ppi radically pragmatic

1919 M Street NW, Suite 300
Washington, DC 20036
Tel: 202-525-3926
Fax: 202-525-3941
info@ppionline.org

NEW YORK'S CLIMATE CROSSROADS: ASSURING AFFORDABLE ENERGY

By Neel Brown and John Kemp
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INTRODUCTION: THE CHALLENGE OF BALANCING AMBITION WITH REALITY

New York has established some of the nation's most ambitious decarbonization targets, positioning itself as a leader in climate policy. However, the immense economic burden and practical challenges of implementing these mandates threaten their political viability. As the costs of this transition fall heavily on ratepayers and working families, a critical tension emerges between state-level climate objectives and the everyday financial realities faced by New Yorkers. This paper analyzes the state's progress toward its climate targets, diagnoses the underlying pressures on its energy system, and evaluates more pragmatic policy pathways that can align climate goals with economic sustainability for its residents.

New York's historical success in reducing emissions was achieved largely through the cost-effective strategy of retiring coal-fired power plants and replacing them with natural gas generation. The state is now entering a much more difficult and expensive phase, focused on displacing firm, base-load energy sources like natural gas generation with intermittent renewables like wind and solar. This shift fundamentally alters the economic and political calculus of decarbonization, raising questions about the feasibility of the current strategy and its impact on consumers already facing high energy prices.

To fully understand the challenges ahead, it is essential to first appreciate New York's unique high-cost and high-efficiency energy profile. The latter is not a story of a decarbonized grid won by environmental activism, but of remarkable, nation-leading energy efficiency resulting from urban density and a less energy-intensive economy.

NEW YORK'S PARADOX: AN EFFICIENCY LEADER WITH HIGH COSTS

Understanding New York's baseline energy profile is critical for effective policymaking. The state’s low per-capita emissions are a result of exceptional efficiency driven by its unique urban density and service-industry-heavy economic structure, not a low-carbon energy grid. This distinction is fundamental, as it highlights that the state’s current supply-side mandates are a counterproductive strategy that neglects its inherent strengths. New York's energy landscape is defined by this duality of high efficiency and high costs.

- **Low Per-Capita Emissions:** New York boasts some of the lowest per-capita emissions in the United States. In 2023, the state's energy-related CO_2 emissions were just 8.4 metric tonnes per person, significantly below the national average of 14.2 tonnes. This achievement places New York fourth-lowest among all states *(see Figures 1 and 2).*
- **Exceptional Energy Efficiency:** This low emissions profile is not the result of a carbon-free energy supply, but rather stems from structural efficiencies. High population density leads to smaller dwellings that require less heating and cooling. Extensive use of mass transit dramatically reduces petroleum consumption. The state accounts for over a third of all transit journeys in the country. The service-based economy of New York is inherently less energy-intensive than one based on heavy manufacturing. As a result, New Yorkers consumed just 174 million BTUs per person in 2023, the third-lowest rate in the nation. *(see Figure 3)*
- **High Energy Prices:** In stark contrast to its efficiency, New York's energy prices are persistently among the highest in the country. This is a long-standing trend, with both natural gas and electricity prices remaining well above the national average. In 2023, the state's electricity prices were 44% higher than the U.S. average *(see Figure 4).* The high cost of building and maintaining aging transmission infrastructure in urban areas and a constricted supply of natural gas into the state are historical contributors to significantly higher-than-average energy prices in New York.
- **Lower Overall Bills:** The paradox is reconciled by the state's high efficiency. Despite paying high unit prices for energy, New Yorkers' low consumption levels result in lower total energy spending. The average resident spent approximately $3,800 on energy (including petroleum) in 2023, significantly less than the national average of $4,600 *(see Figure 5*).

New York's low per-capita consumption is precisely why the current supply-side mandates are so difficult and expensive. The "low-hanging fruit" has already been picked through consumption patterns, making forced generation changes in the form of fuel mandates disproportionately costly. This reality sets the stage for a critical assessment of the state's mandated targets, which seek to fundamentally re-engineer the supply side of the energy equation through prescriptive fuel mix goals at a potentially enormous cost to citizens.

