CONNECTICUT LEAGUE OF CONSERVATION VOTERS EDUCATION FUND

How Did We Get Here?

Connecticut Powers New England

CCEA
University of Connecticut

Peter E. Gunther, Senior Research Fellow
Fred Carstensen, Director

Connecticut Center of Economic Analysis
School of Business

University of Connecticut

Background on the Connecticut Center for Economic Analysis

Origins

The Connecticut Center for Economic Analysis (CCEA) was established in 1992 at the request of then-Governor Lowell Weicker. Its primary mission was to provide state government and citizens with reliable data regarding the local economy and to evaluate the potential economic impacts of proposed legislation and strategic investments.

Structure and Location

CCEA is a University Center located within the School of Business at UConn. It specializes in economic impact and policy analysis studies, as well as advising clients on business strategy, market analysis, and related topics, with particular attention to the economic and business dynamics of Connecticut.

Methodology

The center conducts quantitative analysis on a variety of economic issues, including labor markets, transportation, tax policy, and technology. It utilizes dynamic economic modeling — specifically software from Regional Economic Modeling, Inc. (REMI) — to project the long-term effects of economic events and policy changes.

Leadership

The center has been directed by Fred Carstensen, a professor of finance and economics at UConn, since 1998. Under his leadership, CCEA has produced more than 175 studies for a wide array of clients, including UConn itself, executive and legislative agencies of Connecticut, development authorities, foundations, and businesses.

Range of Work

Studies, now numbing more than 200, have ranged from sophisticated, long-term economic impact analyses of proposed developments, such as the expansion of Tweed Airport, to assessments of the state's business tax environment, to comprehensive build-out scenarios for regional development, to projecting the value of social programs such as childcare and provision of diapers to low-income households. Notable studies have examined issues such as the economic impact of state parks and forests, the travel and tourism industry, stranded tax credits, which was the basis for the $400 million initiative that kept Pratt& Whitney in Connecticut, , and the UConn Health Center; which was the foundation for the $850 million initiative to raise the competitive position of UConn Health, which then led to the JAX Lab colocation.

In short, CCEA has served as Connecticut's independent economic research hub for more than three decades, helping shape public policy and investment decisions across the state.

Executive Summary

Governor Malloy, in 2012, when announcing his energy initiative to expand natural gas supplies to Connecticut, declared that it would make Connecticut businesses more competitive, create jobs, and "preserve and protect our environment." The initiative drove a dramatic surge in natural gas supplies to the state, about 50%. This investment did result in conversion of the last coal-fired power plant and initially helped to reduce significantly greenhouse gas emissions. But local conversion to natural gas lagged, while that large increased supply attracted a startling expansion of investments in power generation—three major natural gas generation plants. However, the resulting kilowatts largely flowed to other states, delivering little benefit to Connecticut even as it made the state the power center of New England. This meant that the well-intended expansion of generation capacity sharply slowed the environmental benefits flowing to Connecticut, delivered no reduction in rates, and generated no significant benefits to Connecticut's economy.

That expansion in generation necessarily drove new investments in transmission and distribution—even as in-state consumption declined—which meant Connecticut's average residential rates went up, because rates cover the costs of expanded infrastructure for transmissions and distribution. The result is residential rates among the highest in the nation. Average commercial rates are similarly among the highest.

The report below helps us understand how we got to this point. How is it that this energy initiative and expanding natural gas supply did not make us better off? Why, arguably, did it make Connecticut worse off because of the environmental impact? Why would expanding natural gas supplies, already vastly larger than needed to meet Connecticut's needs, help Connecticut? Understanding how we got to where we are is foundational to assessing what policies and initiatives we adopt going forward.

How Did We Get Here?

Connecticut vs Northeast Region

Connecticut ended 2025 delivering nearly half of New England's generated electricity, significantly more than any other New England state. How does exporting so much power to other states benefit Connecticut?

