2035* (January 16, 2025), https://www.energy.gov/sites/default/files/2025-01/i2X%20DER%20Interconnection%20Roadmap.pdf.

UNLOCKING CUSTOMER AND LOCAL CLEAN ENERGY PROJECTS

WHERE CUSTOMER AND LOCAL PROJECTS GET STUCK ON THE WAY TO THE GRID

Each barrier adds time and cost before rooftop solar, batteries, and other resources deliver value to the grid.



Customer and local clean energy can grow quickly, and at the scale needed to meet growing demand. However, customer and local clean energy projects still face significant barriers in permitting and interconnection that slow adoption and raise costs, even as the distribution system has significant headroom to connect more projects much of the time. States can address these barriers through automatic permitting, flexible connection, and increased transparency into hosting capacity and grid utilization.

Connecting more customer and local resources to the grid quickly is the first step, but their full potential lies in deployment and operation in a coordinated way to provide value across all levels of the grid. A multi-pronged approach is needed to access the full value of coordinated customer and local resources, one that creates clarity in programs and market structures for compensation and works toward solutions to siloed decision-making and misaligned incentives within utilities.

This section outlines actions state policymakers can pursue in three areas: permitting, grid connection, and mobilizing investment and coordinating resources.

PERMITTING

Costs and delays in permitting can be significant for smaller projects, adding up to $6,000-$7,000 to the cost of a single residential solar system.[34] Often, multiple permits are required, including electrical, building, structural, and fire safety. This complex application system and long timeline keeps customer and local project costs elevated in the U.S. when compared to regions like Germany and Australia, which are 40% and 70% cheaper respectively.[35]

- **Inconsistent permitting requirements** can be slow and burdensome. Improvements can include creating consistent requirements statewide and adopting standardized online automatic permit software platforms.
- **Arbitrary restrictions on customer and local resources** can be avoided by setting statewide fire codes and setback requirements for safety and disallowing prohibitions from homeowners associations.

These solutions are outlined in the table below, and ***page 42*** *of the Appendix contains more detail on specific policy actions, actors, and examples.*

UNLOCKING CUSTOMER AND LOCAL CLEAN ENERGY PROJECTS

KEY POLICIES

1 PERMITTING

INCONSISTENT PERMITTING REQUIREMENTS

Require standardized automated permitting
Require consistent requirements and use of automated software

Allow plug-in solar and batteries
Explicitly allow small solar and battery projects to be installed without permits or interconnection agreements

Allow remote and third-party inspections
Remove barriers to onerous inspections of customer-sited projects, limited by availability of inspectors, via remote data

ARBITRARY RESTRICTIONS ON CUSTOMER AND LOCAL RESOURCES

Prohibit arbitrary restrictions
Set common sense limits on homeowners association restrictions, building codes, and fire codes that prevent homeowners and renters from installing clean energy

34 Elizabeth Ridlington and Johanna Neumann, *Solar Permitting Scorecard: Grading All 50 States on Removing Obstacles to Rooftop Solar and Home Batteries* (Environment America Research & Policy Center and Frontier Group, March 2026), https://environmentamerica.org/center/resources/solar-permitting-scorecard/.

35 CHARGED Initiative, *Lessons from the 2026 CHARGED Initiative Australia Study Tour* (April 28, 2026), https://chargedinitiative.org/resources/lessons-from-the-2026-charged-initiative-australia-study-tour/. Bill Powers, June Sekera, and Beth Woolfolk, *Local Solar: International Cost Comparisons—Australia, Germany, United States* (July 2025), https://www.bu.edu/eci/files/2025/07/Intnatl-Cost-Comparisons-final.pdf.



STATE EXAMPLE | STREAMLINING ROOFTOP SOLAR PERMITS IN MARYLAND

Requiring online permitting software to shorten approval timelines

In 2024, Maryland passed the Brighter Tomorrow Act (SB 783) to standardize statewide rooftop solar permitting requirements through the use of automated permitting software such as SolarAPP+ for residential solar, battery, and panel upgrade projects.[36] To assist with implementation, the Maryland Energy Administration also made $3.9 million in grants available for local governments. The original deadline for implementation was 2025, but reports in 2026 showed that adoption was not universal across the state. To improve the requirement, Maryland passed new legislation in 2026, HB 1532, that reduced ambiguity in the definition of automatic permitting software by requiring that it automatically review plans for code compliance, process approvals, accept payment, and issue permits directly.[37] Critically, the bill also limited and shortened the time for manual review once an application is accepted. The National Laboratory of the Rockies (NLR) reports that projects that are permitted with SolarAPP+ have an estimated cost savings of $0.02/W-0.12/W, which represents up to a 3-5% decrease in total project costs.[38]

READ MORE ON CUSTOMER AND LOCAL CLEAN ENERGY PERMITTING

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- California Energy Commission. "Residential Solar Permit Reporting Program—SB 379." Accessed October 27, 2026.
- National Laboratory of the Rockies. "Solar Permitting, Inspection, and Interconnection Timelines." Accessed October 27, 2026.
- Williams, Juliana, Jeffrey J. Cook, Jesse R. Cruce, Kaifeng Xu, Seth Crew, Minahil Qasim, and Matt Miccioli. *SolarAPP+ Pilot Analysis: Performance and Impact of Instant, Online Solar Permitting*. NREL/TP-6A20-81603. National Renewable Energy Laboratory, January 2022.

36 Maryland General Assembly, Brighter Tomorrow Act, S.B. 783, 2024 Regular Session, chapter 595 (2024), https://mgaleg.maryland.gov/2024RS/Chapters_noln/CH_595_sb0783e.pdf.

37 Maryland General Assembly, Utility RELIEF (Reducing Energy Load Inflation for Everyday Families) Act, H.B. 1532, enrolled bill, 2026 Regular Session (2026), https://mgaleg.maryland.gov/2026RS/bills/hb/hb1532e.pdf.

38 Katie Nissen et al., *SolarAPP+ Performance Review (2024 Data)*, NLR/TP-6A20-95050 (National Laboratory of the Rockies, 2026), https://research-hub.nlr.gov/en/publications/solarapp-performance-review-2024-data-2/.



GRID CONNECTION

Customer and local clean energy projects that have potential to send power back to the grid like solar and batteries typically require utility approval, just like for larger projects. The approval depends on the local grid's ability to take in that energy, which is generally evaluated during periods of peak demand or output even when significant headroom remains during non-peak hours and consumer resources are increasingly flexible.

Utilities often overlook the flexible solutions that can make use of underutilized capacity to connect resources more quickly, including storage and demand response.

Recent analysis of the distribution system in Virginia by Dominion Energy found that the wires running through communities only use 41 percent of their maximum capacity across the entire year.[39] Although this finding is specific to Virginia, it illustrates the potential for state distribution systems to add additional resources. Due to misaligned incentives and sheer lack of capacity, utility-executed grid connection studies are often a bottleneck even before lack of headroom is apparent. Utilities often overlook the flexible solutions that can make use of underutilized capacity to connect resources more quickly, including storage and demand response.

The primary barriers slowing grid connection of customer and local clean energy resources are:

- **Lack of data transparency.** Without clear information on where there is available headroom on the system, developers cannot easily target areas on the grid for projects and homeowners lack clarity on project costs. This adds significant time and cost to both the utility and the entity trying to connect. Utility regulators can require transparency from utilities on hosting capacity and grid utilization, creating clarity for customers while helping third-parties understand opportunities on the system and compete for solutions.
- **Misaligned utility incentives.** Utilities may have little incentive to support customer and local clean energy projects and the flexibility they can offer. Utilities typically earn a return by building and owning infrastructure, but customer and local energy resources are typically owned directly by customers or by third parties. This means utilities lack incentive to connect these projects to the grid or to adopt strategies like demand response that better utilize the existing system. Requirements and incentive mechanisms to hold utilities accountable to performance on grid connection can help.
- **Costly grid upgrades.** Large upgrade costs, often passed on to developers or customers, can prevent projects from being able to move forward. States can get more projects online by ensuring utilities streamline approvals, evaluate options to reduce the necessary distribution grid upgrades, and share interconnection costs across customers.

39 Virginia Electric and Power Company, "Petition for Approval of Its Grid Utilization Metrics Proposal," Case No. PUR-2026-00164, Virginia State Corporation Commission, October 15, 2026, https://www.scc.virginia.gov/docketsearch/DOCS/8f6901%21.PDF.