THE 2019 CLIMATE ACT: A REPORT CARD ON MANDATED GOALS

An assessment of New York's progress against the 2019 Climate Leadership and Community Protection Act (Climate Act), using the state's own metrics, reveals a clear and undeniable pattern of failure across its most critical mandates. These ambitious goals established a specific, legally binding timeline for a transition away from fossil fuels.

The key climate goals established in the 2019 Act are:

- **Greenhouse Gas Reductions:** 40% reduction from 1990 levels by 2030 and 85% by 2050.
- **Zero-Emission Electricity:** 100% zero-emission electricity by 2040.
- **Renewable Energy Grid:** 70% of electricity from renewable sources by 2030.
- **Offshore Wind:** Install 9,000 megawatts (MW) by 2035.
- **Distributed Solar:** Install 10,000 MW by 2030.
- **Energy Storage:** Install 6,000 MW by 2030.

An examination of the state's official Climate Act Metrics website paints an unequivocal picture of profound shortfalls against its core 2030 and 2035 mandates.

Climate Goal	Target Status (Operational)	Target Status (Including Potential Projects)	Trajectory Assessment
Emissions Reductions (2030)	**23% of goal**	N/A	Behind Schedule
Renewable Generation (2030)	**35% of goal operational**	72% if potential projects are included	Behind Schedule
Distributed Solar (2030)	**71% operational**	101% if potential projects are included	On Track to Meet Goal
Offshore Wind (2035)	**1% operational**	21% if potential projects are included	Severely Behind Schedule
Energy Storage (2030)	**8% operational**	19% if potential projects are included	Severely Behind Schedule

With the sole exception of distributed solar, New York is not on track to meet its targets. Progress on offshore wind and energy storage, two cornerstones of the state's grid transformation strategy, is severely behind schedule. This poor performance is not an anomaly but a symptom of deeper, systemic pressures that are converging on the state's energy system.

THE LOOMING CRISIS: A COLLISION OF SUPPLY, DEMAND, AND COST

New York's energy system is entering an environment where policy-driven pressures are converging to make the 2019 climate goals increasingly untenable. A combination of shrinking reliable energy supply, inflated demand growth, and mounting cost pressures is creating a collision course that threatens both grid stability and consumer affordability.

Constrained Energy Supply

While the state mandates a massive buildout of renewable energy, its existing firm generation capacity is being actively diminished. In 2024, natural gas (62 TWh) and nuclear (27 TWh) still provided the vast majority of the state's firm, dispatchable power, highlighting the monumental scale of the replacement challenge. Key factors constraining supply include:

- **Decommissioning of Zero-Emission Nuclear:** The premature closure in 2021 of reliable, zero-emission nuclear generation from the Indian Point Energy Center has removed a significant source of carbon-free power from the grid, making emissions goals harder to achieve.
- **Blocked Infrastructure Upgrades:** The New York Department of Environmental Conservation has blocked a number of upgrades to aging natural gas generation facilities. Policymakers have also prevented the construction of new pipeline capacity, limiting the efficiency and availability of a critical fuel. However, a recent (Nov 2025) state reversal has given approval to a new natural gas pipeline into New York City.
- **External Barriers:** Trump Administration policies hostile to new and planned renewable projects, such as wind and solar, have created additional headwinds for project development.

Inflated Demand

Simultaneously, state policies are driving a projected surge in electricity demand, placing further strain on an already constrained supply. This growth is not organic but is a direct result of mandates aimed at electrifying other sectors of the economy. Major drivers include:

- **Electrification of Buildings and Transportation:** Aggressive policies to replace natural gas heating with electric heat pumps and internal combustion engine vehicles with electric vehicles will substantially increase electricity consumption.
- **Growth of High-Tech Manufacturing and Data Centers:** The expansion of energy-intensive industries like chip manufacturing and data centers is creating new, large-scale demands on the grid.

Mounting Price Pressures

The convergence of shrinking supply and rising demand inevitably leads to upward price pressures for consumers. These costs are compounded by the immense capital investment

required to transform the grid and specific policy choices that increase the cost of energy production. Key factors include:

- **Grid Modernization:** The cost of upgrading transmission and distribution infrastructure to accommodate intermittent renewables and higher demand will be passed on to ratepayers.
- **Pipeline Congestion:** Insufficient natural gas pipeline capacity creates supply bottlenecks, driving up the price of a key generation fuel.
- **New Generation Costs:** The capital cost of building thousands of megawatts of new offshore wind, solar, and energy storage is substantial.
- **The Climate Change Superfund:** Policies like the Climate Change Superfund that assess heavy fines on energy companies for past GHG emissions further increase the cost of energy in New York.