Reliance Upon Natural Gas vs. Advancing Interests of Connecticut Ratepayers

Why does Connecticut have such high rates? What cost does this role as New England's leading power generator impose on the state? And given the inherent volatility of natural gas prices and risks to steady supplies flowing through long-distance pipelines, why isn't the steady, costless fuel that sunlight, wind, and the warmth of the earth itself provide the better option?

Expanding Current Policy vs. Looking to the Future

Given the role Connecticut already plays in the power generation that supports New England and the price it pays in environmental pollution and thus public health, how would doubling down on natural gas benefit the state? Why should Connecticut, which has benefited so little from becoming the largest kilowatt generator in New England, expand that role even further?

Where Are We: The Costs of 2012 Natural Gas Expansion

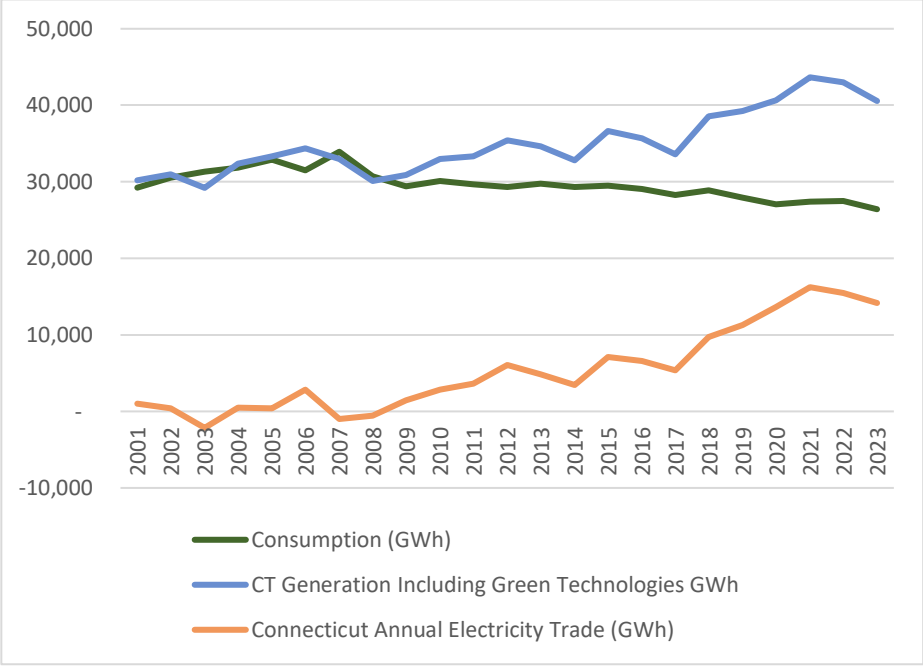
The Cost of Greater Generation than Consumption

The 2012 investment and policy of expanding natural gas supplies drove an unintended but very significant divergence in Connecticut's electricity consumption vs generation.

Chart 1 reveals that Connecticut electricity generation 2001-2022/4 rose by nearly half following Governor Malloy's energy initiative to expand natural gas supplies flowing into the state. The nearly 50% increase in supply was intended to induce businesses and households to switch away from oil and propane, lowering both costs and environment pollution. Instead, that copious gas supply resulted in unintended major investments to build major new generation capacity, as well as permitting conversion of the last coal-fired power plant. Increasingly, as Connecticut expanded generation, while in-state consumption ebbed, those new kilowatts flowed out-of-state, swelling by a factor of 17 by 2024, from 993 GWh to 17,410 GWh.

Table 1 below shows the shares of 2024 generation for the six New England states. Connecticut's position stands out, especially in comparison with Massachusetts, New England's largest and most dynamic economy. Massachusetts generates relatively little power, importing almost 60% of the electricity its economy needs. They are one of the largest relative power importers in the nation, as they continue pursuing a long-run emphasis on converting to green technologies to achieve rate stability, even decline.

