Status of US Offshore Wind Projects: A Mid-2025 Scorecard

by

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Introduction

The Biden administration made offshore wind a centerpiece of its plan to achieve net zero greenhouse gas emissions by 2050. In March 2021 it set a target of having 30 GW* of offshore wind in operation by 2030[1] with a pathway to 110 GW by 2050. To provide financial incentives to attract developers, a series federal tax credits were enacted, culminating with the passage of the Inflation Reduction Act (IRA)[2] in 2022 which provided Investment Tax Credits of up to 50% of the capital cost of a project.

In response seven northeast states have committed to goals totaling over 42.7 GW by 2040[3]. This includes New Jersey (11 GW by 2040), New York (9 GW by 2035), Massachusetts (5.6 GW 2030), Connecticut (2 GW by 2030), Maryland (8.5 GW by 2031) and Virginia (5.2 GW by 2030). In support of those goals, the various states have enacted legislation which provides for subsidized guaranteed rates for offshore wind to be paid to developers over a contract period (typically 20-25 years).

These guaranteed offtake prices are set forth in contracts or orders from state public utility commissions and generally increase over the term of the contract at a fixed annual escalation rate of 1-3%.

Beginning in 2017, those seven states have received bids and awarded contracts for more than 40 GW of offshore wind projects to be built in lease areas offshore in the Atlantic Ocean. Most of these projects were procured in competitive solicitations in which price was one consideration along with commitments to in-state economic development.

Offshore wind requires substantial upfront capital investment and so these projects are very sensitive to interest rates, inflation and supply chain support which can affect construction costs and schedules and financing terms. The favorable macroeconomic environment in 2018-2021 led developers to sign contracts at increasingly lower subsidized prices in the expectation that capital costs would be below $4000/MW[4] and that developers could finance these costs and still meet investment targets of 10-12% for their Internal Rate of Return (IRR)[5].

Those projections have proven extremely optimistic as higher inflation, rising interest rates and supply chain issues have driven capital costs up by more than 50% to $6000/MW[6] over the period 2021-2024 and have adversely affected many of the projects.

Added to the financial headwinds facing US offshore wind, popular opposition to projects has grown in coastal states due to perceived impacts to tourism, property values, commercial and recreational fishing and higher electric rates. Numerous

* 1 GW = 1000 MW

lawsuits have been filed in Federal and state courts challenging permits and rate subsidies.

The November re-election of former President Trump and a Republican Congress has introduced further political uncertainty as Trump has promised to "end offshore wind on Day 1" of his administration. In fulfillment of this campaign promise, on his first day in office, he issued an Executive Order[45] pausing the permitting of all pending offshore wind projects. On July 4, 2025 the President signed into law legislation[46] enacted by Congress that bars projects not in under construction within a year or not in service by 2027 from receiving Federal investment tax credits which have been an essential element of the financial basis on which projects had been proposed.

These policy changes have had a chilling effect which would severely hamper developers' ability to finance or obtain permits for projects not yet approved and under construction. As a result, numerous projects that had been proposed have been delayed or cancelled and state procurement activities have ground to a halt with few if any awards in late 2024 or early 2025 being made as expected.

Table 1 below provides the status of all the projects proposed and approved to date across the seven states, along with their builders, their proposed dates and the Levelized Cost of Energy (LCOE) embodied in their state approved contracts for power. As indicated more than 80% of projects proposed over the period 2017-2025 have been put on an indefinite hold or cancelled.

Table 1 -STATUS Of US OFFSHORE WIND PROJECTS

(June 2025)