This collision is not accidental; it is the direct result of a policy framework that simultaneously dismantles reliable supply while mandating a surge in demand, with ratepayers bearing the inevitable and escalating cost.

A POLICY CROSSROADS: RE-EVALUATING THE PATH FORWARD

New York is at a crucial decision point. Faced with mounting evidence that its current strategy is faltering, policymakers must choose between doubling down on inflexible mandates or pursuing a more pragmatic approach that prioritizes both emissions reduction and the economic well-being of its citizens. This requires a return to the principle of least-cost, highest-impact strategies.

1. **Shift Focus from Mandates to Outcomes:** Policy must pivot from prescribing specific technologies to targeting the metric where New York already leads: emissions per capita. A framework that leverages and enhances this existing strength, rather than forcing costly mandates of fuel mix, can achieve climate goals more affordably and reliably.
2. **Modernize and Build Instead of Abolish:** A rigorous cost-benefit analysis must determine whether to modernize existing natural gas turbines and boilers or force their closure without adequate replacement. Given the marginal emissions improvements gained by retiring highly efficient gas plants, investing in upgrades could be a more cost-effective way to ensure grid reliability and reduce emissions in the near term. Recent moves to build additional natural gas pipeline capacity is a positive step in this direction.
3. **Prioritize Affordability to Sustain Public Support:** The state must adopt a path that explicitly prioritizes both emissions reduction and affordability to achieve sustainable climate gains while easing the financial burden on working families. Policies that threaten to dramatically increase utility bills risk undermining public support for the entire climate agenda.

These alternative considerations lead to a fundamental conclusion about the political sustainability of New York's current climate strategy. An approach that fails to balance ambition with practicality is destined to fail.

CONCLUSION: THE IMPERATIVE FOR A PRAGMATIC CLIMATE STRATEGY

New York's climate policy is fundamentally at odds with its own success. Having achieved low per-capita emissions through high efficiency, the state is now pursuing a rigid, high-cost strategy that jeopardizes its gains and punishes the very citizens whose behavior created the advantage. Pressing forward is not merely off-track; it is a politically unsustainable path that risks turning a climate leader into a cautionary tale of ambition detached from reality.

A revised strategy must build on New York's inherent strengths in energy efficiency and low per-capita consumption, focusing on achievable outcomes rather than rigid technological mandates, all while ensuring a reliable and affordable energy future for every citizen.

APPENDIX: DATA ANALYSIS

New York state energy consumption and emissions

New York has the fourth-lowest emissions per person of any state in the union, and the lowest relative to the size of its economy, according to the most recent data from the U.S. Energy Information Administration (EIA).[1] New York's relatively low emissions stem from the exceptional efficiency of its energy system rather than carbon-free electricity. Nearly half of all in-state generation comes from fossil fuels rather than low-carbon sources. But the economy is dominated by high value-added services rather than energy-intensive manufacturing, population density is high, especially in the metro area, dwellings are small, and transit ridership is high, which all lower energy consumption and emissions.

New York's total emissions rank lower (8th) than its population (4th) or the size of its economy (3rd). The state has been more successful than most in lowering them further. Emissions were cut to 165 million tonnes in 2023 from 211 million tonnes in 2005. The decline was slightly faster (1.4% per year) than the country as a whole (1.2% per year), mostly because gas has replaced coal and oil-fired generation and heating systems, while population growth has been low.

Emissions per person are among the lowest in the country and have continued to fall. Per capita emissions were reduced to 8.4 tonnes in 2023 from 11.0 tonnes in 2005. Emissions per person were the fourth lowest behind Maryland (7.8 tonnes), Massachusetts (8.0

[1] Unless stated otherwise, all the data and rankings in this profile are taken from the most recent online edition of the State Energy Data System (SEDS) published by the U.S. Energy Information Administration and cover energy consumption and emissions through 2023. Emissions are restricted to carbon dioxide (CO_2) from combustion of fossil fuels, excluding fugitive methane, other greenhouse gases, and emissions from land use, land-use change and forestry.

tonnes), and California (8.3 tonnes), and more than 40% below the national average (14.2 tonnes), though still higher than Germany (7.1 tonnes) or Japan (8.0 tonnes).[2]

Emissions are exceptionally low given the size of the state's economy. New York's major economic activities, such as finance, real estate, professional and business services, and government, are not energy-intensive. The state emitted 92 tonnes for every $1 million of output produced in 2023, down from 162 tonnes in 2005 after adjusting for inflation. Emissions per $1 million of output are the lowest in the country, fractionally below Massachusetts (92 tonnes), well below California (100 tonnes), and less than half the national average (211 tonnes).