Chart 1 Connecticut Electricity Generation and Consumption 2001-2022 (GWh)



1

[1] Sources: https://www.gridinfo.com/search/eia?ids%5B%5D=SEDS.ESTPP.CT.A (Oct 30, 2025),

Table 1: Share of New England Generation: 2024 (%)

State	Net Generation (99.5 TW/h)
Connecticut	44.97
Maine	14.72
Massachusetts	21.01
New Hampshire	17.02
Rhode Island	0.00
Vermont	2.27

What is striking is that there is little evidence that having so much generation capacity in Connecticut has benefitted the state's economic vitality and growth. In spite of the striking growth in generation capacity, Connecticut's payroll growth ranks 50th between 1989-2025; the state's payroll employment has never recovered to the level of March 2008, before the Great Recession. All those kilowatts didn't give the state's economy more vitality, make its businesses more competitive, or generated more jobs.

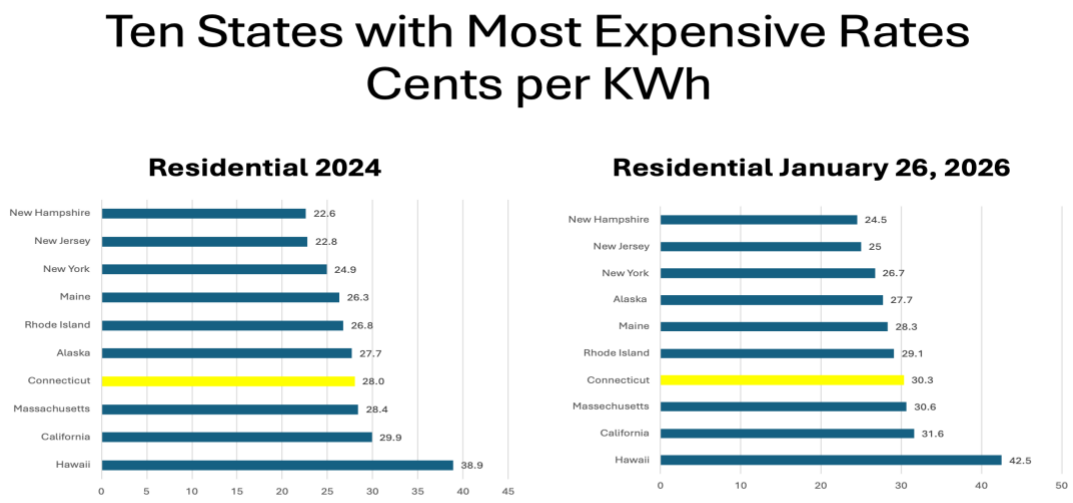
The Financial Cost to Connecticut Ratepayers

The costs speak for themselves as Connecticut has continued to rank among the highest for residential and commercial rates.

In 2024, Connecticut's average residential rate was 28.0 cents per KW/h, fourth highest among all states. Demonstrated in Chart 2a, rates in the northeast were relatively high compared to the rest of the United States. The 2024 average for the country was 16.8 cents per KW/h. All New England states' rates, except Vermont, were among the top ten highest and remained there in 2026 with Connecticut rising to 30.3 cents per KW/h.

Chart 2a:

https://fred.stlouisfed.org/series/CTPOP (Oct 30, 2025),
https://www.eia.gov/electricity/data/browser/#/topic/0?agg=2,0,1&fuel=vvs1u&geo=o0a&sec=008&linechart=ELEC.GEN.ALL-US-98.A&columnchart=ELEC.GEN.ALL-US-98.A&map=ELEC.GEN.ALL-US-98.A&freq=A&ctype=linechart&ltype=pin&rtype=s&maptype=0&rse=0&pin= (Oct 30, 2025)

