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Deep-Dive into the MDOT Offshore Wind Facility Draft Pre-Application Alternatives Analysis:

Part 1 – Overview

On February 20, 2024, Governor Mills announced that the State of Maine would develop an offshore wind manufacturing facility on Sears Island, claiming that developing that site would “result in less environmental harm” than Mack Point. Yet it wasn’t until October of 2024 that the Maine Department of Transportation made public a Draft Pre-Application Alternatives Analysis (AA) defending Maine’s decision to develop Sears Island for the floating offshore wind facility.

What’s an Alternatives Analysis?

The offshore wind facility requires numerous permits, including under two federal laws: section 404 of the Clean Water Act and the National Environmental Policy Act (NEPA). Both the 404 and NEPA applications call for objective alternatives analysis (options) and support for a Least Environmentally Damaging Practicable Alternative (LEDPA), the alternative having the least negative impact on the environment while still meeting the project's purpose and need.

Long-term Goal

Rather than demonstrating a “thoughtful site selection process,” as claimed by MDOT and others, the AA exposes MDOT’s pre-determined decision to develop Sears Island and industrialize Penobscot Bay. This biased preference for developing Sears Island emerges from more than 40 years of shameful, unattractive history. For example, a (failed) MDOT 2013 proposal to massively deepen and enlarge the Searsport commercial channel (and dispose of dredge material in open water between Belfast and Islesboro) admitted that its purpose included “potential port development on Sears Island.” A 2017 Searsport Intermodal Commodity Study undertaken for MDOT said, “Sears Island... could be used for project cargo, specialized production or assembly of offshore wind components, or neo-bulk cargoes.”

In our current instance, bias for developing Sears Island became clear in September 2021, before public release of the infamous Moffit and Nichol report in November of that year, when Kay Rand, working as a consultant for MDOT, began organizing a Stakeholder Management Plan. Rand indisputably and explicitly called the goal of the plan, “To develop and execute a stakeholder outreach strategy that would enable Governor Mills to announce the results of the M & N study, announce a commitment to pursue development of Sears Island as the Renewable Energy Port of the Northeast...”

Other documented evidence acquired from a Freedom of Access Act request (not otherwise forthcoming from MDOT) removes any doubt about MDOT’s predisposition for developing Sears Island. This pre-determined mind-set for Sears Island compromised the AA and prevented a fair, impartial analysis.

Practicable versus Optimal

The AA elevates the “practicable” part of the analysis and ignores or minimizes the “environmentally damaging” part.

For example, the AA fails to compare the environmental impacts of MDOT’s preferred Sears Island plan with the Sprague Alternative at already-industrialized Mack Point. Sections 8 and 9 of the AA ostensibly compare the practicability of those alternatives but says virtually nothing about their comparative environmental impacts. The AA report also conflates “practicable” with “optimal” and fails to undertake a thorough analysis of the Sprague Alternative because of imagined, inaccurate operational deficiencies without any review of environmental impacts to wetlands and other important environmental characteristics of both Mack Point and Sears Island.

Environmental Damage

The AA's preferred Sears Island alternative includes harvesting more than 2 million cubic yards of soil, removing some 65 acres of forest, eliminating more than 30 acres of significant freshwater wetlands, destruction of vernal pools, and blocking or impacting at least four perennial streams. Yet the AA contains no examination of the impacts of this environmental destruction.

The Sprague Alternative re-purposes a portion of Mack Point and requires no vernal pools or forest removal, no impact to perennial streams, filling of only 7 acres of non-significant wetland and minimal soil alteration.

Alternative Analysis Purpose Summary

The record shows that MDOT compiled and wrote the AA to bolster the long-term goal of developing Sears Island and industrializing Penobscot Bay, not to look for the best Maine renewable energy response to climate change.

Part II: Costs

As the State of Maine reels from yet another denial of federal funds to support the development of an Offshore Wind Port (OSWP) on Sears Island, it is important to contemplate the significant cost of such a project to the taxpayers of Maine in addition to the costs of this project on the environment of Penobscot Bay.

Taxpayer Costs

Efforts to develop Sears Island have cost taxpayers more than \$26 million over the years. The State of Maine has already spent over \$4 million on the current wind port effort; a project which is not supported by a majority of the community, is unlikely to meet the regulatory hurdles, and relies on untested technology.