Solutions to these barriers are outlined in the table below, and ***page 43*** *of the Appendix contains more detail on specific policy actions, actors, and examples.*

UNLOCKING CUSTOMER AND LOCAL CLEAN ENERGY PROJECTS

KEY POLICIES

2 GRID CONNECTION

LACK OF DATA TRANSPARENCY

Require public hosting capacity data
Speed projects for utilities, developers, and customers via transparency about available headroom on the grid

Require public grid utilization data
Understand where and when the grid is underutilized to target areas for projects to cut grid costs and get projects online faster

MISALIGNED INCENTIVES

Provide incentives for interconnection timelines
Incentivize utilities to bring customer and local projects online that do not earn a return by providing incentives for speedy interconnection

Allow third-party interconnection studies
Accelerate interconnection study process via allowance of studies by and appropriate data sharing with third parties

COSTLY GRID UPGRADES

Allow flexible grid connections
Unlock flexible grid connection so generation and load can connect without waiting for costly grid upgrades by reducing output or input when grid is constrained

Establish interconnection cost sharing
Reduce individual burden of interconnection upgrades by sharing costs across customers to bring resources online quickly

Provide automatic or streamlined approvals
Fast track project grid connection approval in areas with high headroom, or for high flexibility projects like storage



STATE EXAMPLE | INTERCONNECTION PERFORMANCE INCENTIVES IN HAWAI'I



Performance-based ratemaking policy drives shorter connection timelines

Hawai'i has quickly adopted rooftop solar, a no-brainer thanks to exceptional solar resources, low land availability, and high electricity prices. This fast adoption led to frequent congestion on the distribution grid due to so many systems exporting across the island on a system that was built largely for importing. The state energy regulators initially started taking action in 2014 to require advanced inverter capabilities. But it wasn't until 2018 that significant action was taken on interconnection performance, when the Ratepayer Protection Act (SB 2939) directed the regulators to create a performance-based ratemaking (PBR) scheme.[40] As part of PBR, for the first time a performance incentive mechanism (PIM) for interconnection approval explicitly linked utility earnings to timelines for distributed energy resource (DER) grid connection. There was a $3 million reward for meeting a 21-day timeline for interconnection compared to a $0.9 million penalty for missing it. By 2024, the threshold timeline that the utility had to meet to receive the award decreased to 12 days, and the utilities were able to connect DERs in 11-15 days on average.[41]

The PIM expired at the end of 2024, but the local utility and regulators continue to track interconnection performance and got more creative about how to connect resources quickly even as hosting capacity diminished. The state developed flexible grid connection rules that advanced alongside the PIM requirements, including a limited export rule that enables installed resources to have a higher capacity than the amount they are allowed to export to the grid. Hawai'i is now taking steps to further revise its DER policy, focused next on more holistic coordination.

READ MORE ON CONNECTING CUSTOMER AND LOCAL CLEAN ENERGY

- CHARGED Initiative. *Flexible Grid Fact Sheet for Regulators*. January 22, 2026.
- CHARGED Initiative. *Grid Connections Fact Sheet*. August 10, 2026.
- Colorado General Assembly. **"Distributed Energy Resources Requirements."** H.B. 26-1225, 2026 Regular Session.
- Interstate Renewable Energy Council. *Model Interconnection Procedures*. 2023 ed. August 2023.
- U.S. Department of Energy. *Distributed Energy Resource Interconnection Roadmap: Identifying Solutions to Transform Interconnection by 2035*. Draft for public comment, September 2024.
- U.S. Department of Energy. "DER Flexible Interconnection Strategies and Approaches." i2X introductory webinar slides, March 15, 2024.

40 Hawai'i Legislature, "Relating to Energy," S.B. 2939, S.D. 2, 29th Legislature, 2018 Regular Session, https://data.capitol.Hawai'i.gov/sessions/session2018/Bills/SB2939_SD2_.HTM.

41 Hawai'i Senate Committee on Commerce and Consumer Protection, performance-based regulation informational briefing presentations, June 24, 2025, PDF p. 29, https://data.capitol.Hawai'i.gov/sessions/session2025/Testimony/Info_Testimony_CPN_06-24-25_Presentations.pdf#page=29.

MOBILIZING INVESTMENT AND COORDINATING RESOURCES

The final phase of deploying and utilizing customer and local projects as quickly and with as much impact as possible is to use planning, compensation, and financing to make sure that investments are flowing and coordinated to create value for the grid and its customers. The barriers below continue to hold back deployment and optimal operation of these projects.

- **Lack of proactive planning** results in the distribution grid being upgraded reactively and less efficiently. Better proactive planning can help connect customer and local resources faster and avoid larger unnecessary investment while identifying opportunities to get more value out of the existing infrastructure.
- **Unclear and insufficient compensation mechanisms** mean that customer and local resources are often not rewarded for being available when needed. Compensating customer and local resources is challenging since they provide several types of value, and there is no incentive for utilities to consider or enable investment in assets the utility does not own. Creating clarity for customers and grid operators can unlock existing resources, fast.
- **Insufficient financing** can hold back the widespread adoption of rooftop solar and batteries, especially for households with limited capital. To help these projects scale even further, procurement mechanisms that encourage utility and hyperscaler investment are critical. Amongst these mechanisms, different approaches will work for different states given the spectrum in utility business models from vertically-integrated to restructured with wholesale markets.



*Solutions to these barriers are outlined in the table below, and **page 45** of the Appendix contains more detail on specific policy actions, actors, and examples.*

UNLOCKING CUSTOMER AND LOCAL CLEAN ENERGY PROJECTS

KEY POLICIES

3 MOBILIZING INVESTMENT AND COORDINATING RESOURCES

LACK OF PROACTIVE PLANNING

Require distribution system planning
Spur active investment, reduce costs, and identify opportunities to improve utilization via distribution system planning

Require consideration of local resources in integrated resource planning
Consider local resources on the same level as large-scale to help prioritize these solutions

UNCLEAR AND INSUFFICIENT COMPENSATION MECHANISMS

Create customer-facing programs and education
Reduce customer confusion around programs to accelerate adoption

Create time-varying rates with export compensation
Adopt time-varying rates to directly incentivize customer flexibility and compensate local resources

Clarify participation in markets and programs
Clarify stacking value between wholesale markets and utility programs to tap full value

Create compensation programs for local projects
Implement state programs to compensate customer resources; create clarity and certainty for compensation across value streams

Allow and modernize competitive retail offerings
Improve competitive retail markets rules to drive local clean energy adoption and capture full value for customers

INSUFFICIENT FINANCING

Require consideration of local resources in all-source procurement
Weigh local resources against large scale projects to drive selection

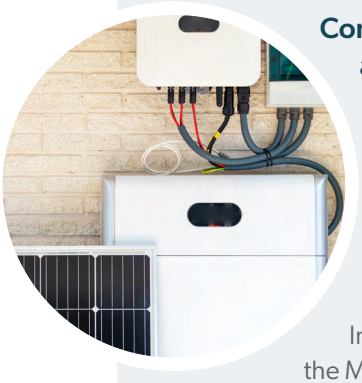
Require procurement of distributed capacity
Set requirements for utilities to procure distributed capacity and unlock value via incentives

Allow large load procurement
Apply additional funds from large loads to unlock distribution grid capacity

Create a demand-reduction contracting process
Empower large loads to contract with demand-side solutions

Create a green bank
Provide low-cost financing to help support local projects

STATE EXAMPLE
COMPENSATING DISTRIBUTED ENERGY RESOURCES IN MASSACHUSETTS



Compensating customer and local resources helps reduce peak demand

New England often faces high prices during peak electricity demand due to its lack of connectivity to other regions of the country. In 2018, the administrators of the Massachusetts energy efficiency program, Mass Save, proposed an active demand reduction program in the state's "Three-Year Energy Efficiency Plan," which was then approved by the Massachusetts Department of Public Utilities in 2019.[42] This program, which became ConnectedSolutions, allowed utilities to pay residential and commercial customers and aggregators of those customers to reduce their electricity use during peak demand times. ConnectedSolutions has created a clear and simple way for behind-the-meter batteries to receive compensation for providing grid services, with battery storage receiving on average $275/kW annually. In 2025, the program had 186 MW of peak reduction capacity, and provided $54 million in system benefits compared to $18 million in investment.[43] Recently, ConnectedSolutions was expanded to provide location-specific compensation and dispatch. This pilot was informed by distribution planning and is intended to avoid or defer some distribution system investment in targeted areas of the distribution grid. Importantly, because the program is administered by the energy efficiency administrator, it is well integrated with customer education opportunities and other incentive programs.

READ MORE ON MOBILIZING INVESTMENT AND COORDINATING RESOURCES

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42 Massachusetts Department of Public Utilities, *2019–2021 Three-Year Energy Efficiency Plans*, D.P.U. 18-110 through 18-119, order, January 29, 2019, https://www.mass.gov/doc/2019-2021-three-year-plans-order/download.

43 Eversource, National Grid, and Unitil, "ConnectedSolutions: What's New in 2026?," presentation, July 22, 2026, PDF p. 6, https://ma-eeac.org/wp-content/uploads/Connected-Solutions-Update-For-Posting-v25523139.pdf#page=6.



UNLOCK THE WIRES

Throughout most of the country, transmission system expansion has slowed significantly, with only piecemeal additions to satisfy the growing generator interconnection queue or substantial new generation projects.[44] While recent analysis of Department of Energy modeling estimates the nation must build 5,000 miles of high-capacity transmission lines each year, only 888 miles were completed in 2024.[45] Many parts of today's original electric grid are nearly 100 years old.[46] Upgrading and expanding the transmission system is essential to unlocking new resources that can ensure clean, cheap, reliable electricity that supports economic growth for all Americans.

Fragmented planning processes and a lack of centralized, long-term coordination have created a system that is too slow to adapt to new forms of demand, increased interconnection requests, and to the economic competitiveness of renewable energy. These challenges are further compounded by the time required to build new high-voltage transmission lines, which can take 10 years or more.[47]

While long-term fixes to the way we plan, permit, and pay for transmission are necessary, we have solutions now that will enable us to do more with the grid we have today. Mature advanced transmission technologies (ATTs) can enable us to unlock significant additional capacity in the short-term at a lower cost than greenfield transmission and traditional grid upgrades. ATTs can similarly provide reliability, resiliency, and efficiency benefits while supporting a more flexible grid. In order to do so, operators must first identify areas of congestion or unrealized value on the grid, and then appropriately channel enhancements that deliver that value to customers.

This section outlines actions state policymakers and utilities can pursue to unlock advanced transmission technologies and add more capacity to the grid across two main areas: planning and permitting ATTs, and incentives and financing.

44 Nathan Shreve, Zach Zimmerman, Gretchen Kershaw, and Rob Gramlich, *Fewer New Miles: Strategic Industries Held Back by Slow Pace of Transmission*, rev. 1 (Grid Strategies and Americans for a Clean Energy Grid, July 2025), https://cleanenergygrid.org/wp-content/uploads/2025/07/ACEG_Grid-Strategies_Fewer-New-Miles-2025_Rev-1.pdf.