But the state's energy supply is not low-carbon. Fossil fuels accounted for 83% of primary energy consumption in 2023, the same share as in 2005. New York emitted 50 tonnes of CO_2 for every 1 billion British thermal units of energy supplied in 2023, well above Vermont (38 tonnes), New Hampshire (39 tonnes), and South Carolina (40 tonnes), and only slightly below the national average (51 tonnes).

Fossil fuels accounted for 49% of electricity generated in the state, down only slightly from 52% in 2005. But over the last two decades, coal and oil-fired plants have been converted or replaced by lower-emission gas-fired units, cutting emissions. Coal generation ceased in 2000, and oil generation has been reduced to very low levels. New York was one of nine states that did not have any utility-scale coal generation by 2023.

However, growth in low-carbon generation has been retarded by the closure of Indian Point, one of four nuclear power plants in the state, and the relatively slow deployment of utility-scale solar parks and wind farms. As a result, emissions per capita (1.5% per year) and per unit of energy consumed (0.5% per year) have fallen more slowly than the national average (2.0% and 1.0% respectively) since 2005.

New York ranks highly for generation from hydro (3rd), which supplies more than 20% of power produced in-state. The Robert Moses hydro plant near Niagara Falls is the fourth-largest by capacity in the country. But New York ranks lower for solar (8th) and much lower for nuclear (14th) and wind (19th), which has kept electricity-related emissions above major renewable generators such as California and Texas and nuclear generators such as Illinois and Pennsylvania.

Given slow progress in decarbonizing the electricity system, New York's low rate of emissions per person and unit of output mostly reflects its high level of energy efficiency and low energy use. New York residents consumed just 174 million British thermal units per person in 2023, the third lowest in the nation, far below the national average of 278 million BTUs. The state used just 1.9 million BTUs to produce every $1 million of output, the lowest in the country, and less than half of the national average of 4.2 million BTUs.

[2] International comparisons are taken from the Emissions Database for Global Atmospheric Research (EDGAR) published by the Joint Research Centre of the European Union.

Despite its reputation for a challenging climate, with bone-chilling winters and swelteringly hot summers, winter heating demand was only 40% above the national average (ranking 19th) and summer cooling demand was less than half of the average (ranking 32nd overall) over the ten years from 2014 to 2023.

New York's high energy efficiency primarily reflects its very high population density, with 429 people per square mile, four times higher than across the country as a whole. The metro area has some of the highest population densities in the nation. The result is much smaller dwellings needing less heating and cooling. But also much higher rates of mass transit use. The state accounts for more than one-third of all transit journeys across the country. New York's transit systems recorded 19.5 billion passenger-miles in 2019, more than double the total in California, the next-nearest state.

Smaller homes mean less electricity is needed for heating, cooling, lighting, and power. New York residents used an average of just over 7,000 kilowatt-hours per person in 2023, down from more than 7,800 kWh in 2005, the fourth-lowest nationwide, and almost 40% below the average.

High levels of transit use also mean lower levels of driving and consumption of petroleum fuels. Nearly one in four residents uses public transit to commute to work, almost seven times the national average. New York residents used just 13 barrels of petroleum per person in 2023, down from 17 barrels in 2005, the lowest in the country, and just over half the national average of 22 barrels.

New York's energy and emissions policies have not so far contributed to higher prices for gas and electricity. The state's average gas price was 36% above the national average, while electricity prices were 44% above the average in 2023. But gas and electricity prices have been well above average for more than 50 years, and there is no sign of the premium widening.

