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New York's Offshore Wind Program Under the Climate Leadership and Community Protection Act: A Critical Analysis of Policy Implementation

Introduction

New York State's Climate Leadership and Community Protection Act (CLCPA), or simply the Climate Act enacted in 2019, represents one of the most ambitious climate policy frameworks in the United States. The legislation mandates that 70 percent of the state's electricity come from renewable sources by 2030, rising to 100 percent zero-emission electricity by 2040. Perhaps most ambitiously, the Act requires 40 percent reduction in greenhouse gas emissions by 2030 and 85 percent by 2050, compared to 1990 levels. Central to achieving these targets is offshore wind energy, with New York initially targeting 9,000 MW by 2035 although it was recently expanded through legislative action in January 2025 to 15,000 MW by 2040, 18,000 MW by 2045, and 20,000 MW by 2050.

This paper analyzes New York's offshore wind program by examining three major projects: South Fork Wind (132 MW, operational since 2023), Empire Wind 1 (810 MW, under construction with significant delays), and Sunrise Wind (924 MW, delayed until 2027). Through this analysis, I evaluate the problems these projects address, the planning and permitting processes employed, stakeholder participation, cost-effectiveness, and the likelihood of success in meeting the Climate Act’s mandates.

My analysis shows a program with solid planning frameworks and stakeholder engagement that nevertheless faces serious challenges from federal policy interference, supply chain disruptions, and dramatic cost escalations. While South Fork Wind demonstrates technical viability, the broader program's success remains uncertain, with only 132 MW operational against a 9,000 MW target, merely 1.5 percent of the original goal with less than a decade remaining.

Why Offshore Wind?

New York's offshore wind program addresses multiple interconnected problems. The state faces rising sea levels, increased coastal flooding, and more frequent extreme weather events that threaten coastal communities and infrastructure. Meeting the Climate Act's targets requires massive deployment of new clean energy generation to replace aging fossil fuel plants and support electrification of transportation and buildings.

A critical driver is environmental justice. The CLCPA requires that at least 35 percent of clean energy benefits flow to disadvantaged communities, identified through criteria including environmental indicators, climate vulnerability, and socioeconomic factors. Many of New York City's fossil fuel peaker plants are located in disadvantaged communities, particularly communities of color in the Bronx, Queens, and Brooklyn. These plants emit not only carbon dioxide but also nitrogen oxides, particulate matter, and other pollutants that contribute to asthma, cardiovascular disease, and premature mortality. Offshore wind can directly displace these peaker plants, delivering air quality improvements to overburdened communities.

Offshore wind offers specific advantages for New York that alternative renewables cannot fully replicate. The projects are located close to major demand centers, particularly New York City and Long Island, reducing transmission infrastructure needs compared to upstate wind or solar resources. Empire Wind 1, located approximately 15-20 miles south of Long Island, will connect directly to Brooklyn's grid infrastructure.

Research on U.S. East Coast offshore wind resources demonstrates that these locations experience higher and more consistent wind speeds than most onshore sites. This higher reliability makes offshore wind more valuable for grid operations and better suited to displacing baseload and intermediate fossil fuel generation.

Planning and Design Process

New York's offshore wind program operates within a complex dual regulatory framework. The federal Bureau of Ocean Energy Management (BOEM) controls leasing and

permitting for offshore wind projects in federal waters (generally beyond three nautical miles from shore), while New York State authorities, primarily NYSERDA and the Department of Environmental Conservation, manage onshore components, grid interconnection, and power purchase agreements.

BOEM conducts environmental assessments under the National Environmental Policy Act (NEPA), including analysis of impacts on marine mammals, birds, fisheries, navigation, and visual resources. At the state level, NYSERDA runs competitive auctions for Offshore Wind Renewable Energy Certificates (ORECs), through which developers bid to supply offshore wind power at specified prices. This competitive procurement process is designed to drive down costs while ensuring projects meet state requirements for environmental protection, local benefits, and supply chain development.