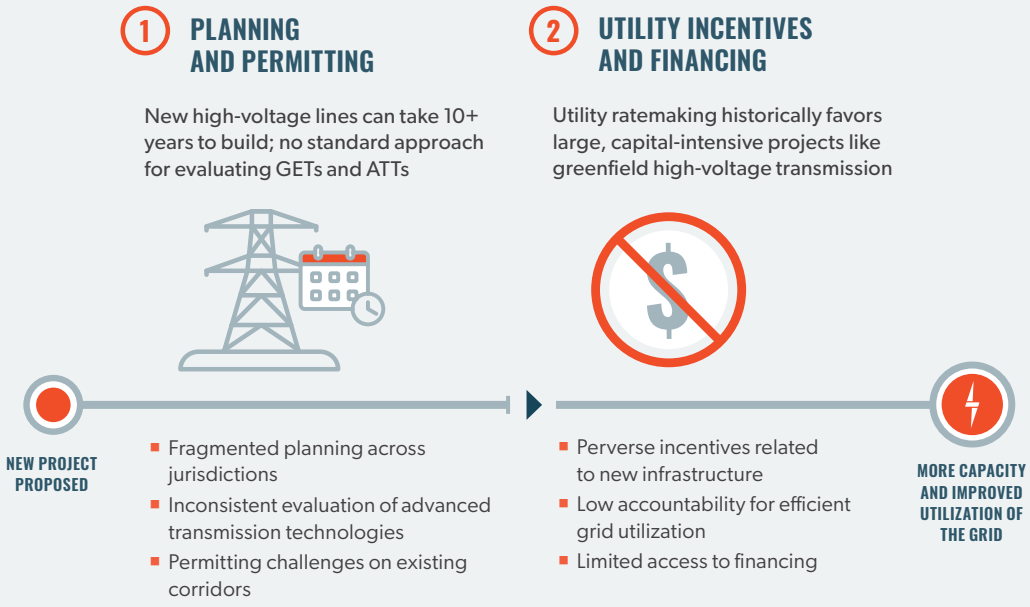
45 Shreve et al., *Fewer New Miles*.

46 U.S. Department of Energy, *Advanced Transmission Technologies: Report to Congress* (December 2020), https://www.energy.gov/oe/articles/advanced-transmission-technologies-report-508.

47 Ryan Wiser et al., *Transmission Impact Assessment: Power Sector Infrastructure Deployment to Reduce Costs, Improve Reliability, and Lower Pollution* (U.S. Department of Energy, October 2024), https://www.energy.gov/sites/default/files/2024-10/DOE_OP_2024_Report-Transmission_Impact_Assessment.pdf.

WHERE GRID UPGRADES GET STUCK BEFORE ADDING CAPACITY

Each barrier adds time and cost before advanced transmission technologies can unlock capacity on the existing grid.



PLANNING AND PERMITTING

Transmission lines are planned for under peak load requirements, which means much of the existing transmission grid has untapped capacity that can be used during normal operations. Advanced transmission technologies (ATTs), such as high performance conductors and grid-enhancing technologies (GETs) like dynamic line ratings, are a group of technologies that quickly and cost-effectively increase the capacity, flexibility, reliability, resiliency, and/or efficiency of the existing transmission system while new infrastructure is planned for and constructed.[48] For example, high performance conductors can double the existing capacity of a transmission line at half the cost of a new project.[49] Advanced power flow controls can reduce congestion or improve grid stability by redirecting power flows.[50] While Federal Energy Regulatory Commission (FERC) Order 1920 has brought some clarity and cohesion to long-term multi-value transmission planning, the approach to planning for and evaluating ATTs remains nascent and varied.

48 WATT Coalition and Advancing Modern Powerlines Coalition, *Unlocking the Grid with Advanced Transmission Technologies*, n.d., 1, https://watt-transmission.org/wp-content/uploads/2024/08/WATT-and-AMP-Unlocking-the-Grid-with-Advanced-Transmission-Technologies.pdf.

49 Emilia Chojkiewicz et al., *Reconductoring with Advanced Conductors Can Accelerate the Rapid Transmission Expansion Required for a Clean Grid* (GridLab and University of California, Berkeley, April 2024), https://www.2035report.com/wp-content/uploads/2024/06/GridLab_2035-Reconductoring-Technical-Report.pdf.

50 WATT Coalition and Advancing Modern Powerlines Coalition, *Unlocking the Grid*, 1.



Despite the availability of industry best practices for how to evaluate ATTs in different regulatory environments, utilities are just beginning to incorporate these solutions into planning.[51] In order to encourage the deployment of ATTs, utilities and regulators need better understanding of congestion points on the grid, as well as better alternatives analysis that demonstrates how new technologies can address these constraints. This requires a fundamental rethinking of how transmission planning should occur. Instead of planning new or enhanced transmission under contingency scenarios, transmission planners should evaluate whether new technologies or upgrades can improve the efficiency or reliability of the system. For example, the WATT Coalition's analysis of California's GETs planning requirement filings recommends that utilities expand planning frameworks to include the economic and reliability benefits of ATTs holistically.[52] Regulators must be further empowered to evaluate proposed alternatives and approve newer technologies for cost-recovery.

Utility incentives are also not generally aligned with ATT adoption, and planning requirements and regulatory oversight have not kept up. Even for those utilities that do evaluate ATTs, they are often not considered for implementation due to limited utility profit opportunity, technology risk, institutional inertia, or lack of financing opportunities. Many states have recently passed legislation to require utilities to evaluate ATTs, and there are many more opportunities for state policymakers to enable transmission capacity expansion and improved utilization even as new transmission is being planned for and constructed.[53]

There are several barriers that prevent the rapid and cost-effective deployment of ATTs, including:

- **Fragmented planning across jurisdictions.** Transmission planning is inherently complex, governed by an overlapping set of regulatory, financial, and legal mechanisms. In places with regional transmission operators (RTOs) like the Midcontinent Independent System Operator (MISO), those RTOs retain the primary transmission planning and analysis functions. In non-RTO regions like the U.S. West and Southeast, states and utilities have greater control. In every case, FERC is responsible for setting just and reasonable rates for bulk transmission. States can play a critical role primarily in evaluating and planning for ATTs. Relevant state entities can direct regulators and utilities to evaluate the potential for and begin planning for ATTs.
- **Inconsistent evaluation of ATTs.** U.S. utilities are becoming increasingly comfortable deploying ATTs. However, the process to plan for and analyze the costs and benefits of these technologies is inconsistent across different utilities and RTOs. ATTs require study processes and technology assessments that carefully consider the net-benefits of technology alternatives, including economic and reliability benefits. Effective and consistent study processes ensure that utilities evaluate alternative technologies, regulators can scrutinize the analyses appropriately, and regulators can approve procurements or cost-recovery for those investments.
- **Permitting challenges on existing corridors.** Despite utilizing existing rights-of-way, ATTs can get stuck in complex agency review processes and permitting hurdles more appropriate for greenfield transmission. States should evaluate opportunities to streamline the review process and provide certain exclusions that vastly reduce permitting burdens for ATT projects.

51 Danovo Energy Solutions, "Advanced Transmission Technologies," accessed October 27, 2026, https://www.danovoenergy.com/featured-downloads/advanced-transmission-technologies/.

52 Julia Selker, Zach Zimmerman, Kelt Wilska, and Nathan Shreve, *Building on SB 1006: Scaling Advanced Transmission Technologies in California to Unlock Affordable Energy* (WATT Coalition and Advancing Modern Powerlines Coalition, July 2026), https://watt-transmission.org/wp-content/uploads/2026/07/California-SB-1006-Report-FINAL.pdf.

53 WATT Coalition, "Resources for States," accessed October 27, 2026, https://watt-transmission.org/resource-library/states/.

*Policy tools that can address these issues are shown in the table below, and **page 47** of the Appendix contains more detail on specific policy actions, actors, and examples.*

UNLOCK THE WIRES

KEY POLICIES

1 PLANNING AND PERMITTING

FRAGMENTED PLANNING ACROSS JURISDICTIONS

Disclose congestion and relief opportunities
Require reporting on grid constraints, customer costs, and solutions

Ensure ATT evaluation in regional planning
Equip state agencies to scrutinize regional plans and advocate for appropriate evaluation of ATTs

Strengthen PUC technical capacity
Provide PUCs technical assistance and access to utility data and models to evaluate grid investments

INCONSISTENT EVALUATION OF ADVANCED TRANSMISSION TECHNOLOGIES

Require alternatives analysis in planning and approvals
Evaluate ATTs alongside conventional investments in utility plans and proposals

Assess technology potential and deployment opportunities
Conduct assessments that identify technology applications and pathways to implementation

Evaluate storage to relieve transmission constraints
Assess strategically located storage as an alternative or complement to transmission upgrades

Approve prudent future-proofing investments
Consider modest upfront additions to enable lower-cost capacity expansion

PERMITTING CHALLENGES ON EXISTING CORRIDORS

Define exemptions for qualifying grid upgrades
Define exemptions and expedited review for qualifying upgrades on existing corridors

Streamline review and coordinate permitting
Coordinate agency reviews and establish clear timelines. Require projects outside approved plans to demonstrate need and evaluation of alternatives

State capacity to engage at RTOs
Fund state agency expertise and participation in regional grid processes

STATE EXAMPLE | GETS PLANNING AND IMPLEMENTATION IN MINNESOTA

A required process to identify bottlenecks and implement solutions

In 2024, the Minnesota legislature introduced a mandate that added GETs evaluation requirements to the existing biennial transmission reporting process for major transmission owners.[54] The law defines GETs as "hardware or software that reduces congestion or enhances the flexibility of the transmission system by increasing the capacity of a high-voltage transmission line or rerouting electricity from overloaded to uncongested lines, while maintaining industry safety standards." Transmission owners were required to report on the cost-effectiveness of GETs to address identified congestion issues, as well as an implementation plan and payback analysis.