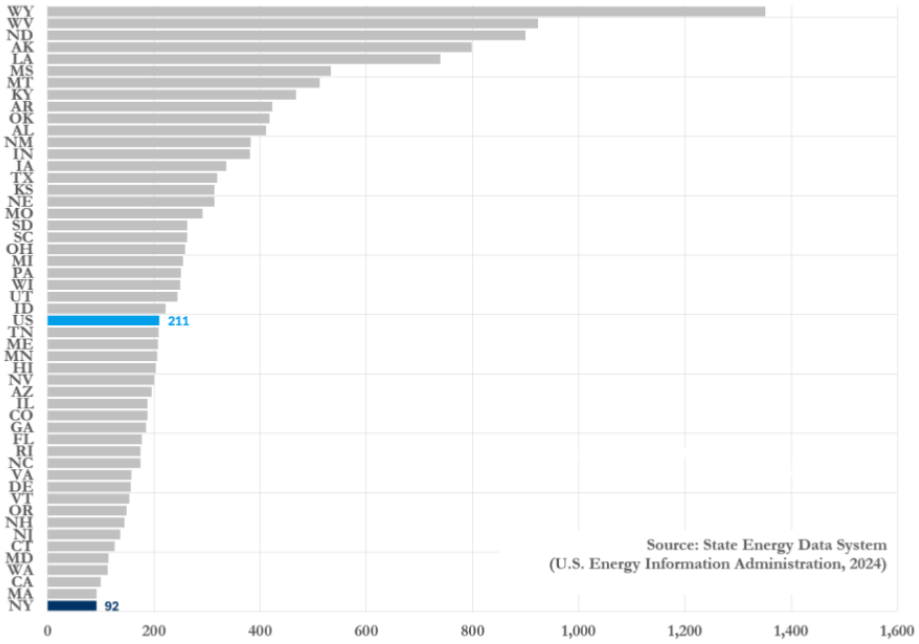
New York's higher-than-average prices for gas, electricity, and petroleum fuels are more than offset by its very low consumption. New Yorkers spend less on gas, electricity, and petroleum fuels than almost anyone else. New York residents spent less than $3,800 per person on energy in 2023 (49th in the country) compared with a national average of more than $4,600. Energy expenditure accounted for just 3.4% of state output (50th in the country) compared with a national average of 5.7%.

Recent developments in electricity prices (2019-2024)

Since 2019, New York has experienced some of the fastest increases in electricity prices in the country, intensifying cost-of-living pressures. Retail electricity prices for residential customers increased by 36% between 2019 and 2024. More than half of the increase was attributable to inflation. But in real terms, prices still increased by 12% or around 2.4% per year. The increase was almost three times faster than the national average of 4.5% or 0.9% per year, and the second-fastest increase in the country, after California. Price rises have been driven by a range of factors, including the need to replace and upgrade

ageing wires, poles, and towers in the distribution and transmission systems, as well as increased fuel costs and other operating costs. Major utilities in the state have filed rate cases requesting further increases of around 20%, citing the need to repair storm damage and upgrade distribution systems as well as cover increases in taxes and operating expenses, which is likely to ensure rates increase further in 2025 and 2026.[3]

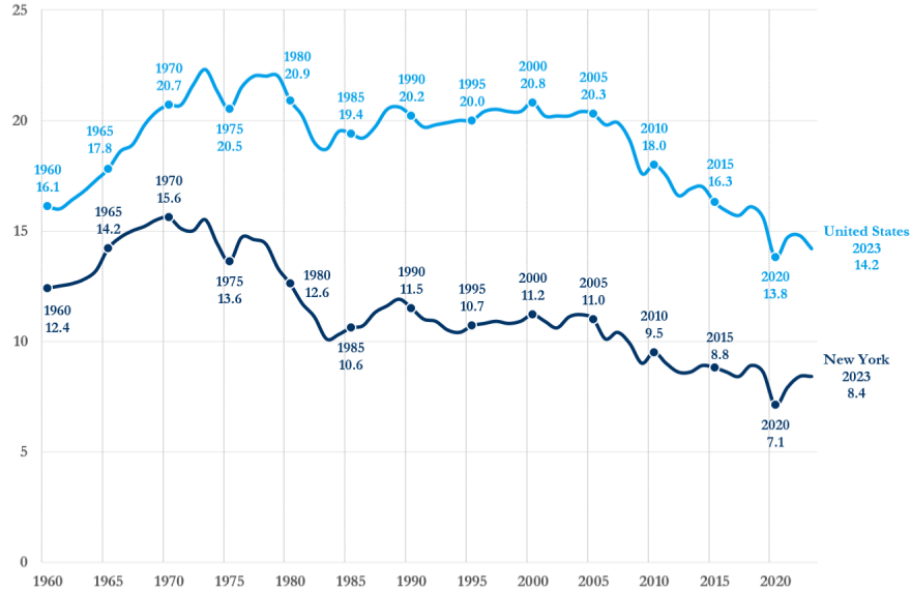
Figure 1: State-level energy-related carbon dioxide emissions in 2023
metric tons per U.S.$(2017) 1 million



