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February 10, 2026

Rhode Island State Senate
Senate Committee on Finance

Dear Members of the Committee:

I am writing to submit the enclosed report for the record of your hearing. I am a resident of Connecticut and an economist at the Center on Global Energy Policy at Columbia University, where my research focuses on the economic dimensions of the clean energy transition.

The attached report examines the headwinds facing electricity affordability and decarbonization efforts in Connecticut, and it outlines a set of potential opportunities to help alleviate these challenges. While the analysis is Connecticut-specific, many of the underlying issues are shared across the New England region. Rhode Island faces similar headwinds, and I hope that the information in this report may be useful as the state considers policies to advance reliable, affordable, and lower-carbon electricity systems.

Thank you for the opportunity to submit this material for your consideration. I would be happy to answer any questions or provide additional context if helpful.

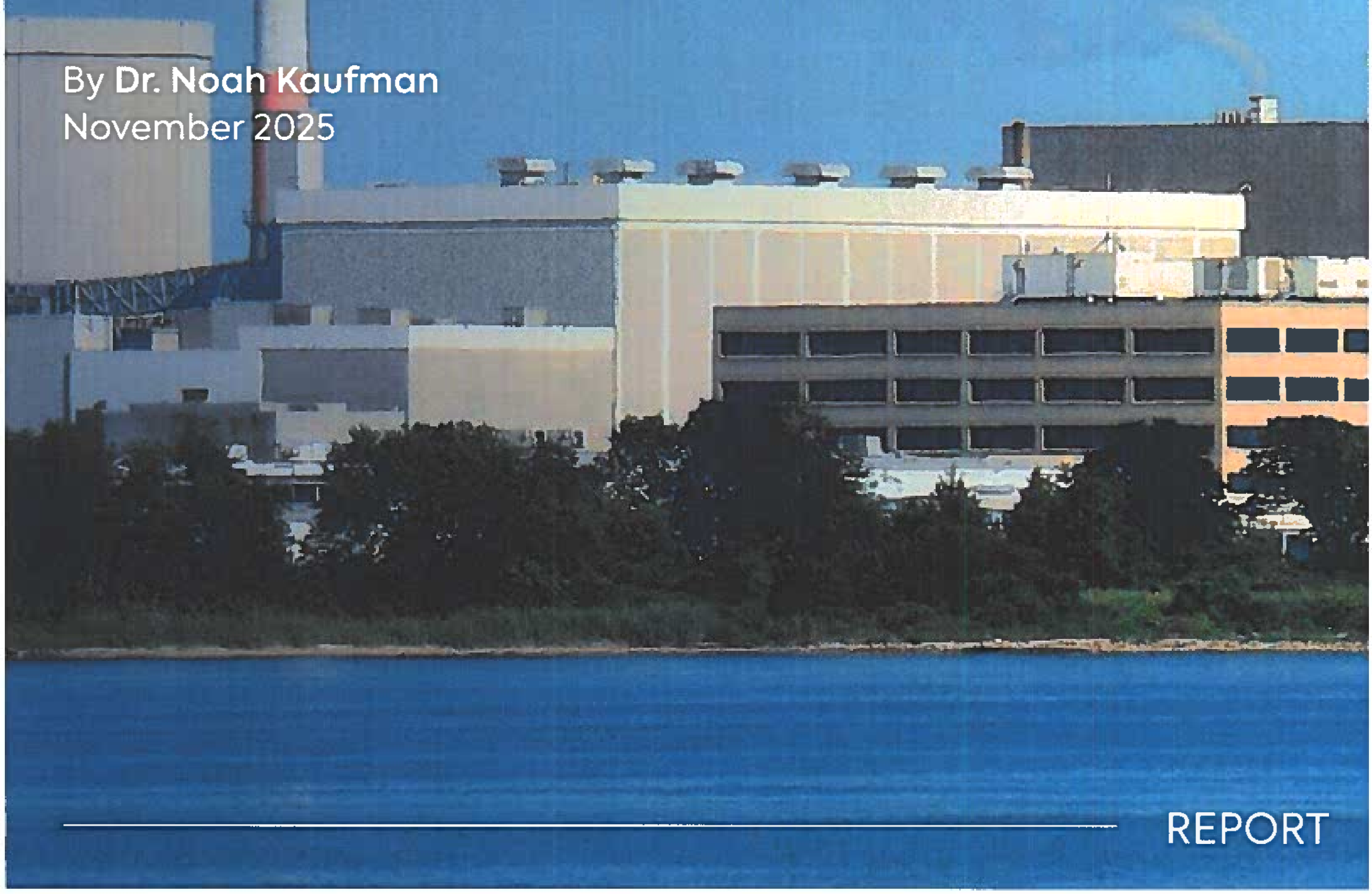
Sincerely,

Noah Kaufman

Center on
Global Energy Policy
at COLUMBIA | SIPA

Climate Ambition and Electricity Affordability: Lessons from Connecticut

By Dr. Noah Kaufman
November 2025



REPORT

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Acknowledgements

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About the Author

Dr. Noah Kaufman is an economist who has worked on energy and climate change policy in both the public and private sectors. Noah is Senior Research Scholar at the Center on Global Energy Policy at Columbia University SIPA.

Under President Biden, Noah served as a Senior Economist at the Council of Economic Advisers. Under President Obama, he served as the Deputy Associate Director of Energy & Climate Change at the White House Council on Environmental Quality. At World Resource Institute, he led projects on carbon pricing, the economic impacts of climate policies, and long-term decarbonization strategies. Previously, he was a Senior Consultant in the Environment Practice of NERA Economic Consulting.

Noah received his BS in economics from Duke University, and his PhD and MS in economics from the University of Texas at Austin, where his dissertation examined optimal policy responses to climate change.

Executive Summary

Rising electricity prices are an obstacle to climate action in many US states. Continuing to pursue ambitious decarbonization goals while ensuring affordable electricity to residents and businesses will require bold policy shifts, with solutions that differ across regions.

This report explores specific challenges to decarbonization and electricity affordability in Connecticut, as well as opportunities to decarbonize more affordably. Connecticut has among the highest electricity prices in the nation and a binding commitment to achieve 100 percent zero-carbon electricity by 2040.

The report identifies the following key headwinds:

- Connecticut has limited local fuel resources, relatively high electricity delivery costs, and numerous public policies financed through ratepayer charges. As a result, electricity prices in Connecticut are nearly twice those in nearby Pennsylvania.
- Electrification of vehicles and building appliances, barriers to new generation, reduced federal subsidies, expected increases in natural gas prices, and ongoing grid investment needs are likely to keep electricity prices elevated in the years ahead.
- State planning scenarios envisioned offshore wind supplying about half of Connecticut's power by 2040. But the costs of offshore wind have risen sharply, and projects are facing delays or cancellations amid growing federal government opposition.

Based on an analysis of the costs of clean electricity programs (which are small relative to total retail rates), the report identifies the following list of potential opportunities to advance decarbonization goals more affordably. Because Connecticut is deeply integrated into regional electricity and infrastructure networks, progress will require collaboration with neighboring states:

- Extend the contract for the Millstone Nuclear Power Plant beyond 2029, even if on considerably less favorable terms. While Millstone has contributed to recent price increases, it's likely to reduce costs going forward compared with realistic alternatives.
- Accelerate grid-scale solar deployment and reduce the costs of rooftop solar for ratepayers. Rooftop solar electricity is compensated at roughly three times the rate of grid-scale solar.
- Reduce duplication among programs that pursue overlapping goals. For example, the state could gradually expand the renewable portfolio standard (which costs a typical household

about $6–$8 per month) to include all zero-carbon sources while reducing the costs of cap-and-trade permits (which cost about $4–$7 per month) that currently add little incentive to further reduce emissions.

- Increase access to low-cost energy imports. For example, new transmission could further connect New England to carbon-free generation sources, including hydropower from Québec. Counterintuitively, additional natural gas pipeline capacity could support affordable decarbonization goals if paired with policies that ensure declining natural gas demand over time.

Ultimately, the value of these opportunities will depend on factors beyond the scope of this study, such as project financing structures and local community impacts. Given the severity of current headwinds, however, achieving affordable, decarbonized electricity may require openness to certain policy options that have previously faced significant economic or political barriers, both in Connecticut and across the country.