Transmission owners identified over 66 grid constraints and proposed 12 projects to alleviate the constraints.[55] In 2026, the Minnesota Public Utilities Commission (PUC) accepted the report and approved the implementation plans with various modifications.[56] Most of the projects approved utilize various GETs to alleviate congestion, increase capacity, and improve flexibility on the Minnesota grid.[57] All of the approved projects can be built faster than traditional grid upgrades, and have a payback period of less than five years. This GETs study process helps demonstrate that rigorous alternatives analysis can identify low-cost solutions to improve the efficiency and reliability of the transmission grid. The Commission has further ordered that the transmission owners continue to make improvements in future study processes by increasing the transparency of GETs reports and underlying data and consider adding GETs to any proposed traditional grid upgrades in future regulatory approval proceedings.

READ MORE ON PLANNING AND PERMITTING ATTS

- Climate XChange. "Enabling ATTs and GETs." State Climate Policy Dashboard. Accessed October 27, 2026.
- Cowie-Haskell, Adam, and Kathryn Kline Tyndall. *Unlocking the Potential of Grid Enhancing Technologies: Pathways to Widespread Adoption*. Bipartisan Policy Center, January 8, 2026.
- Energy Systems Integration Group. *Utility Perspectives on Making Grid-Enhancing Technologies Work: Use Cases, Barriers, and Recommendations for Scalable Deployment*. Report by the Grid-Enhancing Technologies User Group, July 2025.
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- O'Boyle, Mike, Casey Baker, and Michelle Solomon. *Supporting Advanced Conductor Deployment: Barriers and Policy Solutions*. Energy Innovation and GridLab, April 9, 2024.
- The Pew Charitable Trusts. "Advanced Transmission Technologies Can Help States Meet Growing Energy Demand." January 15, 2025. Updated July 30, 2026.
- Smith, William H., Jr. *Mini Guide on Transmission Siting: State Agency Decision Making*. National Council on Electricity Policy and National Association of Regulatory Utility Commissioners, December 2021.
- WATT Coalition. "State Legislative Momentum Builds for Grid Enhancing Technologies in 2025." April 29, 2025. Updated July 31, 2025.

54 Minnesota Legislature, 2024 Minnesota Laws, chapter 126, "Grid Enhancing Technologies Report; Public Utilities Commission Order," section 52, https://www.revisor.mn.gov/laws/2024/0/Session+Law/Chapter/126/.

55 Minnesota Transmission Owners, *2025 Grid Enhancing Technologies Report* (2025), https://efiling.web.commerce.state.mn.us/documents/%7B10AD439A-0000-CE1F-BEE7-A9B18652A80F%7D/download?contentSequence=0&rowIndex=65.

56 Minnesota Public Utilities Commission (PUC), order concerning the 2025 Grid Enhancing Technologies Report and implementation plans (2026), https://efiling.web.commerce.state.mn.us/documents/%7BD053DAA0-0000-CC12-8B67-7177AEEC2C83%7D/download?contentSequence=0&rowIndex=1.

57 Minnesota PUC, "Minnesota Takes Up Grid Congestion Fixes to Lower Energy Costs and Move More Clean Power," May 29, 2026, https://content.govdelivery.com/accounts/MNPUBUC/bulletins/4196509.



STATE EXAMPLE
TRANSMISSION PERMITTING REFORM IN CALIFORNIA

Streamlining grid upgrades for advanced transmission technologies

California's planning and permitting landscape can be cumbersome and time-consuming, often as a result of overlapping approval processes and extensive environmental reviews. Following the 2022 passage of legislation (SB 529) that streamlined the approval process for planning and permitting transmission, the California Public Utilities Commission (CPUC) updated its transmission permitting rules, adopting General Order 131-E in January 2025.[58] These rules allow eligible extensions, expansions, or upgrades of existing high-voltage transmission facilities to proceed through a Permit to Construct (PTC) application—or an applicable exemption—instead of a Certificate of Public Convenience and Necessity (CPCN). While state environmental review requirements still apply, this streamlined process can simplify approval of expanding or upgrading existing transmission with advanced technologies.

One early example of SB 529 value is the Manning 500/230 kV Substation in Fresno County and related transmission upgrades.[59] In September 2025, the CPUC approved LS Power Grid California's CPCN for construction of the Manning substation. PG&E subsequently filed an advice letter invoking General Order 131-E's CPCN exemption for modifications to existing transmission facilities and a separate permit exemption because its work had already undergone environmental review as part of the larger project. PG&E's work included extending existing 500 kV and 230 kV lines into the new substation and reconductoring approximately seven miles of an existing 230 kV line. The CPUC accepted the advice letter in 23 days. Timely environmental review and permitting enabled LS Power to begin substation construction ahead of schedule in February 2026.

UTILITY INCENTIVES AND FINANCING

States can make significant progress on expanding grid capacity by requiring transparent and rigorous grid planning studies to evaluate constraints on the transmission system and the opportunity for ATTs to ameliorate those constraints. However, utilities and their regulators often lack transparent metrics to evaluate opportunities to get more out of existing grid assets, track improvements over time, and reward utilities for improved performance.

Historically, utility ratemaking processes have favored large, capital-intensive projects such as greenfield high-voltage transmission over low-cost solutions such as ATTs. At the same time, utilities are often averse to novel technology deployments that have not been previously tested in their service territory, even if they have proven

58 California Public Utilities Commission (CPUC), "CPUC Streamlines Electric Transmission Permitting Process," January 30, 2025, https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-streamlines-electric-transmission-permitting-process.

59 CPUC, "CPUC Permitting Puts Manning Substation Construction Ahead of Schedule in San Joaquin Valley," March 10, 2026, https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-permitting-puts-manning-substation-construction-ahead-of-schedule-in-san-joaquin-valley.



track records from elsewhere around the globe. Many ATTs, such as high performance conductors, have historically been plagued by a variety of planning, institutional, and technical barriers, including outdated equipment standards, existing infrastructure health, and workforce challenges.[60]

Clear performance metrics and financial incentives can encourage utilities to address these barriers and realize the potential of new solutions to expanding transmission capacity. For example, utilities and regulators can use grid utilization as a framework to diagnose inefficiencies on the grid and encourage better grid planning to deliver more value for customers. The point of grid utilization is not to simply increase capacity, but to understand the efficiency and performance of the grid under various conditions. Future incentives can then target those particular challenges, such as addressing congestion, renewable integration, or capacity utilization. Metrics and incentives can also be targeted to deployment of ATTs. When designed appropriately, targeted ATT incentives can encourage utilities to evaluate opportunities for low-cost, efficient technology solutions that can squeeze more value out of the existing grid.

Beyond utilities themselves, other entities can support ATTs that increase the capacity of the existing grid. States with state transmission authorities can ensure those entities can finance cost-effective ATTs. In addition, novel large customer interconnection processes (such as Southwest Power Pool's High Impact Large Load process) present additional opportunities to incentivize and finance ATTs, by requiring new large customers to support cost-effective grid upgrades that benefit all customers.

There are many existing barriers that prevent the efficient deployment of ATTs:

- **Perverse incentives related to new infrastructure.** Utility earnings are generally tied to the amount of capital invested, which can weaken the incentive to pursue lower cost solutions. New incentive structures related to getting more out of existing infrastructure, addressing transmission constraints, or improving system efficiency and flexibility can help encourage the adoption of low-cost ATT solutions. Critically, ATT incentives must be balanced with appropriate long-term transmission planning and cost recovery, so utilities continue to plan and build the transmission system we need, while we get the most out of the grid we have.
- **Low accountability for efficient grid utilization.** Utilities and regulators often lack transparent, actionable information about how the grid is being used while utilities do not typically have an incentive to optimize the utilization of existing assets. Combined with effective long-term planning, system expansion, and interconnection reform, grid utilization metrics can encourage deployment of solutions that make the system more efficient and flexible, including ATTs, battery storage, demand flexibility, and improved interconnection of generation resources.
- **Limited access to financing.** ATTs often sit in a regulatory silo that prevents efficient approval and cost-recovery of the asset. While each state may have different limits to their regulatory authority, many states have pathways to mandate and approve ATTs as alternatives to traditional grid upgrades, and grant authority to PUCs to approve cost recovery. State transmission finance authorities should also incorporate ATTs into their planning, approval, and financing processes.

60 Mike O'Boyle, Casey Baker, and Michelle Solomon, *Supporting Advanced Conductor Deployment: Barriers and Policy Solutions* (Energy Innovation and GridLab, April 9, 2024), https://www.2035report.com/wp-content/uploads/2024/05/5.3-Reconductoring-policy-report.pdf.