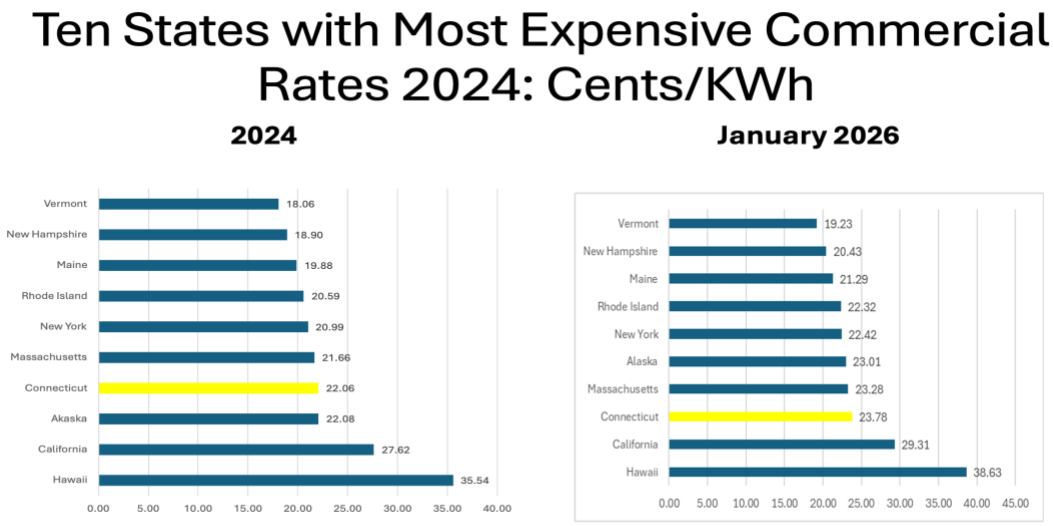


2

Similarly, in 2024, Connecticut's commercial rates, in Chart 2b, ranked fourth highest among all states. Alaska's commercial rates improved from third to fifth most expensive, while Connecticut's commercial rates became the third highest among states by January 2026.

[2] Source: US Energy Information Agency (EIA) compiled by CCEA.