Introduction

Across the United States many state policymakers are navigating a difficult balancing act: achieving ambitious decarbonization goals and ensuring electricity remains affordable for households and businesses. These objectives are not inherently at odds, but in practice they often come into tension. Ambitious climate policy involves moving away from carbon-intensive electricity generation sources faster than would otherwise occur, which can impose additional costs on ratepayers.

Today several forces are intensifying these pressures. Electricity prices around the country are trending upward. Clean energy projects face added challenges from inflation, supply chain disruptions, siting and permitting delays, and federal government opposition.

For states with ambitious climate targets, these headwinds mean that sustaining rapid decarbonization may involve higher electricity prices than previously expected. Higher prices slow the adoption of electric vehicles and heat pumps, undermining decarbonization progress in other sectors, and risk provoking public backlash against clean energy policies (Stokes and Warshaw 2017).

It is important to keep these challenges in perspective. The costs of clean energy technologies have fallen dramatically over recent decades. Thanks to innovations in solar, wind, and battery technologies, today's policymakers are far better positioned than their predecessors to pursue ambitious climate goals at manageable costs. Moreover, the costs of decarbonization may pale in comparison with the costs of failing to address the risks of global climate change.

To better understand the specific challenges and opportunities in states balancing the imperatives of decarbonization and affordable electricity, this report uses Connecticut as a case study. Connecticut is notable for its high electricity prices and ambitious statutory climate commitments. Like other states, it now confronts mounting headwinds on both fronts.

The report first examines the drivers of high electricity prices and the associated headwinds to electricity affordability and decarbonization in Connecticut. Based on an analysis of the state's clean electricity programs, it then identifies potential opportunities to pursue decarbonization goals more affordably in collaboration with neighboring states. These opportunities include embracing a broader range of technology solutions, enabling new infrastructure, and streamlining policy portfolios in ways that retain climate ambition while reducing costs—all of which apply to other states seeking cost-effective decarbonization strategies as well.

This report is intended to present options, not recommend specific policies. Its scope is limited to the twin goals of affordability and decarbonization. Even policymakers who share these objectives must weigh additional considerations—such as economic development, pollution, electricity reliability, and political feasibility—that fall outside the scope of this analysis.

Headwinds to Electricity Affordability and Decarbonization in Connecticut

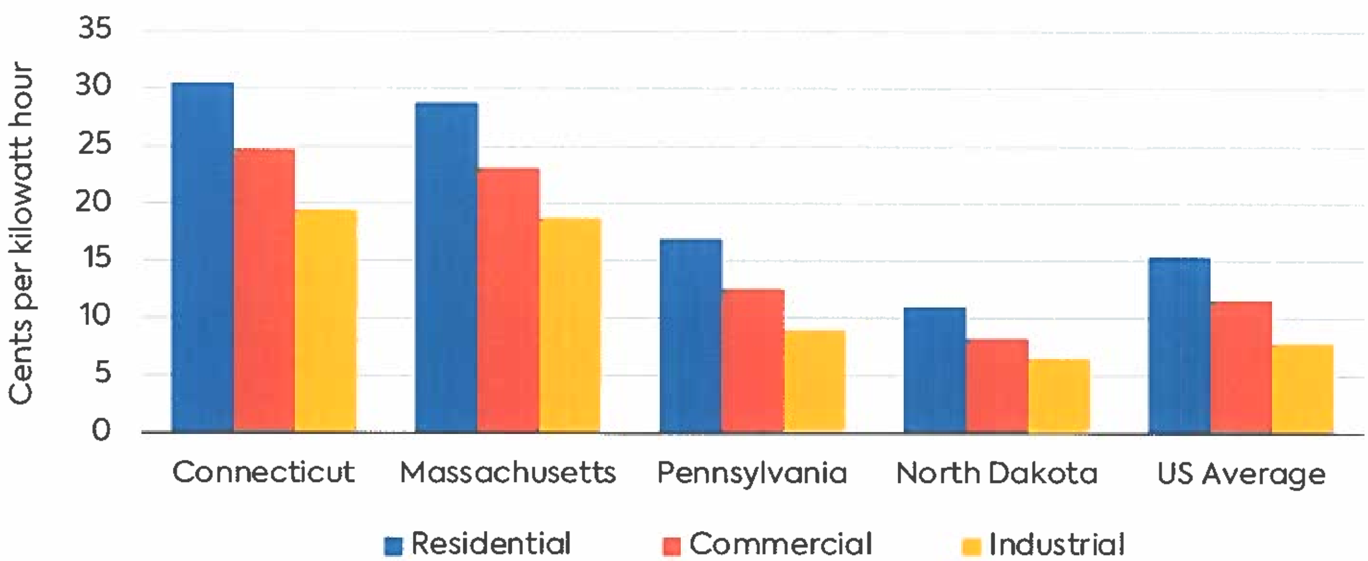
This section examines why Connecticut is facing steep challenges to electricity affordability and decarbonization. It compares electricity prices across states, identifies drivers of high prices, and explores trends that may impede progress toward decarbonization.

Connecticut's Electricity Prices in Context

Figure 1 compares average retail electricity prices from April 2024 through March 2025 across several jurisdictions. Massachusetts is a neighboring New England state with similar regional constraints, Pennsylvania provides a contrast as a northeastern state with abundant local energy resources, North Dakota is a low-price state, and the US average offers a national point of reference.

Connecticut's electricity rates are among the nation's highest, comparable to those in Massachusetts. Residential prices are nearly double the US average and almost triple those in North Dakota. Typical households in Connecticut pay nearly twice as much for electricity as those in nearby Pennsylvania.

Figure 1: Comparison of retail electricity prices

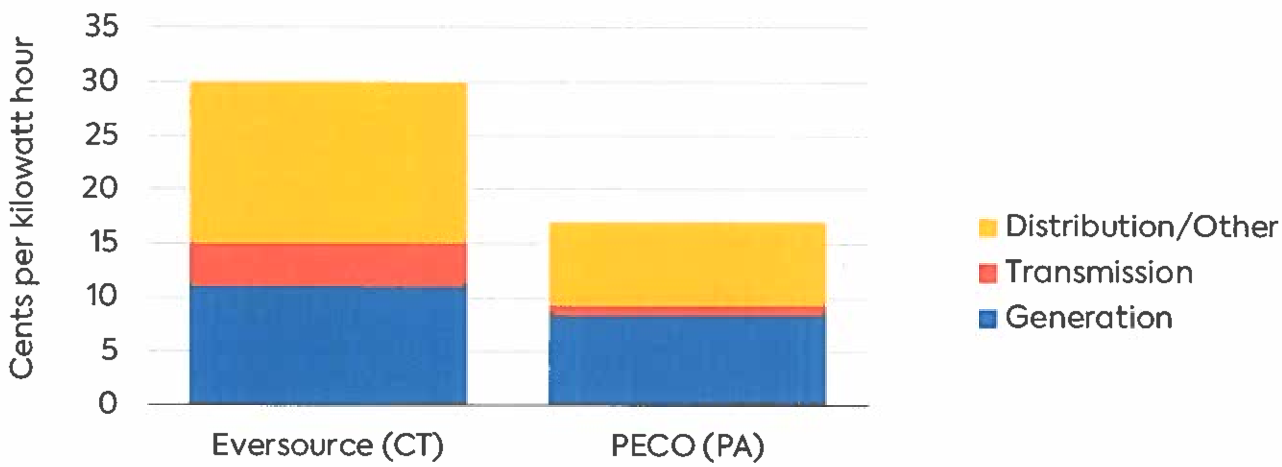


Note: Twelve-month averages of retail electricity prices from April 2024 to March 2025.
Source: US Energy Information Administration 2025d.

Factors Underlying Connecticut's High Electricity Prices

To probe the sources of Connecticut's high rates, Figure 2 compares residential rates at the largest utilities in Connecticut (Eversource) and Pennsylvania (PECO). It breaks out generation/supply, transmission, and the combined distribution/policy/other charges.[1] Costs in Connecticut exceed those in Pennsylvania across every category. Several factors explain the gap.