Project	Capacity (MW)	Builders	State	Bid/Award Date	Commercial Operation	Estimated LCOE ($/MWH)	Notes
Block Island Wind	30	Orsted	RI	2010	2016	$ 244.00	(a)
CVOW	12	Dominion Energy	VA	2018	2020	$ 780.00	(b)
South Fork Wind	132	Orsted/CIP	NY	2017	2024	$ 180.00	(e)
Vineyard Wind 1	400	Avangrid/CIP	MA	2019	2025	$ 93.00	(c)
Vineyard Wind 1	400	Avangrid/CIP	MA	2019	2025	$ 83.00	(d)
Coastal Virginia Offshore Wind	2587	Dominion Energy	VA	2022	2026	$ 77.00	(g)
Sunrise Wind 1	924	Orsted	NY	2024	2026	$ 146.00	(n)
Revolution Wind 1	704	Orsted/CIP	CT/RI	2018	2027	$ 98.73	(f)
Empire Wind 1	810	Equinor	NY	2024	2027	$ 155.00	(m)
Marwin	840	US Wind	MD	2025	2029	$ 135.08	(bb)
Momentum Wind	870	US Wind	MD	2025	2030	$ 180.23	(cc)
Attentive Energy 2	1324	Total Energies/Rise/Corio	NJ	2024	2032	$ 165.14	(v)
Leading Light Wind	2400	Invenergy	NJ	2024	2032	$ 139.53	(w)
Attentive Energy 1	1400	Total Energies/Rise/Corio	NY	2024	2030	??	(aa)
Community Offshore Wind	2800	National Grid/RWE	NY	2024	2030	??	(aa)
Long Island Wind	1485	Orsted	NY	2024	2030	??	(aa)
Excelsior Wind	1350	CIP	NY	2024	2030	??	(aa)
Southcoast Wind	1287	Shell/EDF/ENGIE	MA/RI	2024	2030	??	(z)
New England 1	791	Avangrid	MA	2024	2029	??	(z)
Atlantic Shores Wind 1	1510	Shell/EDF	NJ	2021	2028	$ 106.18	(k)
Atlantic Shores Wind 2	1342	Shell/EDF	NJ	2024	2030	>$180.00	(y)
Attentive Energy 1	1400	Total Energies/Rise/Corio	NY/NJ	2023	2030	$ 145.07	(l) (y)
Community Offshore Wind	1300	National Grid/RWE	NJ	2024	2030	??	(y)
Vineyard Wind 2	1200	CIP	MA/CT	2024	2030	??	(x)
Beacon Wind 1	1230	Equinor/BP	NY	2021	2027	$ 118.00	(o)
Empire Wind 2	1260	Equinor/BP	NY	2021	2028	$ 107.50	(p)
Community Offshore Wind	2800	National Grid/RWE	NY	2023	2030	$ 145.07	(l)
Excelsior Wind	1350	CIP	NY	2023	2030	$ 145.07	(l)
Southcoast Wind 1	404	Shell/EDF/ENGIE	MA	2020	2028	$ 88.13	(q)
Southcoast Wind 2	400	Shell/EDF/ENGIE	MA	2020	2029	$ 88.13	(q)
Ocean Wind 1	1100	Orsted	NJ	2019	2026	$ 116.75	(r)
Ocean Wind 2	1148	Orsted	NJ	2021	2029	$ 98.40	(r)
Skipjack Wind 1	120	Orsted	MD	2017	2025	$ 157.43	(h)
Skipjack Wind 2	846	Orsted	MD	2021	2026	$ 103.54	(i)
Commonwealth Wind	1223	Avangrid	MA	2021	2027	$ 98.40	(s)
Park City Wind	804	Avangrid	CT	2019	2025	$ 79.80	(t)
Revolution Wind 2	884	Orsted/Eversource	RI	2023	2030	??	(u)
Total	40,867				Source: Whitestrand Consulting LLC		

Operating	174 MW	On Hold	12838 MW
Under Construction	5825 MW	Cancelled	20312 MW
FID Pending	1710 MW		