Chart 2



3

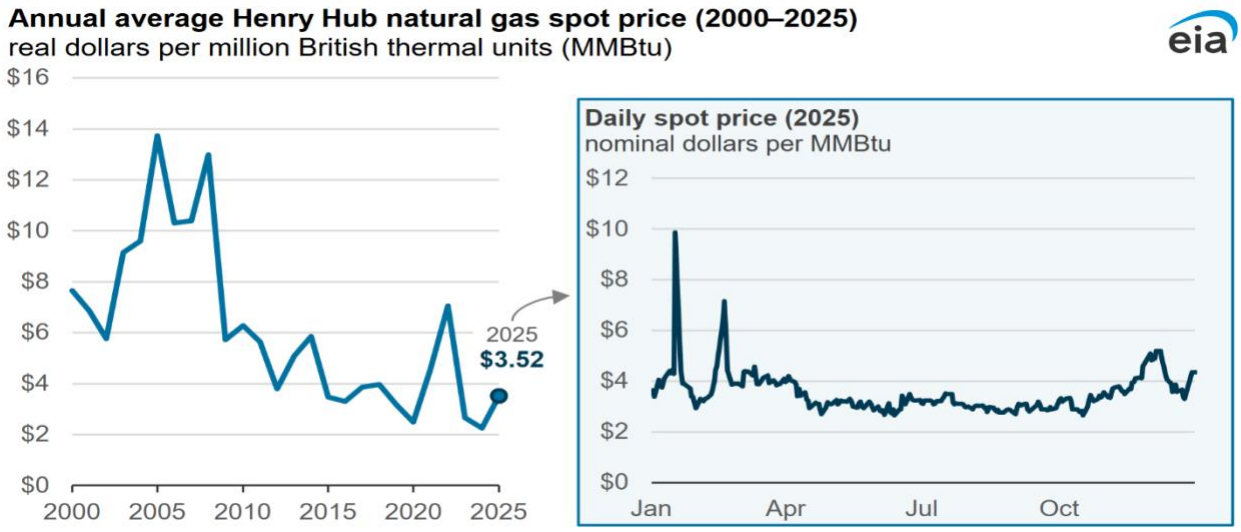
The Cost of Instability and Uncertainty

The presumption that simply increasing the supply of natural gas flowing to Connecticut will lower rates is baseless. Long-term projections see natural gas prices rising as total demand grows while New England remains vulnerable to severe weather events.

The chart below reveals the impact of the fracking revolution which brought down the price of natural gas significantly prior to COVID and the Russian invasion of the Ukraine. But prices are now trending back up with rapidly expanding power demands from new data centers, as the natural gas market becomes more integrated, and LNG exports grow into the rapidly expanding premium-priced international markets. Worse, the global disruption to energy supplies and markets the war in Iran is driving is now projected to raise fossil fuel prices for years, even decades into the future. Energy prices in many other states, such as New Jersey, are now seeing surging spot prices. Most recently the January natural gas price per MMBtu spiked at $7.72 before declining to $3.62 and $3.04 in February and March, respectively.

[3] Source: Ibid.

Chart 2c:



Source: U.S. Energy Information Administration via FRED®

The Cost of Distribution and Outdated Infrastructure

Natural gas infrastructure requires significant upkeep and major cash infusions to remain viable and keep up with the transmission necessary to make the economics work on a regional basis.

As of 2026, Connecticut delivery charges account for nearly 65% of residential electric bills; the national average is significantly lower, about 50%. Delivery rates have nearly doubled in the last 15 years, driven in large measure by the rapid expansion of generation in the state which led to significant new investments in transmission and distribution to send that new power to users (see the summary below) even as in-state consumption fell, necessarily raising rates under the state's old volumetric rate structure.

While transmission investments are largely shared across ISO-NE states, distribution impacts just the state rates. In addition, Connecticut, like other New England states, mandated public benefit charges, based largely on efforts to subsidize the shift to renewables and thus improve health and longevity.

To renew aging grid infrastructure between 2016 and 2024, the New England region's transmission organizations invested more than $9 billion in transmission projects. These investments addressed reliability and resilience needs that ISO-NE identified and replaced aging transmission infrastructure.[4] Since 2015, annual transmission costs have grown 72% and now make up 10-11% of the typical Connecticut residential customer's monthly electricity bill.[5] We should reemphasize that demand in-state has been falling, so paying for those billions in infrastructure investments in the context of contracting volume necessarily translates into higher

[4] The actual spend on new transmission buildout in the region is even higher because these numbers do not include the costs of a subset of asset condition projects that individually cost less than $5 million.
[5] CT GENERAL STATUTES – SECTION 16A-3A 2025 INTEGRATED RESOURCES PLAN Transmission Solutions White Paper.

rates. The volumetric structure of Connecticut rates is seriously outdated, based on an old, centralized structure for generation, and one that penalizes rate payers as distributed green power generation grows.

Notably, despite the expansion of Connecticut capacity to nearly 10,000 gigawatt hours, with utilization averaging less than 50%, the absence of natural gas storage or grid-scale battery storage still leaves the system vulnerable; the system stressed on particularly cold days in the northeast when demand for natural gas surges to support heating, competing with power generation, forcing dual-fuel units to switch to diesel and high-priced peakers to come online.