Figure 2: Residential rates for utilities in Connecticut and Pennsylvania



Note: Data for Eversource as of May 2025; data for PECO's generation and transmission charges as of April 2025; data for PECO total bills as of April 2025.

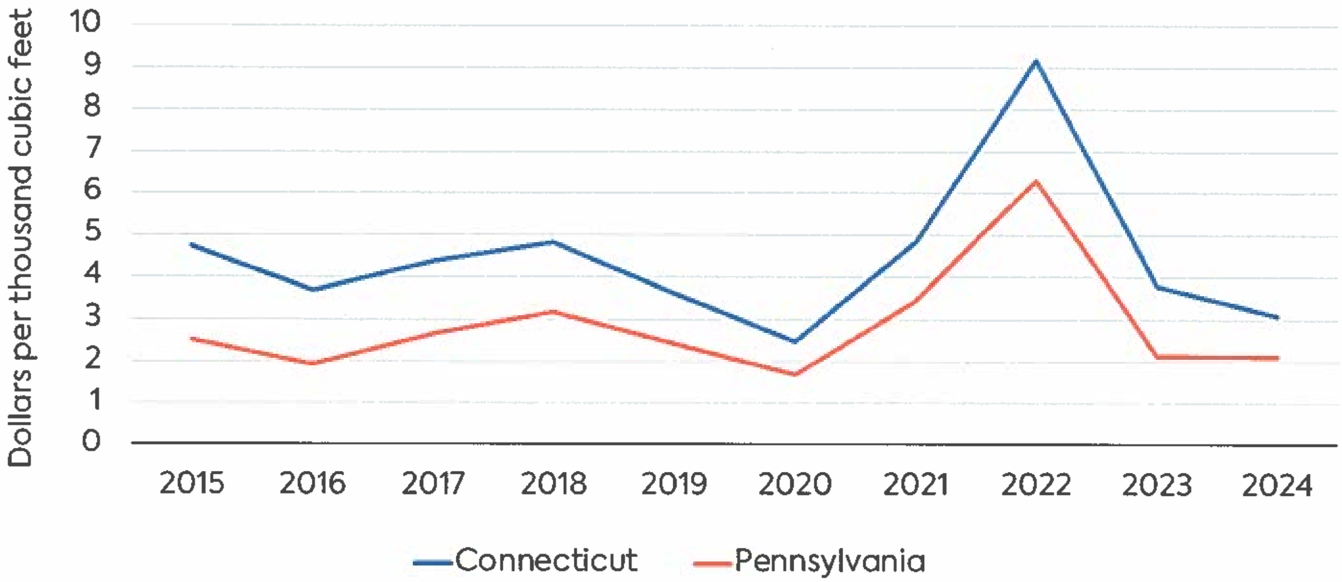
Source: Connecticut Department of Energy and Environmental Protection (DEEP) 2025c; electricityrates.com 2025; Find Energy 2025.

Limited Access to Low-Cost Fuel for Generation

Natural gas is the largest contributor to power generation in both states and the primary driver of wholesale electricity prices. Pennsylvania benefits from abundant Marcellus Shale gas and its participation in PJM, a large regional grid with diverse local resources (including coal). By contrast, Connecticut and its surrounding grid (ISO New England [ISO-NE]) rely on natural gas that must be imported for over half of its electricity (US Energy Information Administration 2023b; US EPA 2023).

As a result, generation costs are higher in Connecticut: In 2024 the average price of natural gas delivered to power producers was roughly 45 percent higher than in Pennsylvania (Figure 3).[2]

Figure 3: Natural gas prices to electric power generators



Note: Annual average gas prices, in nominal dollars, used by electricity generators (regulated utilities and nonregulated power producers) whose line of business is the generation of power .
Source: US Energy Information Administration 2025g.

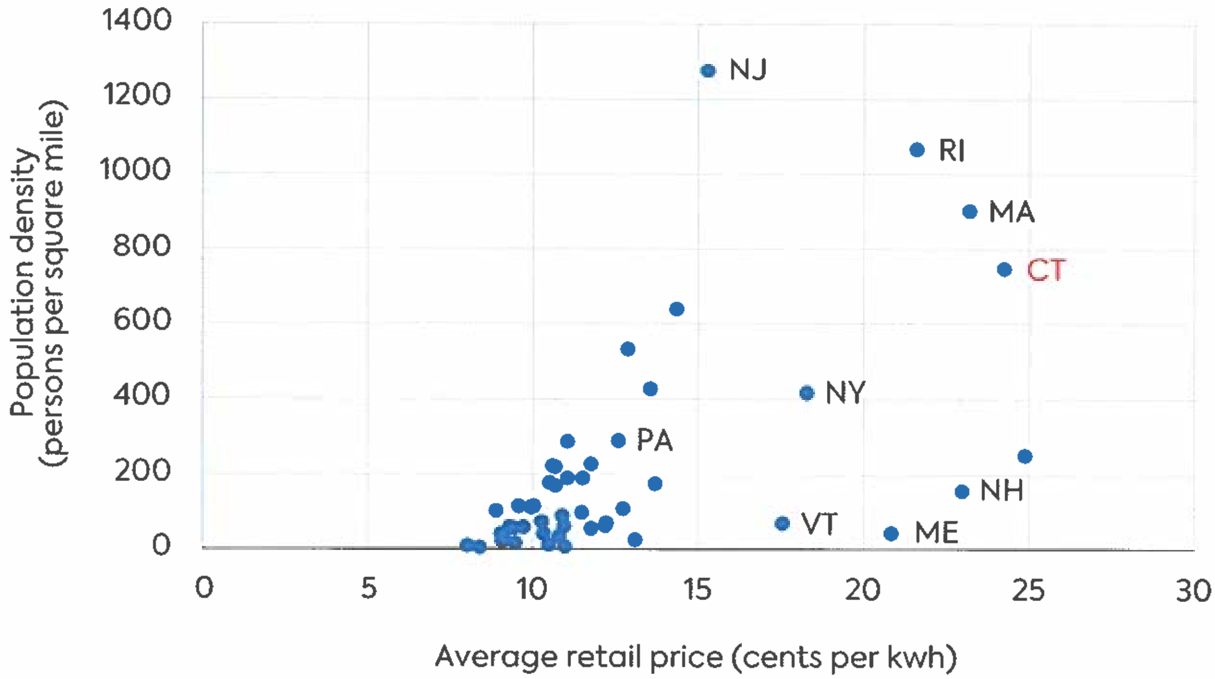
Annual averages mask large seasonal swings. In winter, natural gas demand for both heating and power surges. With pipeline capacity constrained, New England turns to relatively expensive imported liquefied natural gas (LNG), driving sharp price spikes (Federal Energy Regulatory Commission 2023).[3] This past winter natural gas prices at Connecticut power plants averaged $2.57 per thousand cubic feet in November and over $14 in January (US Energy Information Administration 2025b).

High Delivery Costs

Limited access to low-cost energy is only part of the story. Connecticut utilities have invested heavily in storm hardening, transmission upgrades, and grid modernization, as well as "asset condition" projects that rebuild existing infrastructure and receive relatively little regulatory oversight (Connecticut DEEP 2025; Connecticut Public et al. 2025). These projects entail comparatively high labor and construction costs in Connecticut. For example, electric line installers earn a median wage of over $58 per hour in Connecticut versus under $50 in Pennsylvania (US Bureau of Labor Statistics 2025).

Figure 4 shows that electricity prices tend to be higher in more densely populated states such as Connecticut. In theory, density could reduce delivery costs by spreading fixed charges across more customers. In practice dense states often lack local fuel resources and face barriers to new generation, necessitating additional transmission and creating bottlenecks in delivering power to electricity demand centers. Maintenance is also more complex in dense areas.

Figure 4: Population density and retail electricity prices in the lower 48 US states



Source: Average retail electricity price data from 2023 are from US Energy Information Administration 2025e. Population data from 2023 are from US Census Bureau 2025b. Land area data from 2020 are from US Census Bureau 2025a.

Public Policy Programs Funded via Electric Rates

Figure 4 also points to factors beyond density. Electricity prices are high across the US Northeast, even in less-dense states. A range of regulatory decisions likely play a role.