Numerous attempts by Maine DOT and the Governor's Energy Office seeking federal funding have repeatedly failed. This leaves a difficult to address massive funding gap that could ultimately result in the people of Maine carrying the financial burden. Even the CEO of Diamond Offshore Wind, a subsidiary of Mitsubishi and principal behind the development of the project, suggested that Maine should "relinquish the dream of being the premier offshore wind port of the Eastern Seaboard and focus on the research array."

Behind the Push to Develop Sears Island

So why is the State pushing so hard to develop one of Maine's last undeveloped islands? The answer is plain and simple. The State of Maine and the Mills Administration's attempts to develop a port in Searsport, purportedly an effort to provide renewable energy and address the climate crisis, in fact simply furthers Maine Department of Transportation's long-standing efforts to industrialize Penobscot Bay. This will result in destructive industrial activity on the shores of Penobscot Bay that will eliminate carbon sequestering ecosystems, and will not mitigate the climate crisis.

According to the Alternatives Analysis (AA), "a port facility that can accommodate only a single use or certain type of floating OSW technology will have limited practical use. In contrast, an adaptable well-designed OSWP will be capable of attracting a wide range of potential OSW project developers and accommodate a range of technologies, thereby maximizing the benefits of the State's significant investment of resources." The AA continues, "a port designed for FOSW can support all other forms of marine port usage. This includes containers, bulk cargo, out of gauge cargo and automobiles."

Environmental Costs

Absent from the AA conducted by the State are the costs associated with upgrading the causeway to Sears Island, which is failing, was likely constructed illegally and cannot support the heavy-load traffic the proposed facility would require. Similarly, there is no reference to the cost of constructing a rail line to Sears Island or a new access corridor on the island, both of which will be needed for the project to be successful.

The Alternatives Analysis refers to the cost of retrofitting Mack Point, a preferable alternative for an untested technology, but it does not consider the true costs of the

State's Sears Island proposal, "...cost is also a key factor that limits available alternatives. One driver of project costs is the availability of land. Another significant and costly challenge at Mack Point is the presence and location of Canadian Pacific-Kansas City Railway (CPKC) trackage in the terminal... this would require the relocation of the existing track, the cost of which is currently unknown." Yet, according to Sprague Energy who operates the current Mack Point facility, this rail trackage does NOT need to be relocated.

The State of Maine is missing an incredible opportunity to not only lead the way in renewable energy production, but to also remediate possible legacy fossil fuel impacts at Mack Point. Instead, the State, in its AA, considers this type of clean-up of a former fossil fuel site an additional cost, "there are other unknown construction elements that could add to costs at a given site, including but not limited to potential contamination and remediation. Several locations evaluated in this section are on active industrial sites with expected contamination. The State has not conducted investigations at each of these sites to determine the type and extent of contamination. The potential for contamination and remediation is addressed qualitatively as an element that adds uncertainty to schedule and likely an increase in costs."

As we continue to seek alternatives to our consumption of fossil fuels and the inevitability of a changing climate, we must first answer some very basic questions. First and foremost: What is needed? Does Maine need an offshore wind port on Sears Island, in support of an untested technology, when most of the power generated would serve other areas in New England and severely impact Penobscot Bay and the Gulf of Maine? Have we exhausted other methods of decreasing our energy consumption through broad energy conservation measures, rooftop solar, and other means?

While the State of Maine proudly touts the merits of the "Maine Can't Wait" climate action plan, it blatantly proposes a project that would severely impact key coastal wetlands and habitats that are critical to mitigating the impacts of a changing climate.

Part III: Estimates of Carbon Sequestration at the Windport

Preserving the mature forests that exist today on Sears Island is an important contribution toward reaching Maine's goal to be carbon-neutral by 2045. The State of Maine's Carbon Budget, Version 2.0, identifies forestland as the most significant factor removing greenhouse gases from the atmosphere through carbon sequestration.

Carbon sequestration is the process of removing carbon dioxide from the atmosphere and storing it in plants. All green plants remove carbon from the atmosphere through photosynthesis, absorbing carbon dioxide (CO₂) from the air, combining it with water and energy from the Sun and releasing the life-giving oxygen we all need to breathe. The carbon stays in the plants as building blocks for growth. The trunks of towering white pines were built from tiny molecules of CO₂ pulled from the air.