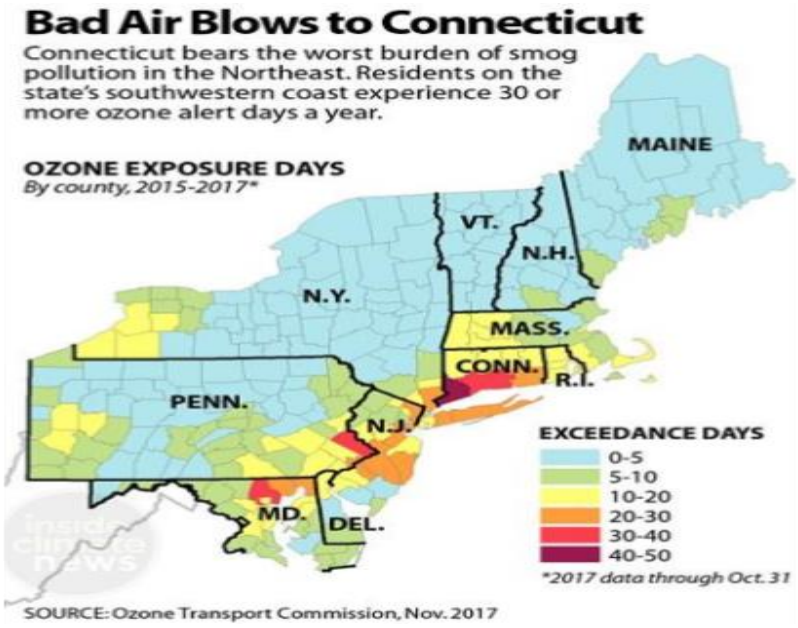
The imbalances that flowed from the increased natural gas supply speak to the failure of policy to evolve in response to the economic forces that have enabled and encouraged emerging low-cost green technologies. Given these outcomes, why would doubling down on natural gas supplies, following a past policy that clearly failed to lower rates or benefit the economy, address the fundamental issues Connecticut faces?

The Cost of Expanded Natural Gas Generation on the Public's Health

It must be understood that residential exposure to pollution, at levels that could be avoided, must be given serious consideration amongst economic discussions given how public health weighs heavily on financial stability.

Map 1 offers a stark picture of the challenge of air pollution in Connecticut. Note that this pollution is concentrated in the state's most populated regions, thereby increasing adverse health effects.

Map 1:



While many sectors contribute to emissions, sending so much of the power generated in-state out-of-state does mean that Connecticut citizens endured pollution costs from 7.2 MMTCO2e on additional emissions. In 2025, the World Bank values these CO_{2e} emissions from electricity generation at $506.8M and another $245M for domestic consumption. Electricity CO_{2e} emission generate costs of $209.62 per capita annually in Connecticut but only $115 in Massachusetts. *Note that energy consumption in Connecticut itself has been declining since 2007, meaning that public health costs in the state resulting from shipping power out-of-state have been rising*.

The obvious cost to Connecticut from hosting this large generation capacity is a cost to the quality of life for more than 3.6 million residents. It is they, not the population in the rest of New England, that lives with the greenhouse gas emissions and thus emphatically incurs these public health impacts.