These policy approaches are outlined in the table below, and ***page 49*** *of the Appendix contains more detail on specific policy actions, actors, and examples.*

UNLOCK THE WIRES

KEY POLICIES

2 INCENTIVES AND FINANCING

PERVERSE INCENTIVES RELATED TO NEW INFRASTRUCTURE

Establish shared-savings incentives
Allow utilities to retain a portion of cost savings from grid improvements

Reward cost-effective ATT deployment
Tie incentives to demonstrated customer benefits from advanced technologies

LOW ACCOUNTABILITY FOR EFFICIENT GRID UTILIZATION

Require utilization measurement and reporting
Establish metrics to identify constraints and assess proposed investments

Develop grid-utilization performance incentives
Link financial rewards to improved grid performance, with safeguards for reliability and necessary expansion

LIMITED ACCESS TO FINANCING

Enable state transmission finance authorities
Authorize state entities to finance, develop, or facilitate grid investments, including advanced technologies

Clarify cost recovery for ATTs
Establish how utilities can recover prudent costs of ATTs



STATE EXAMPLE
GRID UTILIZATION METRICS IN VIRGINIA

Legislation aims to evaluate the efficiency of the existing grid



In April 2026, Virginia state lawmakers passed legislation (HB 434)[61] that requires Dominion Energy and Appalachian Power to develop metrics to evaluate grid utilization. The law requires the investor-owned utilities to present proposed distribution system utilization and transmission system utilization metrics to the state's energy regulators for approval. Utilities must continue to report on the utilization metrics, as well as remediation opportunities, including non-wires alternatives, storage, or transmission solutions. Utilities submitted their responses and proposed metrics in October 2026. Grid utilization metrics are just emerging, and stakeholders will have to evaluate a wide-range of potential metrics to ensure that they are addressing and incentivizing the correct grid solutions. For example, as Dominion notes in its filing: "The objective of [transmission] grid utilization is not simply to maximize loading, but to understand the relationship between actual system usage and available capacity, while preserving adequate margins for contingencies, restoration, stability, and system growth."[62] Utilization metrics should be viewed as a first step or screening indicators to identify areas of constraint on the system. Metrics and incentives can then be refined to ensure that ATT solutions are appropriately addressing those constraints. While the Company has proposed just two transmission utilization metrics related to contingencies, future metrics could consider congestion, flexibility, resiliency, and deliverability.

READ MORE ON UTILITY FINANCING AND INCENTIVES FOR ATTS

- Goldmann, Noah, and Molly Knoll. ***Beyond Peak: Defining, Measuring, and Optimizing Grid Utilization***. Utilize Coalition, September 2026.
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- WATT Coalition. "Frequently Asked Questions about Shared Savings Incentives." Accessed October 27, 2026.
- WATT Coalition. "Resources for States." Accessed October 27, 2026.

61 VA House Bill 434, 2026 Reg. Sess. (Va. 2026), https://lis.virginia.gov/bill-details/20261/HB434.

62 Virginia Electric and Power Company, "Petition for Approval of Its Grid Utilization Metrics Proposal," Case No. PUR-2026-00164, Virginia State Corporation Commission, October 15, 2026, 8–9, https://scc.fr.virginia.gov/docketsearch/DOCS/8f6901!.PDF.

APPENDIX

LARGE-SCALE | SITING AND PERMITTING

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Restrictive and inconsistent local rules	**One-stop shop consolidated state permitting**	Consolidate state environmental review and siting into a single state office to issue one permit for large projects. That permit replaces separate state and local approvals and comes with uniform standard conditions and firm decision deadlines. Local governments and residents still take part in the state proceeding, and local rules apply unless the state finds them unreasonably burdensome.	Legislature				**New York:** The Accelerated Renewable Energy Growth and Community Benefit Act (Part JJJ of S.7508-B / A.9508-B, 2020) created the Office of Renewable Energy Siting (ORES). Renewable projects of 25 MW or more get a single siting permit with uniform standard conditions. ORES must decide within one year of a complete application, or the permit is deemed granted. ORES can waive local laws it finds unreasonably burdensome in view of the state's climate targets. The 2024 RAPID Act (L. 2024, ch. 58, Part O) moved ORES into the Department of Public Service, and added major transmission lines.
	Sensible siting standards	Set sensible statewide minimum standards for local zoning and siting rules (e.g., setbacks, height, noise, fees) so local rules aren't more restrictive; limit or bar local bans and moratoria. Give developers consistent rules across jurisdictions, and leave routine review local.	Legislature				**Michigan**: PA 233 (2023). Local governments keep siting authority over utility-scale solar (≥50 MW), wind (≥100 MW) and storage (≥50 MW / 200 MWh) if ordinances are no more restrictive than state standards; otherwise developers can seek a siting certificate from Michigan Public Service Commission as a state-level backstop. **Illinois**: HB 4412 (enacted Jan. 2023). Sets uniform county siting standards for commercial wind and solar. Bars counties from adopting more restrictive standards, bans, or moratoria.
	State backstop siting authority	Let state agency review and approve projects when local rules are overly restrictive or local government denies a compliant project or misses a deadline. Some states also allow state review for projects serving policy goals or the public interest. Others go further, with full state permitting under uniform standards that replace local zoning.	Legislature				**Illinois:** The Clean and Reliable Grid Affordability Act (SB 25, 2026). Developers of ≥50 MW wind, solar, or storage projects can petition the Illinois Commerce Commission (ICC) when a county denies or fails to act timely on a project complying with state siting standards; ICC may issue a state siting certificate in lieu of local approval.
Long and unpredictable review timelines	**Permit-by-rule for low-impact projects**	Treat projects meeting set criteria as permitted, without case-by-case review; enforce compliance with permit conditions afterward. For larger or more complex projects, limit review to ways a project departs from standard criteria rather than reopening every issue.	Legislature				**Virginia:** HB 2175 / SB 1347 (2009) gave the Department of Environmental Quality authority to permit-by-rule for small renewable energy projects; solar/wind size cap was raised from 100 MW to 150 MW in 2017. Covers state environmental permits only — applicants must still obtain local certification of land-use compliance.

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Long and unpredictable review timelines	**Pre-approval / fast-track for priority development areas**	Pre-approve or fast-track designated locations and project types, such as existing grid connection points, brownfields, and other already-disturbed land. States can also prepare sites in advance (site studies, permits, grid connection) and proactively lease state-owned land.	Legislature, Siting Agency				**New York:** Accelerated Renewable Energy Growth and Community Benefit Act (Part JJJ of budget bill S.7508-B / A.9508-B, enacted April 2020), created the Build-Ready Program, which identifies previously developed sites (brownfields, landfills, former industrial/commercial and dormant generating sites); advances permitting, interconnection and host-community benefits; and auctions de-risked projects to developers.
	Resourcing for permitting agencies	Provide funding, staff, technical assistance (paid partly by reasonable permit fees) to state agencies and local governments. This helps fill capacity gaps, especially in small or rural jurisdictions, so siting and permit applications are reviewed on time.	Legislature				**Michigan:** Launched the Renewables Ready Communities Award in 2024 (pilot funded by one-time $30M state investment, expanded with $129.1M of federal funds in July 2024), giving flexible funding to local governments that approve and host utility-scale renewable and storage projects. The Renewable Energy Academy (announced 2024) provides technical assistance on planning, siting, permitting.
	Clear and reasonable timelines for review	Set clear review deadlines with defined consequences if missed, such as moving case to a state agency or treating permit as approved. Streamline and standardize court challenges, and allow straightforward permit extensions when grid connection or other outside delays push back construction.	Legislature, Governor				**California:** AB 205 (2022) created the Opt-In Certification Program — eligible projects (≥50 MW solar/wind, ≥200 MWh storage) can opt into state permitting, with environmental review due within 270 days after application is complete. **Michigan:** PA 233 (2023) — a local government with a compatible ordinance must approve or deny within 120 days (extendable up to 120 more days by mutual agreement); if it fails to act, the developer may apply to state energy regulators, which must decide within one year of a complete application."
Local opposition	**Community benefits frameworks**	Require or encourage host community benefits through community benefits agreements, development agreements, payments in lieu of taxes, or other ongoing revenue. Benefits work best when they are predictable, meaningful, and negotiated with the community.	Legislature				**Maine:** LD 1504 (enacted 2010 as part of Public Law 2009). Expedited wind energy developments must provide community benefits package worth at least $4,000 per turbine per year, averaged over 20 years (waived for projects under 20 MW or owned by public/nonprofit entities).
	Public mapping of lowest-impact, lowest-conflict development areas	Fund or direct state agencies, often with universities and local stakeholders, to map and publish areas with strong wind or solar potential and low conflict with farmland, habitat, cultural sites, and military uses. This helps developers target better sites early; maps can be tied to faster or programmatic environmental review in those areas.	Legislature, State Energy Office				**Washington:** 2021 state budget funded a Washington State University Energy Program least-conflict solar siting pilot for Columbia Plateau. E2SHB 1216 (2023) directs the Department of Ecology to consider findings in programmatic (nonproject) environmental review of Columbia Basin solar, and to factor least-conflict siting into coordinated permitting. **Oregon:** Oregon Renewable Energy Siting Assessment (ORESA) was funded by a $1.1M U.S. Department of Defense grant, approved by the legislature in 2019, and completed June 2022. State agencies in collaboration with Oregon State University built a public mapping and reporting tool showing siting opportunities and constraints to inform siting discussions but not designate where projects may or may not be built.