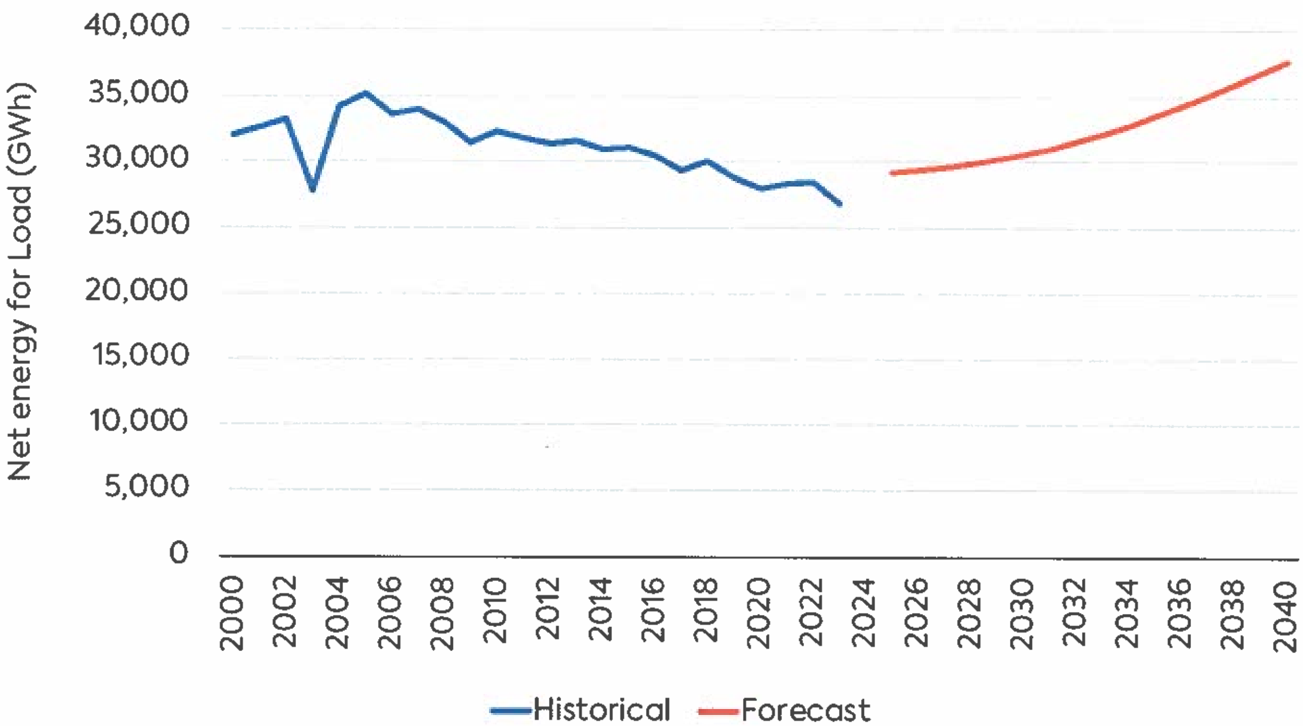
For example, Connecticut funds an array of policy initiatives through electricity rates—about $1 billion annually, which is about 10 to 15 percent of a typical monthly bill—for programs such as low-income assistance and arrearage forgiveness, renewable incentives, energy efficiency and conservation, and consumer education. While other states implement similar programs, including Pennsylvania, Connecticut's programs are relatively large and heavily funded by residential ratepayers (Fitch 2025; Office of Consumer Counsel 2025; Pennsylvania Public Utilities Commission 2025).[4]

Headwinds to Electricity Prices

Retail electricity prices across the country increased by about 5 percent annually between 2019 and 2024, in nominal terms, roughly tracking the rate of inflation. In 2025, national average prices have risen at more than twice the rate of inflation (Wiser et al. 2025). Looking ahead, several forces are likely to keep prices elevated around the country, including in Connecticut.

First, after years of decline, electricity demand is rising again, necessitating new generation and grid upgrades. Figure 5 shows Connecticut's electricity demand fell about 13 percent over the past decade but is expected to grow roughly 12 percent over the next decade, largely due to electrification: The adoption of electric vehicles and heat pumps will significantly increase electricity demand for transportation and in buildings, although the pace of that growth is highly uncertain (Rojo 2025).[5]

Figure 5: Connecticut electricity demand: historical and projected



Source: Historical data from ISO New England 2025a; forecast data from ISO New England 2025b.

In some situations demand increases could reduce retail rates by spreading fixed costs over more kilowatt hours (Wiser et al. 2025). But over the longer term, sustained demand growth is likely to put upward pressure on wholesale electricity prices, particularly given the constraints to new supply in the region (discussed below).

Another factor is rising natural gas prices. In 2023 natural gas set the marginal price of generation on the ISO-NE grid nearly 80 percent of the time (ISO New England 2024a). The US Energy Information Administration (EIA) projects benchmark natural gas prices will roughly double between 2024 ($2.19/per million Btu) and 2026 ($4.26) (US Energy Information Administration 2025b).[6] Upward pressure reflects growing demand, including expanded LNG export capacity that links US natural gas more closely to higher-priced international markets.[7]

Headwinds to Affordable Decarbonization

Like other states, Connecticut is also facing increasingly difficult policy and economic environments for ambitious climate actions. High electricity prices complicate decarbonization efforts: electrification becomes more expensive, and policymakers may grow wary of measures that could raise rates further.

Federal subsidies that reduced ratepayer costs are also being phased out. The 2022 Inflation Reduction Act (IRA) provided substantial support for clean energy technologies. For example, subsidies covered 30 to 50 percent of investment costs for solar energy projects, which are a small but rapidly growing share of Connecticut's electricity supply.

In July 2025 Congress passed the One Big Beautiful Bill Act, which phases out subsidies for solar, wind, and other clean energy technologies over the next few years. As a result, a significant portion of the costs of these investments will shift back to ratepayers. One study estimates that eliminating the IRA's production and investment tax credits could increase monthly electricity costs in the Northeast by about $5 to $10 by 2030—2 to 5 percent of a typical household bill (Bergman et al. 2025).

Offshore wind energy faces additional headwinds. Although Connecticut has no offshore wind energy in 2025, its most recent Integrated Resources Plan shows offshore wind as the largest contributor to the state's decarbonization goals, supplying on the order of one-half of projected electricity demand by 2040 (Connecticut DEEP 2021).

However, costs for offshore wind have surged because of high interest rates and higher-priced equipment and construction (Good 2024). Even before recent changes in federal subsidies, offshore wind contract prices in New York had risen nearly 50 percent above original terms (National Renewable Energy Laboratory 2024). Connecticut's largest planned project, the 804 MW Park City

Wind farm selected in 2019 (Connecticut DEEP 2021), was canceled in 2023 due to the worsening economics of the project. The state chose not to rebid the project to avoid committing to far higher costs (Spiegel 2024b).

The situation has deteriorated further in 2025. Alongside the phaseout of federal subsidies, the Trump administration has moved to delay or cancel offshore wind projects around the country (Friedman et al. 2025). This includes attempting to halt the construction of the Revolution Wind project, which had been expected to deliver over 300 MW to Connecticut customers in 2026, covering 4 to 5 percent of the state's electricity demand (Spiegel 2025). Potentially compounding these problems, tariff increases may raise the costs of wind (and other) energy projects, given that many component parts are imported.

Opportunities to Achieve Climate Ambition and Electricity Affordability

Connecticut is positioned as a climate leader. The state legislature has codified a series of decarbonization targets, including economy-wide greenhouse gas reductions of 45 percent below 2001 levels by 2030 and a requirement for 100 percent zero-carbon electricity by 2040 (Connecticut DEEP 2025a).

Meeting these goals will require transformational changes in the state's electricity system. While Connecticut has adopted a wide range of decarbonization policies (Connecticut DEEP 2025c), the state remains far off track. Recent data show economy-wide annual emissions down only about 28 percent from 2001 levels (Connecticut DEEP 2025b).