The specific locations for Empire Wind and Sunrise Wind were chosen through BOEM's competitive leasing process, which designated Wind Energy Areas based on analysis of wind resources, water depth, proximity to transmission infrastructure, and conflicts with other ocean uses. However, the site selection process has been criticized for insufficient consideration of fishing industry impacts. While BOEM conducted extensive analysis of fishing activity using Vessel Monitoring System (VMS) data, critics argue this data inadequately captures the full economic and cultural value of fishing grounds, particularly for smaller vessels not required to use VMS. The "Mapping the Unheard" study demonstrates that multicriteria decision analysis incorporating broader stakeholder values would have identified different optimal locations with lower fishing industry conflicts.[1]

All three New York projects employ large-scale turbines (typically 12-15 MW capacity per turbine) mounted on fixed-bottom foundations suitable for water depths of approximately 25-40 meters. This technology choice reflects maturity and lower costs compared to floating offshore wind, which is still in early commercial deployment.

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[1] Song et al. “Mapping the Unheard: Analyzing Tradeoffs Between Fisheries and Offshore Wind Farms Using Multicriteria Decision Analysis”

The CLCPA Scoping Plan evaluated multiple decarbonization pathways including onshore wind and solar, energy storage, hydroelectric, new nuclear power, and natural gas with carbon capture.

The Scoping Plan concluded that meeting the CLCPA's targets requires substantial deployment of offshore wind alongside other renewables, as no single technology can economically provide the scale of clean generation needed. Offshore wind's proximity to load centers, high capacity factors, and ability to generate during winter peak demand periods (when solar is weakest) make it particularly valuable in New York's resource mix.

Stakeholder Participation and Engagement

New York has implemented relatively comprehensive stakeholder engagement processes. NYSERDA established two key bodies: the Fisheries Technical Working Group (FTWG) and the Environmental Technical Working Group (ETWG), designed to incorporate stakeholder input into project planning, monitoring protocols, and adaptive management strategies.[2]

The FTWG includes commercial fishing representatives, fishing industry associations, fisheries scientists, and state and federal fisheries managers. It provides a forum for fishermen to communicate concerns about fishing ground access, gear conflicts, and economic impacts, while also contributing local ecological knowledge. The ETWG focuses on environmental monitoring requirements, including protocols for assessing impacts on birds, marine mammals, and benthic habitats. These working groups represent genuine collaborative governance, with participants reporting that their input has influenced monitoring requirements and mitigation measures. The commercial fishing industry was well-represented through organized associations, environmental organizations participated actively, and state and federal agencies had strong

[2] Brunbauer, Morgan, et al. “Effective Stakeholder Engagement for Offshore Wind Energy Development: The State of New York’s Fisheries and Environmental Technical Working Groups.”

participation.[3] Unfortunately, social media has facilitated rapid spread of misinformation about offshore wind impacts, particularly regarding whale and bird deaths, polarizing local discourse and making constructive engagement more difficult.

Project Status and Implementation Challenges

South Fork Wind, a 132 MW project owned by Ørsted and Eversource, achieved commercial operation in March 2024, becoming New York's first operational offshore wind farm. Located approximately 35 miles east of Montauk, the project consists of 12 turbines supplying power to Long Island. It represents an important proof of concept, demonstrating that offshore wind can be successfully constructed and operated in New York waters. However, its relatively small scale and Long Island location meant it faced less complex grid integration challenges than the larger projects planned for areas closer to New York City.

Empire Wind 1, an 810 MW project has faced the most dramatic obstacles. In April 2025, Interior Secretary Doug Burgum issued a stop-work order halting offshore construction that was already underway, citing the need for additional environmental review. This order, part of broader Trump administration actions to pause offshore wind development nationally, created immediate legal and financial uncertainty.

The stop-work order was lifted in May 2025 following negotiations between federal officials, New York State representatives, and developer Equinor. However, the three-week construction halt caused significant delays and cost increases. The political compromise that allowed Empire Wind to resume construction reportedly included concessions on unrelated natural gas pipeline projects, illustrating how offshore wind has become entangled in broader energy policy disputes.

Sunrise Wind (924 MW), a joint venture between Ørsted and Eversource, has been delayed from its original late-2025 target to the second half of 2027. The delay stems

[3] Brunbauer, Morgan, et al. “Effective Stakeholder Engagement for Offshore Wind Energy Development: The State of New York’s Fisheries and Environmental Technical Working Groups.”

primarily from supply chain constraints, particularly challenges with fabricating and installing monopile foundations. The project developer has recorded a financial impairment of $1.68 billion, reflecting increased costs for materials, labor, and financing.

These cost escalations reflect broader challenges facing the offshore wind industry globally. Steel prices increased significantly during 2021-2023, Federal Reserve interest rate increases substantially raised financing costs for capital-intensive projects, and installation vessel availability has been constrained. Developers have sought to renegotiate power purchase agreements to reflect higher costs, creating tension between clean energy goals and ratepayer protection.