LARGE SCALE | CONNECTING TO THE GRID

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Lack of grid transparency	**Require actionable interconnection information**	Require utilities to publish and regularly update information helping developers identify potential interconnection locations and service options such as surplus and generator replacement. Information should identify relevant constraints, study assumptions, and status of pending projects that could affect available capacity.	Utility Regulator				**Michigan:** At the Public Service Commission's request, ITC Michigan published a transmission hosting-capacity study identifying potential interconnection locations where new generation could connect without costly system upgrades. The study evaluated 225 points of interconnection to help guide developers toward locations with available transmission capacity.
	Study interconnection replacement at retiring assets	Require utilities to evaluate reuse of retiring generators' interconnection rights before retirement, including replacement-resource options, required studies and upgrades, procurement timelines, and potential customer savings.	Utility Regulator				**Minnesota:** Before the coal plant Sherco Unit 2 retired, the state's Public Utilities Commission directed Xcel Energy to procure solar generation to reuse the unit's existing interconnection capacity. Resource planning and competitive procurement aligned replacement projects with retirement timelines, ultimately supporting approval of 710 MW of solar. The Commission also required development and cost evaluation of transmission options to reuse interconnections at the remaining retiring coal units.
	Evaluate surplus interconnection service (SIS) framework in the state planning processes	State utility regulators require utilities incorporate surplus interconnection planning into preexisting resource planning processes, such as Integrated Resource Plans.	Legislature, Utility Regulator				**Virginia:** FAST Act requires investor-owned utilities to assess how much interconnection capacity is available at existing sites. **Kansas:** A solar project that relied on Surplus Interconnection Service incurred $30,000 in interconnection costs, compared to $35 million for a comparable project. **PacifiCorp:** The utility has utilized Surplus Interconnection Service to add 320 MW of batteries at four existing solar sites.
Rigid interconnection and deliverability requirements	**Evaluate flexible interconnection opportunities for utilities**	Utility regulators direct investor-owned utilities to evaluate flexible interconnection of new generation to expedite new energy resource deployment. If deemed prudent, direct utilities to enter into non-firm generation power purchase agreements. Utility regulators should require utilities to update interconnection processes to provide faster interconnection services relying on the ERIS process (explained on page 9). Further, utility regulators can structure generation procurement to incentivize non-firm generation and require that utilities solicit proposals that allow for non-firm generation.	Utility Regulator				**Georgia:** Georgia Power's recent renewable procurement solicited non-firm resources. The procurement allows for a project to interconnect while it seeks additional transmission upgrades at a later date to resolve deliverability requirements.

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Rigid interconnection and deliverability requirements	**Establish flexible load interconnection and service options**	Direct utilities to evaluate and propose service options allowing new loads to connect under certain operating limits while necessary grid upgrades are completed. Evaluate how resources can be matched to flexibly meet demand.	Utility Regulator				**California:** State utility regulators directed PG&E and Southern California Edison to establish standard flexible service connection offerings that allow customers to energize under defined load limits while awaiting distribution upgrades. PG&E's related Flex Connect program demonstrates dynamic implementation, using day-ahead hourly power limits to accommodate new demand within available grid capacity.
Slow studies and uncertain upgrade costs	**Coordinate utility resource, transmission, and large-load planning**	Require utilities to evaluate generation, transmission, and large-load service needs together under alternative load-growth scenarios. Plans should identify opportunities to use existing interconnection capacity, upgrades required to serve new resources and loads, expected costs and timelines, and proposed responsibility for those costs. Where regional processes govern transmission planning or interconnection, utilities should identify regional decisions needed to implement plans.	Utility Regulator				**Nevada:** NV Energy's Western Nevada and Apex master plans evaluate the combined grid impacts of anticipated large-load clusters and identify phased transmission and substation investments aligned with projected demand, customer commitments, and service timelines. States can direct utility regulators to evaluate combined expansion plans emphasizing clarity on grid interconnection costs and timing, to better align grid upgrades and address cost-allocation issues related to new large loads.
	Advance coordinated planning and upfront cost contributions	States engage in regional stakeholder and federal regulatory processes to coordinate transmission planning with generator interconnection and establish predictable contributions toward network upgrades. Frameworks should clarify how contributions are calculated, allocate costs among beneficiaries, and accommodate changing generation and load needs.	Utility Regulator				**SPP:** The Consolidated Planning Process (CPP) and Grid-C mechanism provides framework for coordinated transmission and generation interconnection procedures. The CPP integrates long-term transmission planning and interconnection processes into recurring 3-year cycles. The Grid-C mechanism establishes a per megawatt contribution towards system upgrades identified in the planning process, providing upfront cost certainty.
	Evaluate third-party interconnection software	Direct utilities to evaluate and implement third-party software tools to improve efficiency and speed of interconnection analyses.	Utility Regulator				**MISO:** Adoption of modeling software from Pearl Street Technologies enabled MISO to perform automated power flow analysis, constraint identification, and network upgrade selection. An initial benchmarking analysis identified 99% of constraints identified in original analysis. MISO and Pearl Street reported completing Phase 1 study work in 10 days, compared with more than 600 days for original process.

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
State / Regional Transmission Organization (RTO) Engagement	**State capacity to engage at RTOs**	Provide funding and technical assistance to support state utility regulators and relevant energy agencies to engage in RTO processes where necessary.	Legislature, State Energy Office				**Minnesota:** Statute authorizes Department of Commerce to assess utilities up to $1 million per year to participate in regional and national energy planning processes.
	Engage in regional flexible interconnection policy	Pressure regional market operators to implement robust and standardized flexible interconnection processes, including energy-only interconnection with narrow studies and limited grid upgrade costs. States and load-serving entities can decide if flexible interconnection services still meet their state's needs.	Utility Regulator, State Energy Office				**Southwest Power Pool (SPP):** Established an Energy Resource Interconnection Service (ERIS) process that provides flexible pathway for generators to interconnect and participate in energy market. **Other RTOs and non-market regions**, including the Southeast, are exploring opportunities to accelerate ERIS offerings and expedite study processes in order to get energy resources online faster.
	Regional Surplus Interconnection offerings at RTOs	States leverage RTO stakeholder processes to push streamlined Surplus Interconnection processes, including grid visibility, transparent study processes, and relevant market participation changes.	Utility Regulator, State Energy Office				**Midcontinent Independent System Operator (MISO):** Allows surplus interconnection when project does not trigger material upgrades. MISO received nearly 8 GW of surplus requests in 2025.

LARGE SCALE | MOBILIZING INVESTMENT

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Planning process not designed for rapid growth	**Improve demand forecasts to screen out speculative requests; update frequently**	Base large-load forecasts on firm commitments, such as signed service agreements, financial deposits, or construction milestones; pair them with large-load tariffs so speculative requests don't inflate projected demand. Update forecasts more often to keep pace with fast-changing conditions and inform procurement. More reliable forecasts give investors more confidence that new generation will be needed and paid for.	Utility Regulator				**Virginia:** In its 2025 biennial review, the State Corporation Commission accepted a Dominion Energy forecast built on executed electric service agreements and construction authorizations for large loads, and created a new large-load rate class (GS-5). HB 892 (2026) directs the Commission to investigate load forecasting practices across its utilities by March 1, 2027.
	Use all-source competitive procurement to identify new resources	Meet identified system need through competitive solicitation open to all resource types and to utility-owned and third-party projects, overseen by an independent evaluator. Bids reveal real-world costs and performance, which then feed into planning.	Utility Regulator				**Colorado:** The Public Utilities Commission's (PUC) Electric Resource Planning rules require utilities such as Xcel Energy to acquire new resources through all-source competitive solicitation, open to both utility-owned and third-party bids and overseen by an independent evaluator. Xcel's 2022 all-source solicitation under its 2021 Clean Energy Plan drew more than 1,000 project proposals.
	Mitigate fuel price risk through robust planning practices	Require resource plans to test how alternative portfolios perform across a range of fuel price and demand scenarios, so preferred plan holds up under different futures. Pair with ratemaking that shares fuel price risk with utilities, giving them a reason to reduce customer risk.	Utility Regulator				**Michigan:** SB 502 (PA 231 of 2023) updated the state's integrated resource planning process. Under these laws, the Public Service Commission sets modeling parameters utilities must use, including sensitivities for high natural gas prices and high load growth.
High levels of uncertainty	**Procurement targets**	Set specific, quantitative procurement targets for clean technologies, especially those that need help getting established or overcoming commercial barriers. Clear targets and defined procurement process let developers and suppliers invest at scale. Procurements can run through utility requirements or a state agency.	Legislature				**Illinois:** The Clean and Reliable Grid Affordability Act (SB 25, 2026), directs Illinois's Power Agency to procure 3 GW of grid-scale energy storage, with projects online by 2030. The first procurement, targeting about 1 GW, was held in August 2026, and cleared roughly 600 MW of storage.
	Clean transition tariffs and other Bring Your Own New Clean Energy (BYONCE) arrangements	Let large customers sign long-term contracts for new clean energy projects that serve their demand, either directly or through their utility, with customer covering costs to protect other ratepayers. This puts large customers' willingness to pay to work bringing new projects, including emerging technologies, onto the grid.	Utility Regulator				**Nevada:** The PUC approved NV Energy's Clean Transition Tariff in 2025. Under it, Google is buying 115 MW of enhanced geothermal power from Fervo Energy's Corsac Station, paying project costs so other customers don't bear them.

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Alternative capital sources are not used to their full potential	**Wholesale market expansion**	Expand utility participation in organized wholesale electricity markets (RTOs). Larger markets let more independent projects connect and sell power; they dispatch generation more efficiently across a wider area than a single utility territory.	Legislature				**Colorado:** SB21-072 (2021) requires transmission utilities to join organized wholesale market by 2030, unless the PUC finds no viable market or that joining isn't in public interest. **Nevada:** SB 448 (2021) requires transmission providers to join a regional transmission organization by 2030, unless the PUC grants a waiver or delay.
	Low-interest loans	Offer low-interest loans and other financing for large-scale generation through state green bank or similar entity. This can supply capital cheaper than utility balance sheets, lowering customer costs and drawing private investment.	Legislature				**New York:** NY Green Bank was created by Public Service Commission order in 2013 and capitalized with $1 billion in ratepayer funds. It lends to clean energy projects, including solar and energy storage, and recycles repayments into new investments.
	Ratepayer-backed bonds	Let regulators approve low-cost, ratepayer-backed bonds to refinance remaining investment in retiring plants (securitization). This cuts financing costs for customers and frees up utility capital for new generation.	Legislature				**New Mexico:** The Energy Transition Act (SB 489, 2019) lets utilities that retire coal plants recover remaining costs through ratepayer-backed "energy transition bonds" approved by a commission financing order. It directs 5.5% of the bond amount to state funds for displaced workers, economic development, and tribal communities. PNM, the state's largest utility, issued $343.2 million in bonds in November 2023 for the retirement of the coal-fired San Juan Generating Station.
Alternative capital sources are not used to their full potential	**Public development authorities**	Authorize public power authorities or other public agencies to issue bonds and use low-cost financing to develop, own, or co-invest in new large-scale generation, particularly where private development is falling short of state goals.	Legislature				**New York:** The Build Public Renewables Act, enacted in 2023–24 state budget (S.4008-C), authorizes and directs the New York Power Authority to plan, finance, build, and own renewable generation where private development isn't on track to meet state targets.

