NATIONAL OFFSHORE WIND
RESEARCH & DEVELOPMENT CONSORTIUM

2026 LCOE Impact Report Summary

Quantifying the Cost Reduction Impact of NOWRDC-Funded Innovation

Key Takeaway:

NOWRDC-funded innovations delivered LCOE reductions of 6.3 to 12.1% (USD/MWh) across three model wind farms intended to represent likely US offshore wind build out scenarios. As offshore wind scales along both U.S. coasts, reductions of this magnitude stand to save ratepayers billions of dollars and strengthen the case for offshore wind as a reliable, affordable cornerstone of the nation's energy future.

Baseline 1: Fixed bottom

15 MW

31 miles

6.3% Reduction in LCOE

Baseline 2: Floating (deep)

15 MW

800 m

6.3% Reduction in LCOE

Baseline 3: Floating (shallow)

15 MW

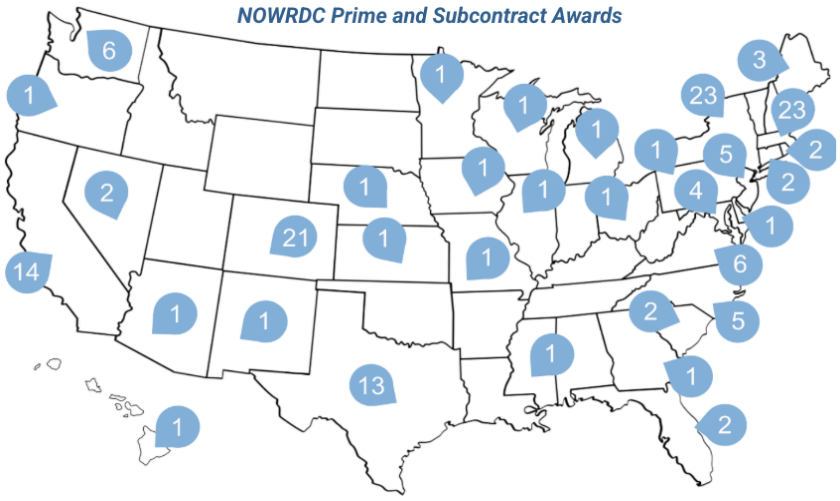
100 m

12.1% Reduction in LCOE

About This Report

The National Offshore Wind Research and Development Consortium (NOWRDC) was established in 2018 with a clear mandate: **support offshore wind deployment and drive down the cost of energy**. Since then, NOWRDC has funded over 60 R&D projects across six competitive solicitations.

To measure the impact of NOWRDC-funded innovation, NOWRDC built a **rigorous evaluation framework** capturing technology readiness, follow-on investment, real-world adoption, and **quantifiable cost reduction potential.**



This LCOE impact modeling represents the most credible **demonstration of what publicly funded offshore wind R&D actually delivers**. The analysis reflects fully commercialized innovations selected through a disciplined process requiring verified techno-economic analysis and genuine near-term commercial viability. **This analysis offers policymakers, developers, funders, and ratepayers a meaningful, trustworthy signal of R&D value.**

Innovations Modeled

Innovator	Innovation	Cost Lever	LCOE Impact	Applicability
Northeastern University	Hurricane Risk & Bankability	Cost of Capital	−3.9% to −4.88%	All scenarios
Tufts University	Physics-Based Digital Twin	O&M / OpEx	−1.7% to −2.43%	All scenarios
Univ. of Maine	Taut Synthetic Moorings	CapEx + OpEx	−3.31%	Shallow floating
Univ. of Massachusetts Amherst	Mooring Configuration Optimization	CapEx	−6.23%	Shallow floating
Natl. Lab of the Rockies (NLR)	Shared Mooring Systems	CapEx	−0.62% to −0.64%	Floating scenarios

Key Findings

1 Cost of capital is the single most powerful lever

Northeastern University's hurricane risk and bankability innovation delivers the largest individual LCOE reduction in every scenario it is applied to, ranging from 3.9% (fixed-bottom) to 4.04% (shallow floating). By reducing uncertainty in hurricane predictions, the research builds lender and investor confidence, driving down financing costs. This underscores a critical insight: R&D that improves project bankability can outperform engineering-focused innovation in its ultimate cost impact.

2 Mooring innovation is disproportionately impactful in floating scenarios

In the shallow floating scenario, mooring-focused innovations from UMaine, UMass Amherst, and NLR collectively drive the majority of CapEx reduction. Substituting conventional catenary chain moorings with synthetic rope systems and moving from individual to shared anchor configurations can achieve material cost savings of up to 93% and installation savings of 67% on the mooring system alone, without any changes to the turbine or floater.

3 O&M innovation delivers consistent, substructure-agnostic returns

Tufts University's physics-based digital twin delivers a reliable 10% OpEx reduction across all three baseline scenarios, yielding LCOE reductions of 1.7% to 5.27%. Its value is not contingent on water depth or substructure type. Notably, the analysis did not capture potential gains from component lifetime extension, suggesting these figures are conservative.

4 The innovations are complementary; the portfolio is greater than the sum of its parts

Each innovation targets a distinct cost driver: financing risk, mooring CapEx, or operational efficiency. Their impacts are largely additive, and the combined effect across all three scenarios consistently exceeds what any single innovation achieves alone. This points to the value of R&D portfolio construction that diversifies across cost levers, not just technology types.

5 Floating offshore wind represents the greatest near-term opportunity

The 12.1% aggregate LCOE reduction achieved in the shallow floating scenario is the largest across all three baselines and demonstrates that the cost gap between fixed-bottom and floating is not fixed. Targeted R&D can make a material difference to project viability.

Methodology Note

This analysis was conducted in partnership with the Carbon Trust. All modeled innovations were assumed to be fully commercialized. Baseline wind farm parameters were derived from public domain data and expert input, updated with current inflation data. A sensitivity analysis was conducted for each innovation. Results are intended to support relative understanding of R&D impact and should not be read as projections for offshore wind pricing.