Notes

(a) Pilot Demonstration Project
(b) Regulated Utility Pilot Demonstration Project
(c) $74 PPA (2017$) escalated @ 2.5%/yr plus estimated market value of NE-ISO capacity payments
(d) $65 PPA (2017$) escalated @ 2.5%/yr plus estimated market value of NE-ISO capacity payments
(e) Blended $137 PPA (2017$) escalated @ 2%/yr
(f) RI PPA $98.425 for 400 MW; CT PPA $99 for 200MW and $98.25 for 104 MW
(g) Regulated Utility Project LCOE Net of PTC and REC credits
(h) $131.9 PPA (2012$) escalated @ 1%/yr.
(i) $71.61 PPA (2012$) escalated @ 2%/yr
(j) $91.32 PPA (2012$) escalated @ 2.75%/yr
(k) $86.62 OREC (2028$) escalated @ 2.5%/yr. Project re-bid not selected by NJ BPU February 2025
(l) NY 2023 OREC price of $145.07 subject to adjustment for inflation and interconnection costs
(m) Project re-bid after PSC denied requested 35% PPA increase to $159.64
(n) Project re-bid after PSC denied requested 27% PPA increase to $139.99
(o) PSC denied requested 62% PPA increase to $190.82
(p) PSC denied requested 66% PPA increase to $177.84
(q) Projects cancelled with $60 million penalty
(r) Projects cancelled with potential forfeiture of $300 million guarantees
(s) Project cancelled with $48 million penalty
(t) Project cancelled with $16 million penalty
(u) Rhode Island Energy rejected proposed PPA as being too expensive for ratepayers
(v) $112.50/MWH (2012) escalated at 2.5%/yr
(w) $131/MWH (2012) escalated at 3%/yr
(X) Project cancelled after CT declined to take 400 MW of awarded capacity due to cost
(y) NJ BPU cancelled its Fourth Solicitation with no awards February 2025.
(z) MA/RI has delayed awards in its joint 2024 solicitation until 2026.
(aa) NYSERDA has indefinitely delayed awards in its Fifth Solicitation
(bb) Average $105.58 PPA (2012$) escalated @ 1%/yr
(cc) $91.32/MWH PPA (2012$) escalated at 2,75%/yr.

Levelized Cost of Energy (LCOE)

A key parameter for any commercial energy project is its Levelized Cost of Energy (LCOE)[†] which is a useful metric for comparing the cost of different projects within or across technologies and time frames. Table 1 above shows the estimated LCOE for the US offshore wind projects that have been awarded contracts by the various states from 2017-2025.

These values are based on prices per megawatt-hour (MWH) for power produced and included in contracts for Offshore Renewable Energy Certificates (ORECs) or in Power Purchase Agreements (PPAs). Thus, they are the primary source of revenue for the developer and determine the projected Internal Rate of Return (IRR) for the project given its cost structure (equity, debt, O&M, etc.). This is the primary metric when making a Final Investment Decision (FID) on whether to proceed with a project from the planning/permitting stage to construction.

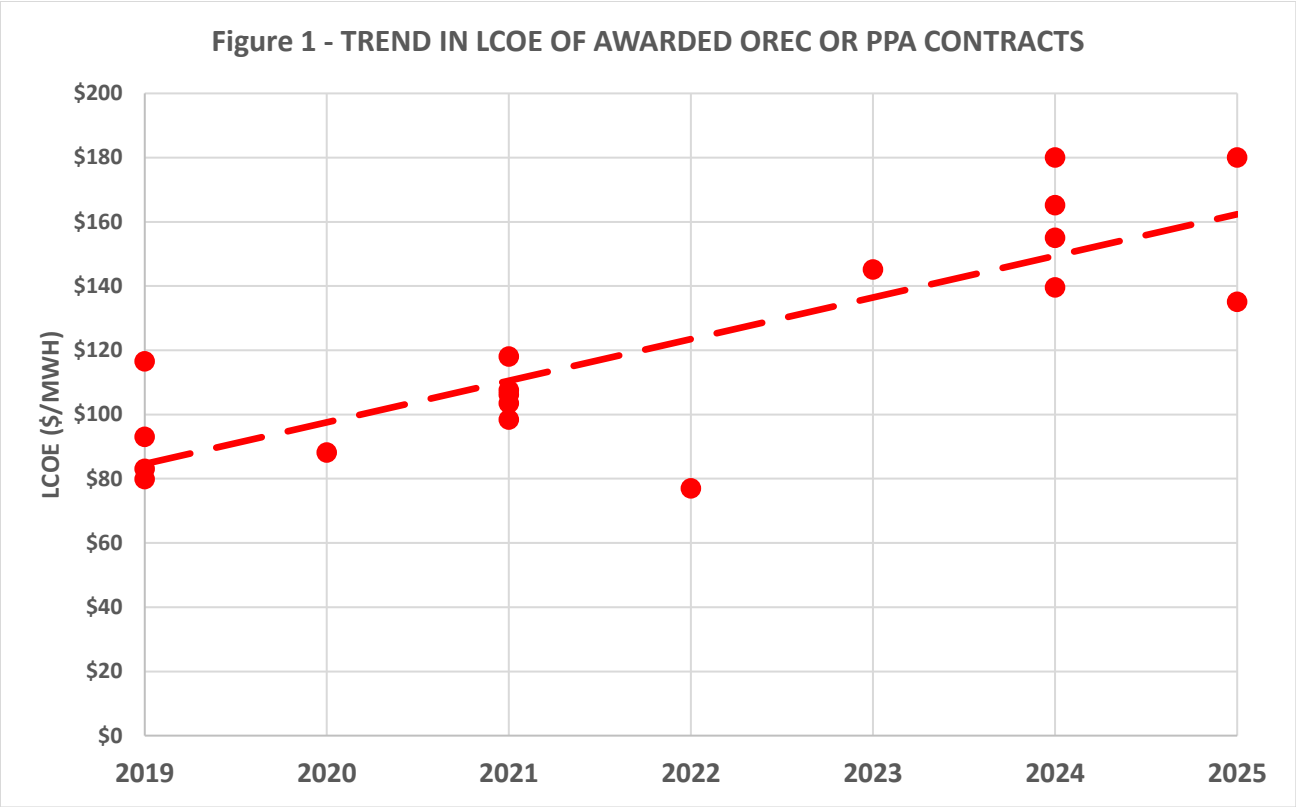
The LCOE values shown have been adjusted in some cases for additional revenues available to the project from sale of capacity or energy credits not embedded in the OREC or PPA prices.