CUSTOMER AND LOCAL | PERMITTING

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Inconsistent permitting requirements	**Require standardized automated permitting**	Reduce variation between municipalities in applications, documentation, and code interpretations to create clarity for installers and customers. Require localities use standardized, automated tools like SolarAPP+ to accelerate projects.	Legislature, State Energy Office				**Maryland:** SB 783 (2024) required all localities to use solar permitting software such as SolarAPP+, and provided implementation funding, followed by HB 1532.
	Allow plug-in solar and batteries	Give explicit permission to use plug-in resources like balcony solar and small batteries without permit or utility interconnection process.	Legislature				**Utah:** HB 340 (2025) made "portable solar generation devices" exempt from utility interconnection and net metering requirements.
	Allow remote and third-party inspections	Permitting processes often require an inspection be performed at a customer's house; allow remote inspections via photograph to make the process cheaper, smoother, and faster.	Legislature				**Florida:** HB 683 (2025) included solar and energy storage within single-trade inspections and review, and allowed providers to perform inspections virtually or using software.
Restrictive building codes and HOA requirements	**Prohibit arbitrary restrictions**	Disallow homeowners association restrictions and set statewide fire codes and setback requirements to prioritize safety while increasing consistency across municipalities.	Legislature				**Massachusetts:** Proposed H. 3496 (2026) to build on existing solar access bill and make it illegal to have homeowner association or deed provisions that forbid or restrict solar. 2024 climate law also prohibits EV charging restrictions.

CUSTOMER AND LOCAL | GRID CONNECTION

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Lack of data transparency	**Require public hosting capacity data**	Typically, utilities are the sole arbiter of information on where available capacity exists on their systems. Make this information easily available to the public, which is critical to understanding where customer and local energy projects can be connected quickly. Best practices include using utility grade topology, downloadable basis, frequent refreshes, high granularity.	Legislature, Utility Regulator				**California:** AB 327, passed in 2013, required utilities to identify optimal locations for distributed energy resource deployment; state utility regulators expanded on this to develop "integration capacity analysis" requirements including maps and integration into interconnection decisionmaking process **Colorado:** In 2021, the Public Utilities Commission required the utility PSCo to make load and generation hosting capacity maps public and include hosting capacity analysis in distribution planning. In 2026, the PUC required further improvements to transparency and data granularity.
	Require public grid utilization data	Increasing distribution grid throughput is key to get more resources online quickly. But utilization is not well understood. The first step to identifying opportunities for optimized utilization is to make data publicly available so regulators, third-parties, and utility can identify opportunities to improve utilization.	Legislature, Utility Regulator				**California**: SB 905 (2026) requires utilities to publicize distribution grid utilization data and evaluate utilization as part of distribution planning.
Misaligned incentives	**Provide incentives for interconnection timelines**	Create performance incentive mechanisms (PIMs) to reward or penalize utilities for reaching certain performance threshold, in this case interconnecting customer and local resources on faster timeline when compared to historical data.	Utility Regulator				**Hawai'i:** Established "interconnection approval" PIM in 2021 measuring average number of days it takes to connect small-scale energy system and has decreased timeline each year. Utility can earn a reward if they meet the timelines or have to pay a penalty if they fail.
	Allow third-party interconnection studies	Utilities performing interconnection studies leads to a single bottleneck; allow third parties to perform studies can create a faster interconnection pathway. Data transparency with third-parties is essential for this to work, as well as a standardized process to qualify a third-party study.	Utility Regulator				**Virginia:** In 2009, state utility regulators revised interconnection regulations to allow third-parties to perform interconnection studies with utility approval, but updates in 2026 made it more viable including dispute resolution and transparency into technical requirements.
Costly grid upgrades	**Allow flexible grid connections**	Allow flexible grid connections to quickly connect customer and local clean energy resources (generation and load), enabling better use the grid by connecting valuable resources even if there are grid constraints during peak times. Instead of requiring upgrades before connection, this option curtails generation and load during times of constraint, either set at a static limit or in a dynamic way.	Legislature, Utility Regulator				**Colorado:** SB 24-218 (2024) required Xcel Energy to create tariffs that allow flexible grid connections that enable new generation and load to connect before upgrades are performed by agreeing to import and export limits.

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Costly grid upgrades	**Establish interconnection cost sharing**	A single customer bearing the burden for an interconnection upgrade can be prohibitively expensive even as connection may contribute to accelerating small-scale deployment and providing larger grid benefits. Establish shared costs across multiple customers to decrease this barrier.	Utility Regulator				**Connecticut:** The state's utility regulators established a cost-sharing mechanism for residential transformer upgrades in 2023, replacing the requirement that individual customers pay the full cost of distribution transformer upgrades. The policy spreads costs across participating applicants and utility ratepayers.
	Provide automatic or streamlined approvals	Fast track approval for small project(s) that connect to the grid in areas with high headroom, designated in hosting capacity maps.	Utility Regulator				**Illinois:** State utility regulators' interconnection rule updates created "non-export" and "limited-export" categories so storage-paired projects can skip most burdensome studies.

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Lack of proactive planning	**Require distribution system planning**	Customer and local clean energy resources may need proactive investment in distribution grid to support them, or they may be able to help utilities avoid some investments. Require comprehensive distribution system planning to help ensure investments are prudent and aligned with goals. Include grid utilization analysis and goals within planning to increase transparency and identify targets.	Utility Regulator				**Minnesota:** Started Integrated Distribution Planning in 2018 following a grid modernization requirement from the legislature. The IDP required transparency into the utilities distribution investments, and is now evolving into a process for proactive planning and integrating grid utilization into decision making.
	Require consideration of local resources in Integrated resource planning	Customer and local clean energy resources can provide value at all levels of the grid, but siloed decision making can hamper their contribution. Include them in integrated resource or system planning to break through these silos.	Utility Regulator				**Hawai'i:** Integrated Grid Planning process requires IRPs include small-scale resources as able to meet capacity, energy, and reliability needs.
Unclear and insufficient compensation mechanisms	**Create customer-facing programs and education**	Create a single statewide information platform housing standardized consumer disclosures, consolidated program information, and help customers identify what will work best for them. This will build education and trust around customer and local clean energy resources.	State Energy Office				**Massachusetts:** Mass Save, the state's energy efficiency and building electrification program, serves as a central education hub on incentives, programs, and understanding available technologies.
	Create time varying rates with export compensation	Create rate design that encourages customer and local clean energy resources to consume or provide energy back to the grid in accordance with grid needs. This will relieve pressure on the bulk and distribution system, and help finance small-scale resources.	Utility Regulator				**Hawai'i:** Smart DER Tariff was initiated by PUC, with first iteration approved in April 2024. It includes a rate for non-exporting and exporting customers that compensates customers who export to the grid in accordance with time-varying value of that export.
	Clarify participation in markets and programs	Where wholesale markets exist, allow aggregations of customer and local resources to participate in energy, capacity, and ancillary services markets. This is key to compensating resources and maximizing grid value. FERC Order 2222 requires this access, but states have a role in enabling participation.	Utility Regulator				**California:** Rules 24 and 32 by the PUC define what utilities and aggregators are responsible for, and PUC has created dual-participation principles clarifying that two programs (i.e., utility programs and wholesale market aggregators) can enroll the same resource if being compensated for different value such as energy vs. capacity.
	Create compensation programs	Create specific programs to provide customer and local resources with compensation for reducing demand during peak times; provide ancillary services; and mitigate local distribution constraints. This will create a financial environment to bring more projects on the grid and coordinate their use for maximum impact.	State Energy Office, Utility Regulator				**Massachusetts:** ConnectedSolutions, funded by ratepayer funds, pays aggregators and individuals to reduce demand during peaks in grid demand, providing cost reductions to the whole system.