Connecticut will not meet its targets without ramping up policy ambition. Yet, as noted in the previous section, the state faces an increasingly difficult environment for power sector decarbonization, and high electricity prices make progress more difficult in other sectors where electrification is essential.

Drawing on the previous section's assessment of comparative cost drivers and additional analyses of the state's clean electricity programs, this section highlights opportunities for Connecticut to pursue its decarbonization goals more affordably.

Because of the limited scope of these analyses, the list of opportunities described below is not comprehensive. It excludes important policy options beyond clean electricity programs, such as broader utility incentive reforms, and areas requiring detailed modeling to assess opportunities for cost reductions, such as energy efficiency programs.

Moreover, while the focus of this study is state-level actions, a recurring theme is the limited ability of an individual state such as Connecticut to move the needle on affordability and decarbonization on its own. Because electricity grids, infrastructure, and many policies operate regionally, effective reforms require strong coalitions across neighboring states.

Opportunity 1: Embrace a Broader Range of Carbon-Free Solutions

Historically, advocates for environmental and climate policy have emphasized renewable energy, energy efficiency, and conservation, and these priorities are reflected in clean electricity policies. Yet research on power-sector decarbonization consistently shows that the lowest-cost pathways also require sources capable of providing continuously available power—often called "clean firm" generation (Sepulveda et al. 2018).

Connecticut's largest source of zero-carbon electricity is the Millstone Nuclear Power Station, which supplies about one-third of statewide demand (US Energy Information Administration 2025c). In 2019 the state signed a contract to purchase 9 million megawatt hours (MWh) annually at a fixed price of 4.999 cents per kilowatt hour (kWh).[8] The rest of Millstone's output is sold into the ISO-NE market, supplying households and businesses across the region (Governor Ned Lamont 2019).

In 2024 a spike in electricity bills fueled public concern and political criticism of the Millstone contract. A period of low natural gas prices meant that ratepayers had to cover the difference between market rates and the fixed price the state had agreed to pay (Spiegel 2024a; Fitch 2024; Allie-Brennan 2024).

Still, going forward, a fixed-cost, zero-carbon source of firm electricity at 5 cents per kWh looks like a bargain for Connecticut ratepayers. Replacing Millstone's output with new generation or market purchases would likely prove far more costly.

Pipeline imports of natural gas—the state's primary current source of affordable firm power—are already constrained during winter. Moreover, gas-fired generation must decline, not expand, if the state is to meet its decarbonization commitments.

New sources of clean firm power would be far more expensive than Millstone: Estimates for new nuclear plants are roughly triple the Millstone contract price (Lazard 2025),[9] and recent offshore wind contracts in New York have similarly approached 15 cents per kWh (New York State Energy Research and Development Authority 2025).

Millstone's current contract expires in 2029. Connecticut and neighboring states that benefit from Millstone's output will soon need to consider a contract extension. Given the upward trends in electricity prices, a renewal may come at a higher cost, which could spark renewed local opposition. Yet even at somewhat higher prices, the continued safe operation of Millstone would mark major progress toward both affordability and decarbonization goals.

Opportunity 2: Deploy More Solar Energy for Less

Because of dramatic improvements in solar photovoltaic (PV) costs and performance over the past two decades and further improvements expected in the years ahead, rapid solar energy deployment is among the most important decarbonization priorities globally, nationally, and in Connecticut. Today most new electricity-generation capacity in the United States is solar (US Energy Information Administration 2025c).

At the risk of oversimplifying a complex landscape, solar PV falls into two general categories: grid-scale solar, built as large farms, and rooftop solar, installed on homes or businesses. Together they currently supply 8–9 percent of Connecticut's electricity demand. Both sources are growing rapidly, and both provide Connecticut ratepayers and residents with considerable benefits that justify policy support.

A key distinction is cost. As Table 1 shows (with details in the Appendix), rooftop solar is compensated in Connecticut at rates around three times higher per unit of electricity than grid-scale solar. Rooftop solar must receive higher compensation because its generation costs are far higher than grid-scale systems. Nationwide, the average levelized cost of energy is 3.9 to 6.2 cents per kWh for grid-scale solar, compared with 13.4 to 20.9 for residential rooftop systems (National Renewable Energy Laboratory 2025).

Table 1: Grid-scale and rooftop solar in Connecticut in 2025

	Grid-scale solar		Rooftop solar	
	Low	High	Low	High
Percent of state electricity demand	2.4%	3.3%	5.0%	6.5%
Compensation (cents per kwh)	8	10	26	28
Charge on solar production (cents per kwh)	0	0	0.5	0.5
Avoided cost of energy (cents per kwh)	8	6	9	6.5
Avoided cost of Renewable Energy Credits (cents per kwh)	3.8	2.8	3.8	2.8
Cost to ratepayers (cents per kwh)	**-0.1**	**0.0**	**0.6**	**1.2**
Cost on a typical residential bill (dollars per month)	**-0.65**	**0.27**	**4.45**	**8.28**

Note: "Compensation" refers to the cost of power purchase agreements for grid-scale solar and the estimated value provided to rooftop solar owners under the state's incentive programs.
Source: See Appendix.

Grid-scale solar has an inherent cost advantage because of economies of scale, but the cost gap need not be so stark. In the United States, rooftop installation costs are two to three times higher than in Germany or Australia, mainly because of non-hardware "soft costs" such as permitting, interconnection, and customer acquisition (O'Shaughnessy et al. 2019).

Connecticut has also chosen to tie rooftop solar compensation to retail electricity rates, which are among the nation's highest—roughly three times the cost of generation alone (see Section 2). This means that when costs associated with the electricity distribution system or ratepayer-funded public policies increase, as they have in recent years, the compensation to rooftop solar increases as well. By contrast, grid-scale solar procured through competitive bids more closely reflects actual generation costs.

As a result, a typical household using 700 kWh pays an additional $4 to $8 per month to support generation from rooftop solar, compared with virtually no additional costs for grid-scale solar (see Table 1).

This cost gap will likely widen in the years ahead. While the reductions in federal subsidies will affect these trends, ISO-NE projects rooftop solar capacity in Connecticut will roughly double between 2024 and 2030 (ISO New England 2025b). Under the current policies, costs will scale with added capacity. Grid-scale solar is also expanding rapidly. But because grid-scale solar costs are much lower, the impact on ratepayers will likely be modest.[10]

This disparity creates an opportunity for policymakers to encourage more cost-effective solar deployment. They could reduce rooftop solar costs to ratepayers by decoupling compensation from retail rates. Working with local, regional, and federal partners, they could streamline siting, permitting, and interconnection processes to reduce "soft costs" (Breckel and Falkenburg, n.d.). Such reforms would provide a boost to grid-scale solar as well.

To be sure, reducing compensation for rooftop solar could slow its deployment and diminish the associated benefits to both the grid and solar owners, particularly in the absence of reforms that reduce soft costs. Offsetting any resulting slowdown in rooftop installation, and maintaining overall solar and decarbonization progress, would require additional efforts to accelerate grid-scale solar deployment, including accepting higher bid prices than in recent procurements. As Table 1 shows, grid-scale solar would still cost less than rooftop solar even if grid-scale solar compensation doubled.

These policy shifts would come with considerable challenges and trade-offs for policymakers to weigh. Accelerating deployments may require overcoming constraints related to land use restrictions, interconnection delays, government capacity limitations, and local opposition to large solar projects (Moritz 2025). Reducing compensation to rooftop solar projects is likely to face opposition from the solar owners, developers, and third-party leasers who receive this compensation. Critics of reform will point out, with some justification, that cost-focused analyses may not fully capture important benefits that rooftop solar provides to electricity grids, such as distributed resilience.

Opportunity 3: Reduce Policy Duplication

Connecticut has a portfolio of clean electricity policies. Some policies complement each other in the pursuit of affordability and decarbonization goals, combining to help the state achieve targets more cost-effectively and equitably. Other policy combinations are closer to substitutes than complements, adding costs without meaningfully advancing decarbonization goals (Gundlach et al. 2019). While there are benefits of duplicative policies—they often serve different stakeholders and provide backstops if individual measures falter—reducing overlap can help reduce costs without sacrificing ambition.