In general, the OREC or PPA contracts require the return of revenue received from the sale of energy, capacity or Renewable Energy Certificates (RECs) in wholesale markets conducted by regional transmission system operators such as PJM, NY-ISO or the NE-ISO. Thus, they represent an offset to the LCOE contract prices to the ratepayer or consumer and have been estimated to have a market value of $50-60/MWH over the period 2026-2050. The difference between the LCOE in Table 1 and this market price represents the degree to which the project is being subsidized by ratepayers.

Since 2019 average prices in approved OREC or PPA contracts have increased due to inflation, higher interest rates and supply chain problems. While the effect of these factors was prominent during the 2020-2021 pandemic period, their effect has not abated and prices have continued to increase through 2025.

Figure 1 below shows the trend in LCOE associated with the increased offtake prices over the period 2019-2025.

[†] LCOE is calculated based on the Net Present Value (NPV) of the OREC or PPA revenues over the 20 year term of the contract divided by the NPV of the ORECs generated over the same period.



As indicated, the average LCOE for offshore wind has doubled from about $80/MWH to over $160/MWH over this six year period. This trend reflects the fact that many of the awards made in 2019-2021 were cancelled and re-bid at higher LCOE values because the developers could not absorb the higher costs without increases in their OREC or PPA contracts.

As of 2025 LCOE values have risen as high as $180/MWH which is now required to meet minimum criteria for a favorable FID. These prices assume the projects will receive Federal tax credits of 30-40% of capital costs or several billion dollars to offset that investment requirement. With the recent passage of legislation denying the tax credits for projects not yet in construction, it is assumed that OREC or PPA prices would have to increase by $50-60/MWH to make developers whole without the credits. This would raise LCOE values to well over $200/MWH, a level probably unsustainable for the state ratepayers to absorb. As a result, as indicated in Table 1 and discussed below, essentially all projects not currently under construction or having reached FID have been indefinitely delayed or cancelled.

Operating (174 MW)

Two of the three projects currently in commercial operation are the two small pilot demonstration projects – Block Island Wind (30 MW) and the Coastal Virginia Pilot project (12 MW). Both employ small 6 MW wind turbines and have been in operation since 2010 and 2016 respectively.

Their LOCE costs are much higher than feasible for any commercial offshore wind project but were considered acceptable due to their small size and their status as R&D projects, meant to gather experience in development, construction and operation of offshore wind facilities.

The Block Island windfarm has operated at about 41% capacity factor[7], below projects for large scale projects which are expected to deliver the equivalent of 45-47% of rated full power. The project experienced several months of unplanned downtime in the summer of 2021 due to turbine blade stress fatigue and erosion exposing undersea cables. The two turbine Virginia pilot project has operated at a 46% capacity factor since it began operating in 2021[8].