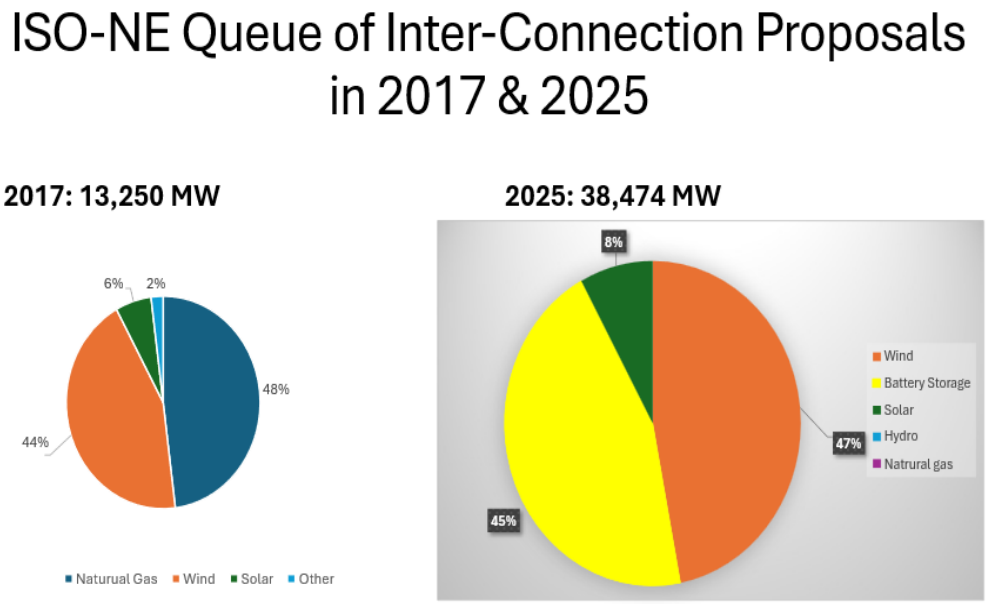
The Path Forward

The Opportunities Already Visible

The greening of electricity generation has begun in New England, using the free fuel wind, solar, battery storage, and geothermal deliver to provide highly reliable power.

ISO-NE projects a significant, continuing shift to green technologies. Perhaps most visibly, from 2017 to 2025, ISO-NE queue of inter-connecting proposals nearly tripled from 13,250 MW to 38,474 MW. Critically, 45% of the 2017 proposals original relying on natural gas switched to grid-scale batteries. With Revolutioary Wind operating at up to 90% of Capacity since March 13, 2026, wind project shares have scaled up. Making batteries accessible from alternative prime driver generators, enhance reliability of the transmission system.

Chart 3:



Source: ISO-NE Interconnection Request Queue.

The Promise of the Shift to Alternative Energy

The increasing role of green technologies, with systematically falling costs/kilowatt, promises a future of stability and even falling rates because the fuel—the typical driver of volatility in rates—for these technologies is free. The capital cost of building these technologies is the primary cost; once installed they also mean energy independence.

The good news is that competitive green generating technologies are coming online. This promise of shifting to these technologies for generation is resulting from continually evolving

economic landscape, and Connecticut is positioned to take advantage of its geography and the critical opportunities available to policymakers prepared to act.

Launched at 90% of its full capacity on March 13, 2026, the Revolutionary Wind project will be fully operational by year's end. DEEP and Revolutionary Wind both project that, when the project is fully operational, it will save Connecticut and Rhode Island consumers $400 to $500 million annually.[6,7] Reflective of their ownership shares, about 30% to Connecticut, 70% to Rhode Island.

Operating in tandem with batteries, solar panels can lower costs when operating behind the meter (BTM) or networked onto it. Unlike solar farms owned by utilities, privately owned solar generation with short distance transmission increases the electricity market share of BTM, thereby, curtailing utility market shares. Yet transmission networks can be positioned to provide services to solar micro-networks by including batteries to meet daily, seasonal subscriber requirements as well as emergency back-up, and shared cost-effective access for solar surpluses to network subscribers.

However, the current regulatory volumetric pricing structure needs to be revised with rates defined and set by each element of supply. Doing so will require incorporating not only operating considerations but also sharing in networking capital expenditures.

Both solar and battery technologies have been making dramatic progress, systematically and continuously reducing per-kilowatt costs. Swanson's Law, like Moore's Law, has accurately captured the sustained improvement in solar technologies, reducing costs 50% for every doubling of instillation. More broadly, the available mix of alternative approaches have been and will continue to reduce costs while assuring resilience and reliability.