Connecticut's current portfolio includes a cap-and-trade program, a renewable portfolio standard (RPS), and direct clean energy procurements.

- **Cap and trade:** The Regional Greenhouse Gas Initiative (RGGI) is a joint program among 10 Northeastern states[11] that requires fossil fuel generators to buy permits for each metric ton of carbon dioxide emissions, with a 30 percent reduction target for 2020–30 (Center for Climate and Energy Solutions 2025). Permits currently cost about $22.50 per metric ton, adding roughly 0.5 to 1 cents per kWh, or $4 to $7 on a typical monthly bill before accounting for the uses of permit auction revenue (see Appendix for details).
- **Renewable portfolio standard (RPS):** The state's RPS requires 30 percent of electricity to come from eligible renewable resources by 2025 (Connecticut DEEP 2025e). Compliance is met through Renewable Energy Credits (RECs). Electricity suppliers purchase RECs from renewable developers, providing a revenue stream that helps finance the projects. The costs of the RECs are ultimately paid by ratepayers. Excluding RECs that are "bundled" with procurements, the RPS costs ratepayers about 0.8 to 1.1 cents per kWh, or $6 to $8 per month on a typical bill (see Appendix for details).
- **State procurements:** Connecticut's Department of Energy and Environmental Protection (DEEP) runs competitive solicitations to secure clean electricity generation and energy storage. Utilities typically purchase the electricity and associated RECs at fixed prices and pass costs to customers.

These programs are not wholly redundant. Government revenues from RGGI (emissions permits are auctioned) fund efficiency and public-benefit programs. The RPS provides predictable revenue streams that encourage private investment. Procurements give regulators flexibility to seek out clean resources that keep the state aligned with its statutory targets.

Still, policymakers could pursue decarbonization without maintaining separate but overlapping goals for renewables, clean energy, and emissions. Streamlining these policies could reduce ratepayer costs while preserving climate ambition.

One option is to strengthen the state's primary approach to achieving its statutory targets—procurements supported by the RPS—while reducing the costs associated with RGGI.

Connecticut could reform its RPS so that targets in the 2030s include all zero-carbon sources, including nuclear. Broadening eligibility would expand the supply of RECs, potentially reducing costs to ratepayers and enabling program targets to be strengthened in line with the state's decarbonization goals.[12]

Meanwhile, the carbon price signal provided by RGGI's emissions permits currently has little effect on emissions or clean energy investment decisions in Connecticut or neighboring states. RGGI is often credited as a key driver of emissions reductions, so this point requires explanation.

Indeed, carbon pricing can be a highly effective tool to reduce power-sector emissions, working via two main channels: shifting existing generation from higher- to lower-carbon fuels (e.g., coal to gas) and improving the competitiveness of low-carbon technologies as sources of new generation.[13]

But Connecticut has no remaining coal, so a carbon price causes little shifting of existing generation sources.[14] And decisions about the procurement of large new sources of clean electricity generation are guided by statutory emissions targets, which are far stricter than RGGI.[15] Other New England RGGI states face similar policy environments.[16]

RGGI states are currently considering a new model rule for the cap-and-trade program, with stricter emissions caps that will raise the costs of emissions permits (Regional Greenhouse Gas Initiative 2025b). Alternatively, the New England RGGI states could scale back the ambition of the policy, which would reduce the costs that are passed along to ratepayers with little effect on emissions because of the current ineffectiveness of the carbon price signal.[17]

Any associated loss of government revenues from the RGGI emissions permit auctions—which are used to fund programs such as energy efficiency and equity initiatives—could instead be funded by general tax revenues. In that case, in addition to the reduced policy duplication, policymakers would need to consider additional factors, including the distributional consequences of shifting costs from ratepayers to taxpayers and the potential for the state legislature to defund these programs in the future.

Alternative approaches to reducing policy duplication are also possible. Policymakers could focus on reducing the costs from the RPS and procurement processes, which currently cost ratepayers more than RGGI, while coordinating with other states to align the RGGI emissions caps with decarbonization targets. In theory a cap-and-trade program could guide least-cost investment by allowing permit prices to rise to whatever level is needed to achieve the state's policy goals. In practice there is political resistance to high carbon prices, which is built into the RGGI program;[18] to achieve its statutory targets, Connecticut may need to continue relying on procurements and the RPS to identify and secure adequate zero-carbon generation.

Opportunity 4: Connect the Region to Low-Cost Electricity or Fuels

Clean electricity policies account for only a small share of residential electricity rates. The largest opportunities to reduce costs may be found in addressing the structural factors behind Connecticut's high prices.

As shown in Section 2, generation costs for Connecticut's largest utility are about 40 percent higher than in Pennsylvania, which has abundant local sources of fuel. Infrastructure that better connects Connecticut to nearby sources of low-cost energy can potentially provide meaningful benefits to ratepayers.

Putting decarbonization goals aside for a moment, two major opportunities stand out: additional electricity transmission that better connects the region to low-cost electricity generation elsewhere, such as Québec's hydropower, and new or expanded pipelines to bring natural gas from Pennsylvania's Marcellus Basin.[19]

New England already imports about 5 percent of its power from Canada, and several projects have been proposed to expand this share (ISO New England 2025d). The most advanced is the New England Clean Energy Connect (NECEC), a 1.2 gigawatt (GW) line running 145 miles from the Québec border to Lewiston, Maine. After nearly a decade of permitting battles (Dunkelman 2025), NECEC is nearing completion and could come online within a year. Massachusetts regulators estimate it will save residential ratepayers more than $1.50 per month (Mass.gov 2025b). Various other proposals for added transmission to Canada have been delayed or rejected.[20]

Proposals to expand natural gas pipelines are perhaps even more controversial. As noted in Section

2, limited pipeline capacity leaves New England chronically vulnerable to winter price spikes, when gas demand for heating surges and import capacity is constrained. One study found that pipeline projects that effectively double winter supply capability could cut Boston winter natural gas prices by 20 to 30 percent (S&P Global 2025). Actual proposals are smaller, such as the Algonquin Gas Transmission "Project Maple," which would expand existing pipeline capacity (Moritz 2024).[21]

Whether major new infrastructure contributes to affordability and decarbonization goals hinges on project design and policy context. Ratepayer impacts depend on cost, timeline, and financing. For instance, if utilities are guaranteed cost recovery under long-term contracts, customers could face stranded costs if capacity goes underused before the end of its life. These risks must be balanced against near-term savings from lower wholesale prices.

Additional Canadian hydropower would almost certainly boost regional decarbonization progress.[22] Pipelines are different: Cheaper gas could increase consumption, prolong dependence, and raise emissions.[23] However, to ensure alignment with decarbonization goals, pipeline expansions could be paired with other policy measures.

For example, clean energy standards for power and heating could create a predictable, declining path for natural gas use, since nearly all the regional demand for natural gas comes from these sectors.

A clean electricity standard, described earlier in the context of strengthening the state's RPS, would require a gradually increasing portion of the energy mix from zero-carbon sources. A clean heating standard could function similarly: Distributors of fossil fuels—including natural gas and oil—would be required to achieve the targeted levels of carbon intensity of delivered energy for heat. Making "clean heat" targets gradually more stringent over time would guarantee a phasedown of fossil fuels while allowing flexibility in compliance (e.g., electrification, cleaner fuels, efficiency). Massachusetts and Vermont have taken steps toward such standards, and a regional coalition could ease concerns about costs and workforce constraints (Mass.gov 2025a; Giles 2024) while ensuring any new pipeline capacity does not entrench long-term dependence on natural gas.

Regardless of policy design, transmission and pipeline projects will encounter major obstacles, including lengthy environmental review processes, siting laws that allow local opposition to delay or block projects, and resistance from environmental advocates concerned about landscapes, local communities, and the climate. Transmission projects have also been opposed by incumbent generators wary of competition from imports that could reduce wholesale prices (Prevost 2023; Ham et al. 2025).

Connecticut policymakers have generally signaled openness to such infrastructure projects, particularly transmission that would bring hydropower from Québec. Governors, regulators, and legislators have endorsed multistate transmission planning and expressed support for specific proposals (Connecticut DEEP 2023). Nevertheless, few projects have materialized.