[3] *Pending Electric Rate Cases* (New York State Department of Public Service, website accessed on 14 November 2025).

Figure 2: New York state energy-related CO_2 emissions per capita, 1960-2023

metric tons per capita



Source: State Energy Data System (U.S. Energy Information Administration, 2024)

Figure 3: State-level energy consumption in 2023

million British thermal units per capita

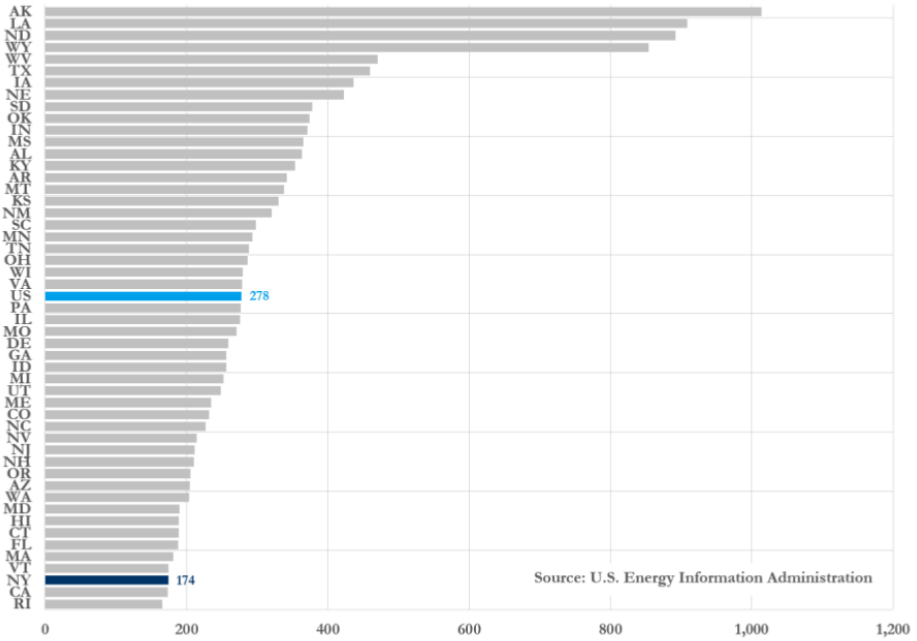


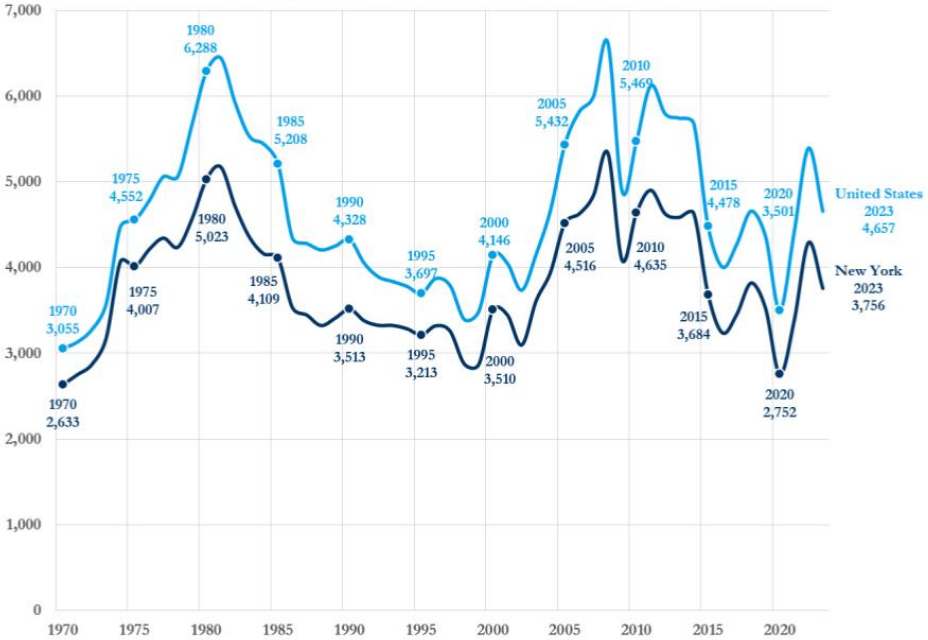
Figure 4: New York state electricity prices, 1970-2023