These very small pilot projects have proven relatively successful thus far but, given their size and number is not clear how much they have in fact demonstrated that is relevant to the to the much larger turbines and sizes of wind farms being constructed or proposed.

The first utility scale offshore wind project to reach commercial operations is the Southfork Wind project which in March 2024 reached full power in NY. Thus, it marks a key milestone in the progress of US offshore wind. At 132 MW (12 11MW turbines) it is a relatively small commitment with favorable economics for Orsted and Eversource, the project developers. With an estimated LCOE of $180/WMH[9] and access to the ITC of at least 30%, the developers are likely to achieve their expected returns within a relatively short period.

Under Construction (5825 MW)

As of June 2025, six projects were in active construction. The 800 MW Vineyard Wind project is being developed for MA by a partnership of Avangrid and Copenhagen Infrastructure Partners (CIP). This project has a much lower LCOE[10] which is comparable to prices for projects (Commonwealth and Park City) which Avangrid has cancelled due to cost concerns.

According to the Vineyard partners, they have secured more favorable financing terms which have allowed them to proceed here. In late 2023, they announced deals for debt and tax equity financing that have made $3.6 billion available from large US banks[11]. In addition to the guaranteed PPA pricing, they also can retain revenues from sales of capacity to the NE-ISO grid operator. Although the resulting LCOE of $83-94/MWH) appears to be below the minimum required to support a positive investment decision, there may be additional factors, including the desire to show a

commitment to US offshore wind, that may have contributed to the partners' decision to proceed.

Commercial operation has been delayed as a result of a turbine blade failure in July 2024 and commercial operation is now expected in late 2025 or early 2026.

The largest US facility under construction is the Coastal Virginia Offshore Wind (CVOW) project. This involves 176 14.7 MW turbines capable of generating 2587 MW of power. Not only is it the largest, but the project is also unique in being developed as a regulated utility generating asset. The utility involved, Dominion Energy, has received approval from the VA State Corporation Commission (SCC) to pass costs through to state ratepayers while receiving a return of 9.7% on prudently incurred capital investment.

Being a regulated project, CVOW is also the most transparent in revealing construction and operating costs which must be reviewed and approved by the SCC. In its initial filing[14] Dominion projected a capital cost of $9.8 billion or about $3.8 million/MW. Based on this value and including forecast operating expense, Dominion has estimated the LOCE at $77/MWH. This value is net of the Production Tax Credit (PTC) and credit for sale of RECs which will be passed through to ratepayers. The value of these additional elements is estimated to be about $30/MWH so the all-in LCOE is about $107/MWH.

Like any utility project, costs may increase and still be passed through if deemed prudently incurred. The SCC has agreed that ratepayers will share increased capital costs up to $10.8 billion ($4.2 million/MW). As of June 2025 Dominion's cost estimate has risen to $10.7 billion. Further increases above $10.8 billion would be borne solely by Dominion up to $13.7 billion ($5.3 million/MW) at which point the project would be reviewed again by the SCC. In addition, the project cost is capped by statute at $125/MWH in 2018$ or about $160/MWH in 2024.

In support of the project, Dominion has contracted for the construction of Charybdis, a Wind Turbine Installation Vessel (WTIV) to be built as the first such ship to be in compliance with the Jones Act which requires all vessels involved in moving material and passengers between US points to be US built and crewed by American citizens or residents. In addition to using Charybdis in its own project, Dominion has contracted it for use by other developers in US projects. Completion of the ship has been delayed, complicating supply chain issues for those projects while raising costs and has been cited as a factor in decisions deferring or cancelling some projects.

The conventional wisdom is that competitive bidding for projects by non-utility companies which are exposed to market economics produces lower costs to ratepayers. Given the comparison of CVOW costs and LCOE to that of other US projects being undertaken by experienced European developers, it appears that, at least in the case of Dominion Energy, the regulated model is proving superior. Much remains to be seen, however, if CVOW can be built as proposed.