Legislators have already shown how they are positioned to take action to make sure all communities share in the goal of reduced costs through the implementation of progressive alternative energy policies that have already allowed all communities have access to alternative energy sources. This included the creation of a 2018 program to facilitate low-income clients and/or subscribers occupying properties not suited to adopting solar to share in the adoption of relatively low-cost solar generated electricity through DEEP's "Shared Clean Energy Facility" (SCEF). Before even recognizing the environmental benefits for vulnerable communities, the annual savings of $0.025/Wh will contribute to lower monthly billings to subscribers over 20-years.[8] When fully operative and at Hartford's sun exposure levels applied to the State, annual supplements to subscriber invoices could reach $67 M.[9] This is a valuable initiative, both supporting development of solar capacity and facilitating the inclusion of low-income households in the economic benefits.

Failure to meet emissions standers was tested during and following a severe storm on January 25, 2026, when utilities received special permission with extensions to emit until and including February 14. Connecticut CO_2 emissions from electricity generation peaked at 150.57 MTs/Min

[6] Revolution Wind Begins Delivering Power to New England.
[7] DEEP Stoppage of Revolution Wind Project Will Increase Costs for CT and New England Ratepayers Make Grid Less Reliable.
[8] https://www.eversource.com/residential/save-money-energy/clean-energy-options/scef-program
[9] Hours of Solar power per day in Hartford CT - Search

on January 25, subsided slightly a day later to a peak of 149.78 MTs/Min, and a week later to 118.21 MTs/Min. On February 8th they declined to 115.22 MTs/Min and with the closure of the exception to emission rules on February 15 fell to 63.34 MTs/Min[10], 22 % of peak roughly, 3.58 $MMTCO_2$ emissions costing $196 M over the three weeks of exceptions.

Evaluating Successful Policy Initiatives

Policymakers should seek stability and reliability to drive costs down, while remaining vigilant as to how policies impact public health compared to alternative options available.

Understanding how Connecticut got to where it now is creates the foundation for assessing the best path forward. The expansion and overreliance on natural gas did initially reduce rates, but that expansion led to unintended investments in new power generation, which drove additional infrastructure investments results in stubbornly high rates. And those new kilowatts in large measure flowed to other states with little economic benefit to Connecticut itself to offset environmental damage. The history of natural gas supplies argues expansion will not deliver any cost savings. The expansion will not help families grappling with an affordability crisis and needing reliable power and predictable energy prices. These factors should inform and frame the discussion of future policy and whether the focus ought to be on greener, more efficient, less volatile energy sources.

The significant value and opportunity of green generating technologies is that environmental damage is minimal, and they minimize pricing spikes because fuel is free, particularly with geothermal facilities delivering constant heat or even electricity. Appropriate networking and grid-scale batteries ensure that timely supplies are available to meet above average demands relative to constant geothermal supplies as well as marketing surplus geothermal generated electricity over the network.

Solar and wind fuel costs are similarly zero, but both produce variable amounts depending on the weather. Grid-scale batteries are needed to back up reliablely the networked system. Future networking can recharge battery supplies from any temporally underutilized generator on the network to be determined from past records least costly generation including transmission to quickly recharge batteries

Shifting toward solar, offshore wind generation, batteries, geothermal, and enhanced networking is already reducing costs and CO_{2e} emissions.

All green technologies rely on *free* fuel--wind, light, the heat of the earth--and thus offer price/cost stability and thus vastly reduced risk of either supply disruption or price volatility and surges natural gas imposes. The only cost to green technologies is capex and maintenance, offering long-run rate stability, even decline.

So long as we remain dependent on natural gas, we are subject to supply and price risks. Expanding upon the status quo will increase the risk of both supply issues and price volatility and surges. There is no clear math or credible research that shows that increasing natural gas supplies offers a path to lower or stable rates.

[10] Real-Time Maps and Charts - ISOExpress.

The research included in this paper reveals a clear, grave concern about an approach that previously did not benefit; it seems impossible to believe doubling down would benefit Connecticut. There are better approaches that achieve competitive, economic, and environmental goals. Study II explores those pathways.

Bottom line: The only credible energy future for Connecticut that delivers both stable, even falling rates, and little risk of interruption, is multiple green technologies, relying on costless fuel, with battery backup.