U.S.$ (2023) per million British thermal units

Source: State Energy Data System (U.S. Energy Information Administration, 2024)

Figure 5: New York energy spending per capita, 1970-2023

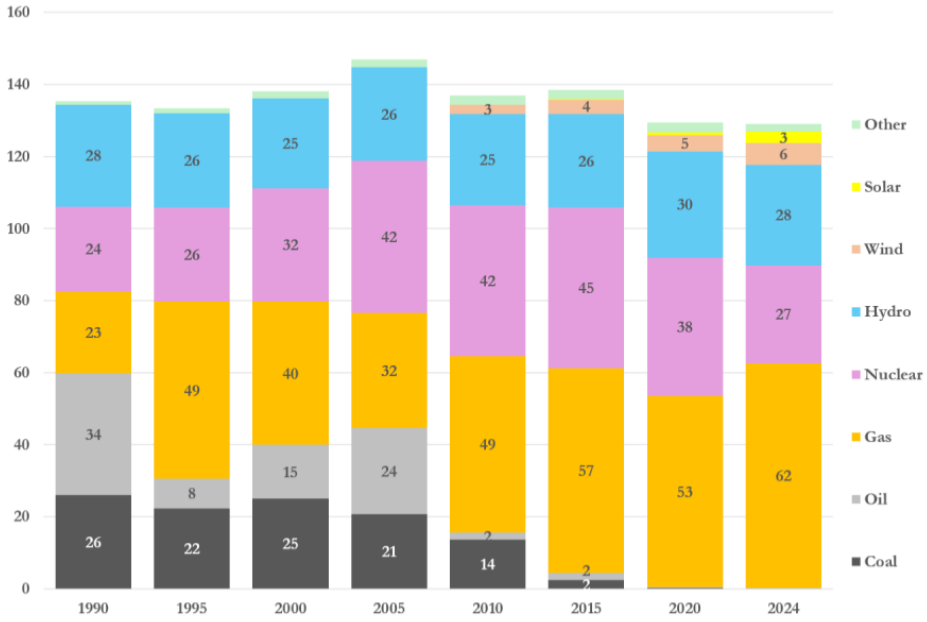
U.S.$ (2023) per person (electricity, gas and petroleum fuels)



Source: State Energy Data System (U.S. Energy Information Administration, 2024)

Figure 6: New York state electricity generation, 1990-2024

billion kilowatt-hours (TWh), annual



Source: Electric Power Annual (U.S. Energy Information Administration, 2025)

Figure 7: U.S. electricity prices charged to residential users (including taxes)

compound annual growth rate between 2019 and 2024, percent, adjusted for inflation