Viewed collectively, New York's progress is minimal. Only 132 MW of the initial 9,000 MW target (1.5 percent) is operational. Empire Wind and Sunrise Wind, if completed on revised schedules, would add approximately 1,734 MW, bringing the total to about 1,866 MW, still only 21 percent of the original 9,000 MW target which has been increased to 20,000 MW putting us at merely 9 percent of the total new goal. This implementation gap directly threatens New York's ability to meet the CLCPA's 15,000 MW by 2040, 18,000 MW by 2045, and 20,000 MW by 2050 mandates.

Cost-Effectiveness Analysis

South Fork Wind's power purchase agreement was awarded at approximately $160/MWh in 2019 pricing, significantly higher than wholesale electricity prices but consistent with early-stage technology deployment. However, these contract prices have proven unsustainable under current market conditions, with developers seeking to renegotiate or withdraw from contracts. Sunrise Wind's $1.68 billion impairment suggests actual costs are substantially higher than anticipated.

The global levelized cost of electricity (LCOE) for offshore wind declined from approximately $150-200/MWh in 2015 to $80-120/MWh in 2020 as technology matured.

However, this trend reversed in 2021-2023 due to inflation, supply chain disruptions, and higher interest rates. Current offshore wind projects are estimated at $100-160/MWh. [4]

Comparing to alternatives: utility-scale onshore wind in the United States currently averages $30-50/MWh LCOE, substantially cheaper than offshore wind.[5] However, onshore wind in New York would require extensive new transmission infrastructure to connect upstate resources to downstate load centers, with transmission costs of $50-100/MWh or more potentially eroding the apparent cost advantage. Utility-scale solar in the Northeast averages $35-60/MWh LCOE, also cheaper than offshore wind.[6] However, solar's low-capacity factor (15-20 percent in New York) and concentration during summer months makes it less valuable for meeting winter peak demand. New natural gas generation has an LCOE of approximately $45-70/MWh at current gas prices, cheaper than offshore wind.[7] However, adding carbon pricing of $50-100/ton CO2 would increase natural gas costs by $25-50/MWh, making it cost-competitive with or more expensive than offshore wind.

Cost-effectiveness analysis must extend beyond LCOE comparisons. Displacing fossil fuel generation, particularly peaker plants in urban areas, delivers air quality improvements that reduce asthma, cardiovascular disease, and premature mortality. Studies estimate health benefits of $50-150/MWh from reducing fossil fuel air pollution in densely populated areas.[8] Avoided CO2 emissions have value in reducing long-term climate damages.

Offshore wind provides price certainty through long-term fixed-price contracts, protecting consumers from fossil fuel price volatility. Job creation and supply chain investments provide local economic benefits. Commercial fishermen face costs from

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[4] International Renewable Energy Agency (IRENA), offshore wind cost analysis, 2015-2023.
[5] Mills, Andrew, et al. “Estimating the Value of Offshore Wind along the United States’ Eastern Coast | Energy Markets & Planning.”
[6] Mills, Andrew, et al. “Estimating the Value of Offshore Wind along the United States’ Eastern Coast | Energy Markets & Planning.”
[7] U.S. Energy Information Administration, levelized cost analysis, 2024.
[8] Environmental health economics literature; EPA air quality benefit analyses.

reduced access to fishing grounds, with estimated fishing revenue losses relatively small in dollar terms (millions annually) compared to offshore wind benefits (billions).[9]

My assessment is that New York's offshore wind program is marginally cost-effective under favorable assumptions but vulnerable to unfavorable conditions. If projects can be completed at costs of $100-120/MWh, and if health and climate benefits are properly valued, offshore wind delivers net benefits compared to continued fossil fuel generation. However, if costs escalate further to $150-180/MWh due to delays and supply chain challenges, and if competing technologies continue to decline in cost, the economic case weakens substantially. At current implementation rates, the program is inefficient.

Environmental Impacts and Misinformation

Offshore wind's environmental impacts span multiple dimensions. Bird collisions with turbines are documented, but monitoring protocols established through New York's ETWG require pre-construction baseline studies, operational monitoring, and adaptive management if impacts exceed predictions.[10] Available evidence suggests offshore wind bird mortality is several orders of magnitude lower than mortality from building collisions, domestic cats, or fossil fuel pollution.