To advance projects that promote affordability and decarbonization, Connecticut's policymakers may need to build stronger coalitions across geographic jurisdictions and levels of government (federal, state, and local). For transmission, that could mean formal deals ensuring that states and communities across the region receive a fair share of the projects' costs and benefits. For pipelines, it could involve long-term contracts or other commitments that give developers the financial certainty to build. In both cases, stronger government authority to equitably streamline siting and environmental review could help reduce the ability of individuals or groups to veto projects that serve economic, reliability, and climate goals.

Like the rest of the potential opportunities highlighted in this section, these changes would entail substantial tradeoffs. Policymakers must balance many factors beyond the dual challenges of affordability and decarbonization examined here.

Appendix: Assumptions Underlying the Analysis

This appendix outlines the assumptions underlying the analyses of the effects of clean electricity measures on Connecticut ratepayers.

A1: Cross Cutting Assumptions

Because program costs are typically spread across ratepayers, cost estimates depend on assumptions about total demand and typical household usage. This analysis assumes statewide demand of 29 million MWh in 2025 (see Figure 5) and average residential household consumption of 700 kWh per month (US Energy Information Administration 2025a).

A relevant benchmark for assessing the cost impacts of Connecticut's clean electricity procurements is the avoided cost of wholesale electricity generation. This measure reflects the market value of electricity that would otherwise have been purchased, along with the cost of maintaining reliable electricity. Estimates of avoided wholesale generation costs depend on a host of assumptions, including future fuel prices, infrastructure constraints, and whether policy goals such as decarbonization are considered. Drawing on recent market conditions and data from EIA (US Energy Information Administration 2025f) and the Avoided Energy Supply Costs in New England 2024 study (Synapse Energy Economics Inc. 2024), a range from 6 to 8 cents per kWh is used to reflect the cost of reliable electricity. This range is adjusted on a case-by-case basis to reflect additional avoided costs, such as for RECs or for electricity distribution (in the case of rooftop solar).

A2: Regional Greenhouse Gas Initiative (RGGI) Cap-and-Trade Program

As of the September 3, 2025 auction, RGGI permits were priced at $22.50 per metric ton of CO_2 (Regional Greenhouse Gas Initiative 2025a). The analysis assumes a range of $20 to $25.

Since natural gas plants generate nearly all the fossil fuel electricity in the region, compliance costs are approximated by multiplying RGGI permit prices by 0.45 metric tons per MWh, which is a representative emissions rate for a natural gas power plant (US Environmental Protection Agency 2019).

To estimate ratepayer impacts, the analysis adjusts for the fact that natural gas is not always the marginal (i.e., price setting) generation source and permit costs may not be fully passed through to ratepayers. It assumes 60 to 90 percent of compliance costs are incurred by ratepayers (Bai and Okullo 2023).

Resulting cost estimates range from 0.54 to 1.01 cents per kWh, or $3.78 to $7.09 per month for a typical household. Importantly, these estimates exclude benefits from RGGI revenue uses, which include programs that encourage the more efficient use of energy. Any comprehensive analysis of the current RGGI program (which is not the goal of this analysis) should include these benefits.

A3: Renewable Portfolio Standard

Connecticut's RPS requires electricity suppliers to source a specified share of their sales from qualified renewables. The Class I requirement, which is the focus of this analysis, is 30 percent in 2025 (Connecticut Department of Energy and Environmental Protection [DEEP] 2025e).

Recent Class I Renewable Energy Credit (REC) prices range from the high $30s to approximately $40 per MWh (or 4 cents per kWh), near the Alternative Compliance Payment that serves as an effective price ceiling (Barbose 2024).

Some RPS compliance is met with RECs "bundled" into state procurement contracts. Because ratepayers already cover those costs through procurement charges, this analysis assigns zero additional cost to bundled RECs.

Public data do not specify what share of RPS compliance comes from bundled RECs. Based on the scale of state procurements relative to total RPS obligations, the bundled share is likely modest. This analysis assumes 5 to 20 percent bundled RECs (equivalently, 80 to 95 percent unbundled).

The total annual cost to ratepayers of RPS compliance is then estimated as follows:

- The market price of RECs ($35 to $40 per MWh)
- multiplied by the unbundled REC share (80 to 95 percent)
- multiplied by annual state load (29 million MWh)
- multiplied by the RPS target (30 percent)

These calculations yield an estimated cost of $244 to $331 million per year, which translates to 0.84 to 1.14 cents per kWh, or $5.88 to $7.98 per month on a typical residential bill.

A4: Offshore Wind Energy

Offshore wind energy has been a key focus of some recent DEEP procurement efforts. Revolution Wind, a 704 MW project off Rhode Island, is slated for 2026 operation, although the federal government has attempted to halt work on the project. Connecticut has two 20-year power purchase agreements (PPAs) covering a combined 304 MW, at fixed prices for the electricity and associated RECs of 9.95 cents per kWh (for 200 MW) and 9.843 cents per kWh (for 104 MW), for an effective average of 9.913 cents per kWh (Hardy 2024).

At an assumed capacity factor of 46 percent (Segal and Lee 2025), the state's contracted share is roughly 1.2 TWh annually, or 4.2 percent of current statewide electricity load.

Compared with avoided wholesale energy costs of 6 to 8 cents per kWh, the Revolution Wind contracts imply a premium of about 1.9 to 3.9 cents per kWh. However, when the avoided cost of RECs (2.8–3.8 cents per kWh) are accounted for, this premium is nearly eliminated.

A5: Grid-Scale Solar

DEEP has procured 710 MW of grid-scale solar since 2011 (excluding 518 MW procured in 2024, still under negotiation). Of that, 450–600 MW may now be operating (Connecticut DEEP 2025d). Other non-DEEP projects are excluded from this analysis.

A recent study from Lawrence Berkeley National Laboratory estimates ISO-NE grid-scale solar capacity factors at 18 percent (Seel and Kemp 2024). Using this figure, operating grid-scale solar covers 2.4 to 3.3 percent of state demand.

PPA pricing for grid-scale solar varies widely given the rapidly declining costs of solar and different policy and resource environments across regions, among other factors. DEEP data for Connecticut's pre-2020 projects show PPA prices falling over time, with a weighted average of 8.6 cents per kWh. Post-2020, much of the country has seen PPAs in the range of 5 cents per kWh, but the Northeast has fewer, higher-priced contracts (Seel and Kemp 2024). One study suggests recent ISO-NE PPA pricing, which would account for ongoing industry headwinds, exceeds 11 cents per kWh (Kennedy 2025). To reflect these uncertainties, this analysis assumes a range of compensation values for Connecticut's existing grid-scale solar of 8 to 10 cents per kWh.

Net costs are estimated by multiplying demand shares by the difference between contract prices and avoided costs, which are assumed to include both the avoided cost of wholesale generation (see Section A1) and the avoided cost of RECs (see Section A3). Results range from −0.1 to 0.0 cents per kWh, or −$0.65 to $0.27 per month for a typical household.

A6: Rooftop Solar

Until 2022 Connecticut compensated rooftop solar with a traditional net metering policy under which solar customers could export excess generation to the grid and receive full retail rate credits that offset their bills. In 2022 Connecticut replaced net metering with the Residential Renewable Energy Solutions (RRES) Program. Under RRES, residential solar customers choose between two options (Eversource, n.d.):

- *A Netting Tariff*, under which solar generation used on-site offsets consumption at retail rates and excess generation creates on-bill credits at retail rates, plus a small additional charge for rooftop solar production.

- *A Buy-All Tariff*, under which the utility purchases all solar generation at a fixed rate per kWh while the customer buys all electricity used from the utility at retail price.

In both cases additional compensation is available for households that are income eligible or in distressed municipalities.

Connecticut also runs a Non-Residential Renewable Energy Solutions (NRES) program for commercial and industrial solar systems. The RRES and NRES programs are similar, including the two tariff options, but compensation from the programs differ, in large part because of the lower retail rates for commercial and industrial uses (Eversource 2025).