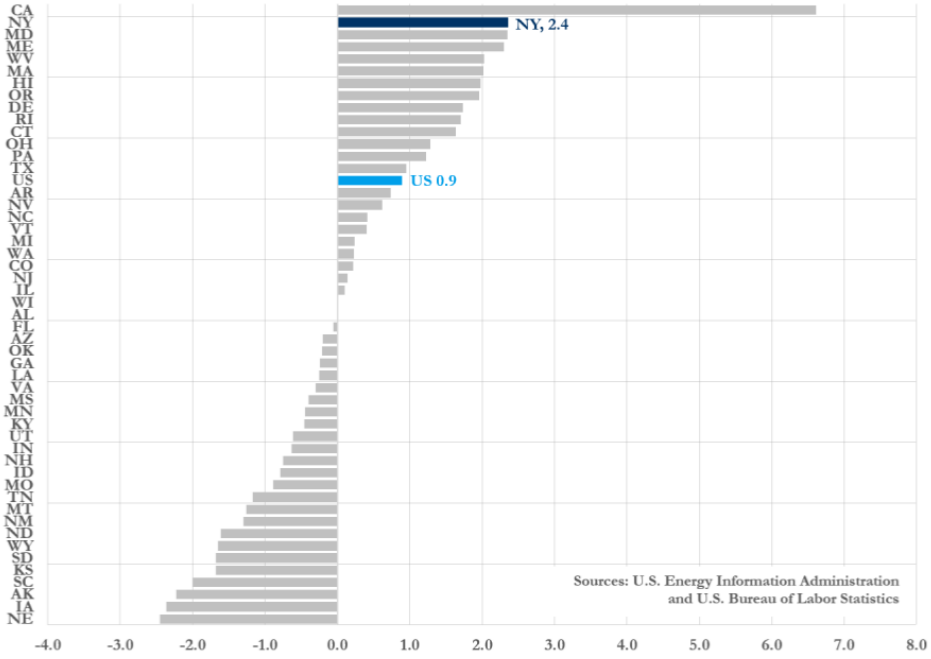
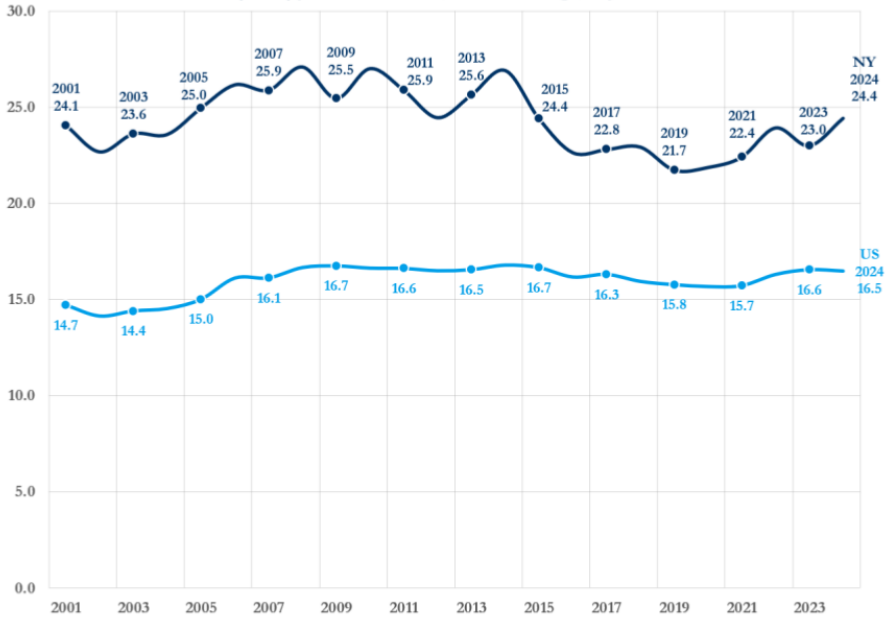


Figure 8: New York state real electricity price for residential users, 2001-2024

U.S. cents (2024) per kilowatt-hour, annual average, adjusted for inflation



Sources: U.S. Energy Information Administration and U.S. Bureau of Labor Statistics @JKempEnergy

ABOUT THE AUTHORS

Neel Brown
Neel is Managing Director at PPI where he helped build the Energy and Climate Solutions Initiative, which is widely respected and relied on by Members of Congress, Senators, and their staff for pragmatic proposals and solutions.

Neel is deeply engaged in PPI's international efforts, frequently engaging with policymakers and think tanks in Europe on energy issues and other policy and political topics.

Before joining PPI, Neel was the President of Legis Media, an advocacy communications firm that he founded in 2004. He has extensive experience in advocacy advertising, grassroots organization, and coalition building. He spent over seven years working on Capitol Hill and political campaigns.

John Kemp
Founder and Director of JKempEnergy.com, John is an internationally recognized expert on energy markets and systems, including technology, industry structure and risk management.

He curates a daily digest of "Best in Energy" news and research from all sources sent via email to more than 15,000 energy market professionals with readership over 13,000 per week.

He also publishes a newsletter three times a week analyzing major developments across most sources (oil, gas, coal, renewables and electricity) and regions (North America, Europe, China, India, Southeast Asia and Latin America).