Construction activities, particularly pile driving, can generate underwater noise affecting marine mammals. Projects are required to implement mitigation measures including soft-start procedures, marine mammal observers, and seasonal restrictions. Critically, NOAA Fisheries has repeatedly stated that there is no scientific evidence linking offshore wind development to elevated whale mortality events observed along the East Coast since 2016.[11] The primary causes of whale deaths are vessel strikes and entanglement in fishing gear, both predating offshore wind development.

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[9] Song et al. “Mapping the Unheard: Analyzing Tradeoffs Between Fisheries and Offshore Wind Farms Using Multicriteria Decision Analysis”
[10] New York State Environmental Technical Working Group, "Guidance for Monitoring Avian Displacement,"
[11] NOAA Fisheries, "FAQ: Offshore Wind and Whales," 2025.

Turbine foundations and subsea cables alter benthic habitats but also create artificial reef effects that can increase local fish abundance and diversity. My personal experience fishing near the Block Island Wind Farm confirms this: the area beneath and around the turbines has become one of the most productive fishing spots I've encountered. Structure attracts baitfish, which in turn attract predator species. While commercial trawlers lose access to previously dragged areas, the overall ecological effect may be positive for fish populations.

A significant challenge is combating widespread misinformation, particularly claims that wind turbines are killing whales. This misinformation spreads rapidly on social media platforms, particularly Facebook, where posts claiming turbine responsibility for whale deaths receive thousands of shares despite being factually incorrect. Opposition to offshore wind for aesthetic reasons or economic interests leads some stakeholders to seize on any evidence of environmental harm, regardless of scientific validity. Conservative political groups that generally oppose environmental regulations have strategically embraced whale protection as an argument against offshore wind, creating unusual political alignments. Facebook's algorithm rewards emotionally engaging content, meaning graphic images of dead whales coupled with claims about turbine responsibility spread faster than careful scientific explanations from NOAA.

NOAA Fisheries and NYSERDA have developed FAQ documents and public communications to counter misinformation, but these face inherent disadvantages in social media environments that favor sensationalism over nuance. This highlights a broader challenge for evidence-based policymaking: implementing scientifically sound policies when public discourse is shaped by misinformation.

Federal Policy Interference and Governance Challenges

In January 2025, the Trump administration issued an executive order titled "Temporary Withdrawal of All Areas on the Outer Continental Shelf from Offshore Wind Leasing and Review of the Federal Government's Leasing and Permitting Practices for Wind Projects." This order halted all new offshore wind leasing in federal waters, initiated

comprehensive reviews of previously approved projects, and signaled a dramatic reversal of federal offshore wind policy.

This federal policy shift directly impacted New York's projects. Empire Wind faced the stop-work order, damaging investor confidence and increasing costs. Sunrise Wind faced reopened environmental reviews contributing to delays. Future projects face profound uncertainty about whether federal permits will be issued.

The federal-state tension highlights a fundamental governance challenge: offshore wind development in federal waters requires federal permits, giving the federal government effective veto power over state clean energy programs. New York's ambitious Climate Act targets depend on the federal government facilitating offshore wind deployment, yet federal policy can shift dramatically with changes in presidential administration.

Politically, offshore wind has become intensely polarized, with Democratic-led states viewing it as essential for climate goals while Republican-led states and the Trump administration treat it as an expensive distraction from fossil fuels. This polarization makes durable federal policy difficult to achieve, policies advance under Democratic administrations and retreat under Republican ones, creating boom-bust cycles that increase costs and uncertainty.

The broader implication is that state climate programs dependent on federal actions are vulnerable to political reversals. New York's experience suggests that states pursuing ambitious climate goals must either develop state-controlled alternatives, seek legal protections, build bipartisan support by framing clean energy as economic development rather than purely environmental policy, or coordinate regionally to create markets and policies that provide scale and resilience against federal policy shifts.

Measures of Success and Critical Evaluation

New York's offshore wind program employs several categories of success metrics: capacity targets (MW goals), economic benefits (job creation, supply chain investments), cost competitiveness (contract prices declining over time), equity outcomes (35 percent

disadvantaged community benefit requirement), and emissions reductions (actual reductions in greenhouse gas emissions from the electricity sector).

These metrics capture important dimensions but have significant limitations. MW capacity targets measure nameplate capacity, not actual electricity generation (MWh). Official success metrics do not adequately address environmental outcomes beyond emissions reductions. While the equity mandate tracks benefits to disadvantaged communities, there is insufficient tracking of impacts on displaced fossil fuel workers and fishing communities. Contract price metrics emphasize immediate costs but may not capture long-term value such as price stability and avoided climate damages.