Two additional projects reached favorable decisions to proceed with investments and began construction in 2024. Orsted is building the 924 MW Sunrise Wind 1 project as a result of a successful re-bid in NY which raised its LCOE from about $110/MWH to $146/MWH. This re-bid opportunity was provided by NYSERA after the NY PSC denied a request for an increase to $140/MWH. Despite being higher than the price denied by the PSC, NYSERDA finalized the new contract[37] on June 3, 2024. Construction is expected to be complete with commercial operation in 2026.

Orsted and CIP are building the Revolution Wind 1 project to provide 400 MW to RI and 304 MW to CT beginning in 2027. This project has an LCOE of $98.73[13] which appears below the minimum currently required by investors. It is expected that the project will qualify for a 40% investment tax credit. On this basis, the project may marginally meet required investment criteria. Commercial operation is expected in 2027.

The Empire 1 project in the NY bight between NJ and Long Island is currently under construction following lifting of a stop work order which was issued in April by the Trump Administration and then lifted in May. The project was originally awarded a contract by NYSERDSA in 2019 for ORECs at $118/MWH which was subsequently cancelled after a request for a 35% increase in the OREC price was denied by the NY PSC. NYSERDA then allowed Empire 1 to re-bid into its 2023 solicitation and in 2024 NYSERDA Awarded a new OREC contract at $155/MWH, a 31% increase over its original contract

FID Pending (1710 MW)

In January 2025, pursuant to a legislative directive, the MD PSC allowed US Wind to re-bid its contracts for the Marwin and Momentum Wind projects. The new awards approve these projects to procced in four expanded phases with Marwin providing 840 MW by 2029 at an increased LCOE of $135.08/MWH and Momentum 870 MW by 2030 at $180.23/MWH.

The projects, however, have not yet reached FID and face opposition from Ocean City, MD as well as Sussex county in Delaware where the power cables would be landed. In addition, the loss of Federal tax credits will likely have a negative impact of project viability. It therefore is doubtful that a favorable FID can be reached.

On Hold (12838 MW)

After the cancellation of various projects in 2023, due to insufficient OREC pricing, various states have now adopted a policy of allowing those projects to re-bid into new rounds of procurement with the aim of resurrecting those projects by awarding them more lucrative OREC pricing terms, including inflation adjustment factors.

Allowing such re-bid opportunities will raise tax and ratepayer subsidies and can be expected to result in increased public opposition and legal challenges. However, the state agencies responsible for meeting offshore wind targets view them as necessary

to help developers meet internal criteria for reaching positive FID approval in order to proceed with the projects.

In February 2024, NJ BPU announced awards[39] from its Third Solicitation to Attentive Energy Wind 2 (1324 MW) and Leading Light Wind (2400 MW). The OREC prices of $165 and $140/MWH respectively were 45% higher than awards in the 2021 Second Solicitation and contain inflation adjustment provision which could raise them another 15%. The BPU awards have been challenged by ratepayer groups who have filed appeals which may not be decided until 2026. As a result of supply chain issues and schedular uncertainties, both projects have filed motions to stay their OREC contracts until January 2026 in order to delay posting of financial guarantees as required by the contracts. With the loss of Federal tax credits, it is not expected that these projects can reach FID under the terms of the OREC contracts and will likely be cancelled.

In 2024 the NE states (MA/RI/CT) initiated a joint procurement for a total of 6,000 MW of offshore wind capacity. In September 2024 NE conditionally awarded PPA contracts to Southcoast Wind (1287 MW) and New England Wind (791 MW) with direction to the MA and RI utilities to negotiate final contracts by December 2024. As a result of the November 2024 election, these contract negotiations have been delayed repeatedly until early 2026 and, with the removal of Federal tax credits, it is not expected that they will result in finalized contracts.

Similarly, in 2024 NYSERDA under its Fifth Offshore Wind Solicitation, sought bids for up to 4000 MW of capacity. It received bids from Attentive Wind 1 (1400 MW), Community Wind (2800 MW), Long Island Wind (1485 MW) and Excelsior Wind (1350 MW). Awards were expected by November 2024. In October 2024 Attentive withdrew and, following the election NYSERDA has indefinitely delayed any awards with no announced award date. As with the NE procurement, with the removal of Federal tax credits, it is not expected that NYSERDA will finalize any contracts under this procurement.