As of June 2025, Connecticut had 1,275 MW of small-scale (less than 1 MW) PV capacity (US Energy Information Administration 2025e). ISO-NE estimates a capacity factor for rooftop solar in Connecticut of 14.7 percent (ISO New England 2024b). Using that figure, rooftop solar currently supplies about 5.7 percent of state demand. Given the uncertainties surrounding these estimates, this analysis assumes a range of 5 to 6.5 percent.

The analysis assumes that all customers select the netting tariff, which appears to be a better deal for most residential customers, and therefore all solar customers effectively receive compensation at the retail prices of electricity (minus a charge of 0.5 cents per kWh for rooftop solar production). Solar customers grandfathered into the old net metering program receive compensation at retail rates as well.

As shown in Figure 1, recent retail prices in Connecticut have been around 30 cents per kWh for residential customers, 25 cents for commercial customers, and 19 cents for industrial customers. Public data do not provide the portion of Connecticut rooftop solar customers in each customer class, but national data show residential customers account for about two-thirds of small-scale solar customers (US Energy Information Administration 2023a). This analysis therefore assumes a range of compensation values for rooftop solar of between 26 and 28 cents per kWh, minus the 0.5 cents per kWh solar charge.

The costs of compensating rooftop solar owners are spread across all ratepayers. Net costs are estimated by multiplying demand shares by the difference between the estimated compensation and avoided costs. Like grid-scale solar, this analysis assumes avoided costs include both the avoided cost of wholesale generation (see Section A1) and the avoided cost of RECs (see Section A3).

As distributed, or "behind-the-meter," electricity generation, the avoided cost of rooftop solar is a complex topic that depends on grid location, time of production, system conditions, and other factors. Connecticut regulators have identified several additional, though uncertain, sources of avoided cost for distributed generation. The "Value of Distributed Energy Resources in Connecticut—Draft Study" notes that distributed resources may reduce line losses (because electricity generated and consumed near the point of use avoids energy lost as heat during transmission and distribution) and provide modest benefits by deferring transmission or distribution capacity upgrades (on the order of 1 to 2 cents per kWh). The study also cautions that distributed generation can impose offsetting grid costs, such as for voltage management, protection coordination, and other system reinforcements to accommodate bidirectional power flows (Connecticut DEEP and Connecticut Public Utility Regulatory Authority 2020). To reflect the net effect of these uncertain impacts, this analysis adds a small upward adjustment of 0.5 to 1 cent per kWh to the avoided cost estimate for rooftop solar.

Multiplying demand shares by the difference between compensation and avoided costs yields net costs of 0.6–1.2 cents per kWh, or $4.45–$8.28 per month for a typical household.

Notes

1. More granular comparisons are not possible because of data limitations.
2. Pennsylvania is not immune to the upward pressure on electricity prices facing Connecticut and other states. Prices in the PJM "capacity market," which is used to ensure sufficient electricity supply will be available to meet future demand in peak periods, have increased to record levels in 2025, which will result in higher electricity prices in Pennsylvania and across the region (Howland 2025).
3. Alternatively, some generators burn costly and emissions-intensive oil as backup fuel.
4. In 2025 the state legislature enacted a law authorizing the state (through the Bond Commission) to issue $155 million in bonds that will partially relieve the "Public Benefits Charge" on electricity bills. More specifically, $125 million will cover unpaid/hardship bills accrued during the pandemic and $30 million will support the state's electric-vehicle charging infrastructure. While this moves a subset of policy costs off ratepayers, the majority of public benefit charge-funded program costs remain (Connecticut General Assembly 2025).
5. Electricity demand is increasing throughout most of the country, but in other regions, factors such as data centers and new manufacturing facilities are major drivers of growing electricity demand.
6. The connection between national benchmark (Henry Hub) and local natural gas prices is complicated, but as a simple rule of thumb, a $2 per million Btu increase in natural gas prices corresponds to roughly 1 cent per kWh of higher prices for Connecticut ratepayers, which is about 3 percent of residential retail rates.
7. The increase in demand for LNG exports is being driven by both expanding global import needs (particularly in Europe and Asia) and rapid US export infrastructure development, including new liquefaction capacity coming online in Texas and Louisiana (US Energy Information Administration 2025a).
8. Contracts with electricity producers are commonly expressed in terms of dollars per MWh—for example, the Millstone contract is typically described as $49.99 per MWh. However, to be consistent with the electricity rates shown in Section 2, this report converts all such contract terms to cents per kWh.
9. Connecticut has taken some initial steps toward building new nuclear power plants. A law

passed in 1979 put a moratorium on the construction of new nuclear power plants in the state (Moritz 2022). In recent years the state has created various exceptions to the law and even support for those working on plans to build new advanced nuclear facilities (Pennello 2025).

10. Adding substantial generation from intermittent sources such as solar will require careful planning by regulators and grid operators. The accompanying additions of storage and other technologies to ensure continued reliability will add costs to ratepayers for both grid-scale and rooftop solar generation that are beyond the scope of this analysis.

11. Pennsylvania's RGGI regulation is under ongoing litigation, which is preventing the state from participating in the aspects of the program described here.

12. Making this change before 2030 would raise concerns about additionality, in that it would create a windfall for the existing nuclear power plant. However, the Millstone nuclear power plant's current contract expires in 2029, so allowing it to earn clean energy credits thereafter could affect the terms of a renewed agreement and help ensure the plant's continued operation at reasonable cost.

13. While carbon pricing can also reduce emissions through other mechanisms—such as efficiency improvements at fossil fuel plants or reduced consumption because of higher prices—these effects tend to be relatively small.

14. In electricity markets such as ISO-NE, grid operators select which power plants run based on their operating costs, with the cheapest plants selected first. Carbon-free sources such as nuclear, solar, and wind have relatively low operating costs, while fossil fuel plants are more expensive to run. Adding a carbon price increases the cost of operating fossil fuel power plants; therefore, a carbon price can influence whether a coal power plant or a natural gas power plant is cheaper to run. However, because the carbon-free sources already have lower operating costs than the natural gas power plants, a carbon price does little to affect the decisions of grid operators about whether to select natural gas or the carbon-free sources at any given time. (Note that this analysis ignores oil, which is a very small source of generation in Connecticut and the regional market.)

15. For example, Connecticut has procured offshore wind at a contract price of around 9.9 cents per kWh—far above the cost of natural gas, even after accounting for RGGI's carbon price. RGGI emissions permits of approximately $20 per metric ton translate to around 0.9 cents per kWh for a natural gas power plant (see Appendix).

16. The last remaining coal plants in the region are in New Hampshire, and they provided less than 1 percent of the state's electricity generation in 2023 (US Energy Information Administration

2024). Similar to Connecticut, Massachusetts, Rhode Island, and Maine have mandates for greenhouse gas emissions reductions and pursue clean electricity deployments primarily through procurements or standards (ISO New England 2024c).

17. Connecticut could do little to reduce RGGI costs unilaterally because the electricity prices are set within the broader ISO-NE region, so ratepayers in Connecticut pay for the emissions permits purchased by generators in other states.

18. Indeed, when the price of RGGI emissions permits exceeds certain levels, additional emissions permits are released, which decreases the stringency of the program.

19. Additional opportunities may exist to connect ISO-NE to other regional grids in northern Maine, New York, or the mid-Atlantic. Transmission lines to Canada have received more attention largely because of Québec's supply of carbon-free hydropower.

20. The New England Clean Power Link, a fully permitted ~1 GW underground and underwater line beneath Lake Champlain through Vermont, was canceled in 2024 after failing to secure power purchase agreements and financing (Ormsbee 2024). The Northern Pass proposal, which would have transmitted about 1.1 GW from Québec into Massachusetts, was rejected by the New Hampshire Site Evaluation Committee in 2018, effectively ending that project as well (Rayno 2023).

21. Another example is the Iroquois Pipeline expansion, which is a proposal to add compressor station upgrades at existing sites to significantly increase the pipeline's capacity.

22. The use of fossil fuels for electricity production in Québec is small, so there is little concern that additional imports of clean electricity into New England would lead to increased emissions from power generation in Canada.

23. On the other hand, natural gas from pipeline is less carbon-intensive than oil or LNG, which are common alternative generation sources used in winter months. Expanding pipeline infrastructure could therefore reduce emissions on net.

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