Based on current progress and identified obstacles, the South Fork Wind project is a success. The project is operational and demonstrates technical feasibility. Empire Wind 1: faces serious uncertainty. While construction has resumed after the stop-work order, the project faces continued federal policy risks, cost pressures, and potential delays. Sunrise Wind is currently at risk. The $1.68 billion impairment and two-year delay signal serious economic challenges requiring potential power purchase agreement renegotiations.

Overall, the original 9,000 MW by 2035 target is unlikely to be achieved, let alone achieve the updated 20,000 MW goal. With only 132 MW operational and major projects experiencing significant delays, even just achieving 9,000 MW by 2035 would require completing projects currently in early stages on aggressive timelines.

The Climate Act’s 2030, 2040 and 2050 electricity mandates are critically threatened. Failure to deploy offshore wind at scale makes the 70 percent renewable by 2030 and 100 percent zero-emission by 2040 targets much more difficult to achieve.

The program's long-term success depends on three critical factors: federal policy stability, cost reductions through industry-wide learning curves and supply chain improvements, and transmission infrastructure upgrades to accommodate large-scale renewable energy.

Conclusions and Recommendations

New York's offshore wind program under the CLCPA represents an ambitious attempt to deploy clean energy at scale through state-led policy. The program has achieved important milestones: establishing legal mandates, creating planning frameworks, engaging stakeholders, and completing the state's first operational offshore wind farm. These accomplishments demonstrate that offshore wind is technically feasible in New York waters.

However, the program faces severe implementation challenges that threaten its ability to meet established targets. Only 1.5 percent of the initial capacity target is operational, major projects face significant delays and cost escalations, and federal policy interference has created profound uncertainty. The program's cost-effectiveness remains unclear.

The stakeholder engagement process has been more comprehensive than many infrastructure programs. Misinformation about environmental impacts has complicated public discourse and created opposition based on scientifically unfounded claims.

Key Recommendations

For New York State:

1. Diversify clean energy strategy: While continuing to pursue offshore wind, accelerate complementary strategies including land-based renewables, energy storage, transmission upgrades, and energy efficiency to reduce dependence on any single technology vulnerable to external shocks.
2. Strengthen stakeholder processes: Expand technical working groups to include currently underrepresented stakeholders (recreational fishing, coastal homeowners, tourism) to improve legitimacy and identify mitigation opportunities.

3. Develop transmission proactively: Rather than waiting for offshore wind projects to be approved before planning transmission, develop transmission infrastructure proactively based on expected needs to reduce integration delays and costs.
4. Create regional coordination mechanisms: Work with other East Coast states to create regional approaches that are more resilient to federal policy changes and provide economies of scale in procurement and transmission.

For Federal Policymakers:

5. Establish durable offshore wind framework: Create bipartisan policy framework that provides long-term certainty for offshore wind investment by framing offshore wind as energy security and economic development rather than purely climate policy.
6. Streamline permitting while maintaining environmental protections: Reduce permitting timelines through better coordination between federal agencies, clearer regulatory standards, and efficient environmental review processes.

For Developers:

7. Improve community engagement: Move beyond minimum regulatory requirements to proactive, ongoing engagement with affected communities through community benefit funds, local hiring, and compensation mechanisms that build local support.

Looking forward, New York's offshore wind program will likely achieve some sort of middle ground effectiveness rather than achieve transformative success or complete failure. Some gigawatt-scale deployment will occur but likely falling well short of original targets. This will contribute to but not fully achieve the Climate Act’s electricity mandates, requiring New York to rely more heavily on alternative clean energy strategies.

The program's ultimate verdict will depend on factors largely outside New York's control: federal policy stability, global supply chain evolution, and technological cost trajectories. This highlights a fundamental tension in U.S. climate governance: states are

willing to lead on climate policy, but their ability to implement offshore wind depends on federal actions in federal waters.

Despite current challenges, offshore wind remains a valuable component of New York's clean energy portfolio. Its proximity to load centers, high-capacity factors, and ability to deliver large-scale clean generation make it difficult to fully replace with alternatives. The question is not whether offshore wind should be part of New York's strategy, but whether the economic, political, and technical obstacles can be overcome at sufficient scale and speed to meaningfully contribute to the state's climate goals. Current evidence suggests this remains an open question.

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