Cancelled (13,431 MW)

The year 2023 was not a good one for offshore wind along the east coast. Six projects totaling more than 5000 MW were outright cancelled by the developers. As indicated on Table 1 their LCOEs averaged about $95/MWH. All were awarded in 2019-2020 and have been impacted by adverse macroeconomic developments and supply chain issues which have rendered them not investable at those approved OREC or PPA prices. Shell/EDF and Avangrid incurred cancellation charges of $16-60 million to vacate their contracts in MA and CT[24]. Orsted forfeited $125 million in guarantees after it cancelled the Ocean Wind 1 and 2 projects in NJ.

Skipjack Wind 1 (120 MW) and 2 (846 MW) in MD were both cancelled by Orsted in MD despite the first phase having an LCOE value of $157.43/MWH[12]. But the second

larger phase only had a contract at $103.54/MWH which rendered the combined project not economically feasible.

In July 2023, Rhode Island Energy announced[28] that it was rejecting a proposal from Orsted/Eversource to build the 884 MW Revolution Wind 2 project. The proposed PPA cost was deemed "too expensive for customers to bear" and not in alignment with existing offshore wind PPAs. While the proposed pricing has not been disclosed, the fact that no negotiated PPA was achieved indicates that it was substantially higher than any existing LCOE, and well over $100/MWH.

The developers and states hoped 2024 would allow them to reset and move forward with new projects. However, through June another five projects totaling 7468 MW have been cancelled in NY alone. The Beacon Wind 1 (1230 MW) Empire Wind 2 (1260 MW) were cancelled in January 2024[36] as their OREC prices of $110-118/MWH could not support financing.

In a surprising development, all three projects awarded provisional contacts in October 2023[19] under NYSERDA's Third Solicitation were cancelled in April 2024[38] after GE, their turbine supplier, announced that it could not provide the 18 MW machines on which they had based their bids. As a result, the agreed upon $145/MW OREC price was no longer viable to proceed with more numerous smaller turbines.

As noted, under its Fifth Soliciation NYSERDA also received a bid from Attentive Wind 1 (1400 MW) which was withdrawn in October.

In NJ, in 2024 the BPU undertook its Fourth Solicitation for up to 4000 MW and in July received bids from Atlantic Shores 1 & 2 (2842 MW), Attentive Wind 1 (1400 MW) and Community Wind (1300 MW). Following the November election, in February 2025, the BPU announced[43] that Attentive and Community had withdrawn their bids and the sole remaining bid from Atlantic Shores had been rejected. As a result, no awards would be made under the Fourth Solicitation. A proposed Fifth Solicitation, expected in 2025, has been indefinitely deferred.

Subsequently, in June 2025, Atlantic Shores, which still held an OREC contract issued in 2021 for Atlantic Shores 1 (1510 MW) formally requested that BPU cancel its agreement[44]. This followed announcements by Shell and EDF, the joint owners that they were withdrawing from or writing off their investments in the project.

Transmission Upgrade Costs

It is recognized that bringing large amounts of offshore wind power onto the grid will require major new installation and upgrades of both offshore and onshore transmission facilities including undersea high voltage cables, offshore and onshore substations and AC/DC converters, switchyards and underground and overhead lines through existing or new rights of way.

The initial offshore wind projects were approved using radial connections between the offshore turbines and substations and an onshore Point of Connection (POI) and substation which transmits the energy into the grid for distribution to load centers. It has been acknowledged[29] that such a radial connection scheme involving many dispersed POIs is not optimal in terms of cost, reliability or environmental impact. State and regional transmission system operators in PJM, NY and NE have advocated integrated solutions up to and including the development of offshore transmission system "backbones" that would interconnect multiple offshore wind farms with each other and with a limited number of onshore POIs capable of receiving large amounts of offshore wind.

Thus far, little actual progress has been made on such integrated solutions. Most of the projects approved to date involve radial connections each with its own POI. The cost of these interconnections as well as gaining approval from the regional system operator is the responsibility of the project developer who will pass on some or all of the cost involved to ratepayers. In the case of Atlantic Shores 1, the added LCOE for the transmission system interconnection and upgrade has been estimated at $8/MWH or the equivalent of about $500 million in cost or $0.33 million/MW. This would be passed through to ratepayers as an addition to the approved OREC price, raising it to $114/MWH.