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Unclear and insufficient compensation mechanisms	**Allow and modernize competitive retail offerings**	Allow competitive retailers to coordinate local resources so the same company that provides electric plan can also manage rooftop solar batteries, thermostats, and EV chargers. This helps resources compete in retail markets. Modernizing retail markets is the next step to capturing full value of local resources, including enabling negative peak load contributions for capacity charges, and requiring utilities to use smart meter data at 15 minute intervals when determining compensation.	Legislature, Utility Regulator				**Texas:** SB 1699 expanded competitive retail choice to allow retailers to aggregate distributed energy resources directly **Illinois:** The Climate and Equitable Jobs Act (2021) mandated expanded net-metering and tariff structures recognizing full capacity contribution of customer-sited solar and energy storage. This led to the utility ComEd filing a tariff change at FERC that allowed recognition of negative peak load contributions.
Insufficient financing	**Require consideration of local resources in all-source procurement**	All source procurement is a technology neutral utility procurement process that bids out a specific need and receives proposals for any resource that can meet the need, but has typically been limited to utility-scale resources	Utility Regulator				**Washington:** In 2025, the utility Avista allowed distributed resources to compete with conventional utility-scale resources for energy and capacity needs identified in their Integrated Resource Plan; 40 MW of demand response was selected, which was over 10% of total capacity procured.
	Require procurement of distributed capacity	Utilities have not traditionally procured distribution grid capacity; doing so can prioritize non-wires solutions for distribution upgrades or capacity needs on a specific area of the grid to realize locational value of small scale resources	Utility Regulator				**Colorado:** The Aggregator Virtual Power Plant (AVPP) program allows utilities to pay third-parties to coordinate small-scale resources for capacity needs at a standard rate. **Minnesota:** The recently approved (April 2026) distributed capacity procurement process was initiated by Xcel Energy's 2024 IRP, and in 2026, the Capacity*Connect program was approved, which allowed the utility to procure and own storage.
	Allow large load procurement	Bring-your-own-distributed-capacity is increasing as a strategy for large load companies to free up headroom on the grid so they can bring new load online faster through clean transition tariffs that allow them to procure resources that would not otherwise be procured, such as customer and local resources	Utility Regulator				**Michigan:** While clean transition tariff is still in progress, Google and the utility DTE Energy are working to enable Google to fund batteries and demand response programs in the state. **Kansas:** Clean energy choice rider, which is effectively a clean transition tariff, explicitly allows distributed resources as an option.
	Create a demand-reduction contracting process	Large loads have started to look to demand-side options to provide capacity they need to connect to the grid. A demand reduction trading program provides a pathway for these loads to contract directly with coordinated local resources.	Legislature				**New Jersey:** The Data Center Fair Share Act (2026) establishes process for utilities to contract with third-parties that coordinate local resources to provide capacity instead of relying only on large scale generation.
	Create a green bank	Green banks can help customers finance customer and local energy projects at homes and businesses by helping buy down interest rates, bundling projects together, creating standardized loans, and using public dollars to help deploy projects. They can also act as a central coordinator to combine financing with other incentives and programs.	Legislature				**Connecticut:** Established the Connecticut Green Bank by Public Act 11-80 in 2011. The bank provides standardized loans at low cost for small-scale resources, and administers an Energy Storage Solutions program to provide incentives and ongoing payments for batteries.

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Inconsistent evaluation of advanced transmission technologies (ATTs)	**Conduct technology potential assessments and pathways to deployment**	Direct state Public Utilities Commission (PUC) or other planning entity to conduct assessment of technology potential and pathways to deploy new transmission technologies. Require utilities to provide necessary data and models to assist PUC analyses.	Legislature, Utility Regulator				**Maine:** Department of Energy Resources completed a transmission study in September 2026 at the state legislature's direction. The study highlights potential applications of ATTs, among other items. Other PUCs have commissioned similar reports, such as Indiana's ATT study requirement under Senate Enrolled Act 422.
	Evaluate storage to relieve transmission constraints	Evaluate opportunity for strategic, distribution-sited or behind-the-substation battery storage to avoid transmission system upgrades.	Utility Regulator				**Maine:** Evidence suggests battery storage strategically sited on the distribution system can mitigate transmission constraints and avoid substantial transmission upgrades. The Boothbay nonwires alternative pilot combined battery storage, thermal storage, and other measures to reduce local peak demand and avoid a transmission-line rebuild.
Inconsistent evaluation of ATTs	**Approve prudent future-proofing investments**	Provide flexibility in rate regulation to allow investments in "future-proofing" designs. These are project additions with high optionality relative to marginal cost increase to the overall project (such as double-circuit capable poles, future voltage conversion capability, or larger structures to allow bundling of cable).	Utility Regulator				**Minnesota:** In 2009, the PUC approved the utility Xcel's request to build a new transmission line that was double-circuit capable, in case future need ever arose to increase the line's capacity. Fifteen years later, second-circuit expansion was approved and completed at far lower cost and physical impact, due to PUC foresight in future-proofing the project.
	Require alternatives analysis in planning and approvals	Require evaluation of ATTs in integrated resource planning (IRP) processes. Establish a regulatory framework that enables PUCs to require alternatives analysis when a utility pursues a permit for a traditional grid upgrade. PUCs could reject proposals in which lower-cost alternatives were not sufficiently considered.	Legislature				**Utah:** HB 212 (2025) requires utilities to evaluate cost-effectiveness, potential benefits, and implementation timelines of grid enhancing technologies (GETs) or ATT alternatives to traditional transmission investments in IRPs. **Ohio:** HB 15 (2025) requires utility to consider cost-effective ATTs in any transmission siting application. The law similarly requires recurring ATT evaluation and congestion-mitigation and implementation planning. At least 20 states have passed ATT or GETs legislation.
Fragmented planning across jurisdictions	**Disclose congestion and relief opportunities**	Require reporting on grid constraints, customer costs, and solutions. Congestion data enables stakeholders to frame the scale of opportunity, representing how historically undersized transmission systems have increased congestion and costs for consumers.	Legislature, Utility Regulator				**Minnesota:** SF 4942 (2024) requires transmission owners to identify areas of congestion and ratepayer cost, as well as a GETs implementation plan to relieve that congestion.
	Ensure ATT evaluation in regional planning	Long-term transmission planning processes, including those conducted by RTOs or regional planning entities, should explicitly consider advanced technologies in planning pathways.	Utility Regulator				**Federal Energy Regulatory Commission (FERC):** Order 1920 (2024) requires consideration of ATTs in long-term planning, but appropriate implementation and analysis requires dedicated staff and expertise to evaluate RTO proposals. **Massachusetts:** The 2024 Climate Act required an independent investigation of ATTs, including their cost-effectiveness and jurisdictional and cost-sharing barriers in federally regulated transmission applications.

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Fragmented planning across jurisdictions	**Strengthen PUC technical capacity to evaluate ATTs**	Provide targeted funding or consultant support to expand PUC capacity to evaluate ATTs, conduct technical potential studies, and evaluate utility modeling.	Legislature, Utility Regulator, State Energy Office				**Indiana:** Pursuant to SEA 422, Indiana utility regulators retained an engineering consultant to develop an ATT study, including technical screening procedures, modeling approaches, and a framework for evaluating deployment. **FERC:** Order 1920 includes a technical assistance program that provides technical assistance to PUCs and State Energy Offices. Individual states can provide funding and directives to support local entities on ATTs.
Permitting challenges on existing corridors	**Define exemptions for qualifying grid upgrades**	Allow any advanced conductor project developed on existing right of way to receive a categorical exclusion from certain environmental or other agency review.	Legislature				**California:** SB 529 removes certain permit requirements for extensions or upgrades to existing transmission facilities, helping speed up transmission expansion projects. States could go further and provide exclusions to certain environmental review or narrow scope of potential litigation to speed up certain transmission projects.
	Streamline agency review and consolidated permitting process	Empower state agencies with additional staff and resources to streamline reconductoring project review and simplify permitting processes. Require projects outside of approved plans to demonstrate need and evaluation of alternatives.	Utility Regulator				**California:** GO 131-E process includes measures for pre-filing consultation and clearer review timelines for project documents to streamline approval of transmission expansion and upgrade projects.

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Low accountability for efficient grid utilization	**Require utilization measurement and reporting, and grid-utilization performance incentives**	Require grid utilization metrics to encourage deployment of solutions that make the system more efficient and flexible. Appropriate incentives can target solutions to address inefficiencies on the grid, such as ATTs, battery storage, or demand flexibility. This should be combined with effective long-term planning, system expansion, and interconnection reform.	Legislature, Utility Regulator				**Virginia:** SB 621 requires investor-owned utilities to develop grid utilization metrics and requires state utility regulators to evaluate the metrics and include utilization in future capital investment reviews.
Perverse incentives related to new infrastructure	**Establish shared-savings incentives**	Enable utilities to retain a percentage of savings derived from GETs deployment, incentivizing utilities with some amount of cost-recovery in lieu of traditional grid upgrades.	Legislature				**Federal Energy Regulatory Commission (FERC):** The proposed SURGE Act would direct FERC to establish shared-savings framework allowing utilities to recover some portion of line loss savings from high performance conductor deployments. The Act would provide funding for states to establish their own shared-savings incentive programs **United Kingdom:** Ofgem, the United Kingdom's energy regulator, provides a shared-savings incentive to reward transmission owners for reducing congestion. Transmission owner receives 10% of the forecasted savings. Ofgem has specifically cited advanced power flow technologies as solutions to reduce congestion and additional grid upgrades.
	Reward cost-effective ATT deployment	Establish tax or performance incentives tied to meeting ATT/GET deployment targets, aligned with states legislative or regulatory requirements. One such example is a capacity per right-of-way performance incentive, which rewards utilities for how much capacity it can deliver via existing right of way.	Legislature				**Massachusetts:** The 2024 climate law dictates utilities may propose performance incentive mechanisms rewarding cost-effective deployment of ATTs.

CHALLENGE	POLICY TOOL	DESCRIPTION	WHO ACTS	IMPLEMENTATION LIFT	TIME TO IMPACT	LEVEL OF IMPACT	EXAMPLE STATE(S)
Limited access to financing	**Clarify cost recovery for ATTs**	Empower regulators with the explicit authority to grant cost recovery to ATT projects.	Legislature				**Ohio:** HB 15 grants state utility regulators authority to approve cost recovery for ATT alternatives in transmission siting applications.
	Enable state transmission finance authorities	Delegate authority to a state-level transmission authority to plan, develop, finance, own, or facilitate transmission assets, including advanced technologies.	Legislature				**Colorado:** State transmission authorities have authority to plan for and finance transmission grid upgrades, including GETs and ATTs. Colorado Electric Transmission Authority's (CETA) statewide transmission study evaluates GETs and ATTs, and its project selection framework scores projects on incorporation of ATTs.