The cost in $/MW is expected to increase substantially with greater amounts of power and integration which would require new substations and lines and upgrading of existing lines and onshore infrastructure. On Long Island the construction of the Propel NY transmission project to bring 3000 MW of offshore wind power into the grid has been estimated at $3.8 billion[31] or $1.3 million/MW. Bids in NJ to accommodate 6400 MW of power through a single POI at Sea Girt to the Larabee Tri-Connection in Howell, NJ similarly averaged $1.3 million/MW[32]. With the delay or cancellation of offshore wind projects in NY and NJ these projects were intended to serve, it is expected that both the Propel NY and NJ Larabee projects will be deferred indefinitely.

Studies of multi-state integrated offshore transmission systems along the Pacific coast range from $10 billion for 7.2 MW ($1.4 million/MW) to $42 billion for 25.8 MW ($1.6 million/MW)[33]. The cost of a similar offshore wind transmission backbone in the Netherlands has been estimated at $37.5 billion to accommodate 22 GW of power ($1.8 million/MW)[34].

Apart from the costs of upgrading and expanding the transmission system to accommodate the various state goals for offshore wind, the planning and approval process for executing those changes and allocating the costs fairly is fraught with potential delay from state and Federal regulatory agencies as well as resistance from various stakeholder interests who may object on economic or environmental grounds leading to litigation resulting in schedule and cost impacts which will prevent these targets from being realized.

The recent Order 1920[40] by the Federal Energy Regulatory Commission (FERC) which oversees interstate transmission projects and rates is an attempt to require long range planning and re-allocate costs for renewable energy, but is controversial and sure to be challenged in court and further delay resolution of transmission issues surrounding offshore wind.

Summary

For the nascent US offshore wind industry, 2023 administered a dose of sobering reality. The year 2024 has seen more of the same. The heady days of 2019-2021, in which near zero interest rates and inflation, easy financing with political and public support, resulted in falling prices on contracts awarded for thousands of MW of offshore wind across the northeast. Despite the boost to such projects injected with the extra tax credits provided with the Inflation Reduction Act of 2022, more than 15,000 MW or 60% of those projects have been cancelled or stalled. Aside from Dominion's regulated project, developers have committed to construct less than 2500 MW of capacity to come online before end of the decade, far short of Federal and state goals.

With the election of President Trump and a Republican congress in November 2024, prospects for offshore wind have been vastly diminished and, with the end of the IRA tax credits, the economic viability of projects not yet under construction has been dealt a fatal blow. The lofty goals of the Biden administration and the northeast states are now far beyond reach.

Table 2 below summarizes the goals and current status of projects by state showing those committed (in operation or under construction) against the goals set by the states.

Table 2 - Status of Northeast State Offshore Wind Projects

State	Goal (MW)	Committed (MW)	Percent of Goal
Massachusetts	5,600	800	14%
Connecticut	2,000	304	15%
Rhode Island	1,430	430	30%
New York	9,000	1,866	21%
New Jersey	11,000	-	0%
Maryland	8,500	-	0%
Virginia	5,200	2,599	50%
Total	42,730	5,999	14%

As indicated only about 6,000 MW of Biden's goal of 30,000 MW by 2030 will actually be built. This represents only 14% of the state goals. NJ and MD will likely see nothing

come of their plans to make offshore wind the centerpiece of the energy transition away from fossil fuel towards carbon free electricity.

Most importantly, the change in direction with respect to Federal offshore wind policy resulting from the November 2024 election has created tremendous uncertainty for developers regarding the ability to make critical investment decisions with long time horizons. Offshore wind involves a 8-10 year planning, permitting, design and construction period before reaching commercial operation and any revenue collection and return on investment.

The realization that this could span two or more changes in administration and policy has had a decidedly chilling effect on the appetite of developers, most of which are non-US companies, for assuming such risk and on their ability to obtain financing. Relying on government promises of tax or ratepayer subsidies for profitability is no longer a viable basis on which to proceed. Until and unless offshore wind in the US can be undertaken on an unsubsidized, market-based pricing basis, no further development of such projects should be expected.

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