The proposal for developing the wind port on Sears Island involves clearing and grading a minimum of 78 acres of the island with 70 of those acres now supporting a mature forest. The Nature Conservancy's Resilient Land Mapping Tool estimates the mass of carbon stored in forests. Destroying those 70 acres of forest in 2026 would ultimately release 6,727 metric tons of carbon into the atmosphere – carbon that is currently stored in the forest – the equivalent of adding over 5,600 gas-powered cars to the road. (each average car annually emits 4.6 metric tons of carbon dioxide which equals 1.2 metric tons of carbon) Instead, allowing those 70 acres of forest to continue to grow and remove carbon from the atmosphere would sequester a total of 7,320 metric tons of carbon by 2050.

Carbon sequestration in intact ecosystems is a proven and cost-effective method to remove CO₂ from the atmosphere and mitigate ongoing greenhouse gas emissions. Deforestation and wetland loss are key factors that reduce natural carbon sequestration.

Part IV: Destroying Wetlands

That AA preferred a Sears Island development plan that would destroy at least 30 acres of important freshwater wetlands and trigger review of the illegal filling of Sears Island wetlands from the failed cargo port attempt in the 1980's, as required by a court-ordered consent decree.

By definition, wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year. In Maine, wetlands take a variety of forms, including marshes, wooded swamps, bogs, sedge meadows, peatlands, and vernal pools. The benefits afforded to the overall ecosystem from wetlands are numerous, from providing critical habitat for fish, waterfowl and other wildlife, to assisting in groundwater recharge, and filtering run-off which ensures the water is clean and clear water as it makes its way to the coast. Wetlands also provide immense benefits to human communities – particularly in the face of climate change – by mitigating the destructive power of floods, storms, and erosion, and acting as carbon sinks.

Prior to the arrival of European colonizers, there were an estimated 221 million acres of wetlands within the continental United States. According to a 2019 report by the U.S. Fish and Wildlife Service, that number has been cut in half, with remaining wetlands totaling approximately 116 million acres. Historically, wetlands were perceived as swamp land that bred insect borne-illnesses that also made travel and agricultural cultivation difficult; people were best served by avoiding, modifying, or destroying these systems. This thinking – that wetlands were places to be ditched and drained, or paved over – persisted for centuries and was perpetuated by federal policy and agencies. It was not until the late 20th century that our understanding and regulations began to change and recognize the importance of wetlands. Despite this shift, we have not yet fully moved beyond sacrificing wetlands in the name of development and economic growth. Roughly 670,000 acres of wetlands – greater than the land area of Rhode Island – were lost between 2009 and 2019 from the continental U.S.

In the Penobscot Bay watershed, wetlands remain threatened. The impacts from Maine DOT's proposed windport on Sears Island's wetlands would be significant, and far greater than either Mack Point alternative presented in the Draft Alternatives Analysis. Construction of the port on Sears Island would destroy ~30 acres of freshwater wetlands, 24 of which have special designation as Wetlands of Special Significance. Alternatively, impacts to wetlands at Mack Point with Sprague Energy's proposal are estimated by MDOT to be seven acres, less than one acre of which is designated as wetlands of special significance.

The wetlands on Sears Island provide habitat not only to the wildlife that live on the island, but also migratory birds. These wetlands clean and filter water that ultimately runs off into Penobscot Bay, carrying nutrients for marine life. These coastal wetlands sequester carbon, providing significant climate benefits. Further, the wetlands on Sears Island are also integrated within a larger landscape of undeveloped forest, shrubland, meadowlands, and coastal dunes. The health of these wetlands is intertwined with the overall health of the island, and Penobscot Bay. MDOT grossly underestimates and fails to understand the impacts to coastal wetlands from the proposed project on Sears Island.

It comes as no surprise that 30 acres of wetlands and the diverse life and ecosystem they support are being brushed aside by MDOT; the agency has a checkered history at best of disregarding environmental regulations on the island, including the illegal filling of more than 10 acres of wetlands in the late 1980s. This action by MDOT resulted in a 1996 federal consent decree between EPA and MDOT that “permanently enjoined” MDOT from destroying freshwater wetlands on Sears Island. The State of Maine paid \$10,000 in civil penalties plus another \$700,000 in environmental mitigation as a result of MDOT's illegal wetland filling.

In a report submitted to Congress and published by US Fish and Wildlife, Status and Trends of Wetlands in the Conterminous United States 2009 to 2019, former Secretary of the Interior, Deb Haaland, wrote:

“...Wetland loss leads to the reduced health, safety, and prosperity of all Americans. When wetlands are lost, society loses services such as clean water; slowing of coastal erosion; protection against flooding, drought, and fire; and resilience to climate change and sea level rise. Wetland losses also cause declines in fish, wildlife, and plant populations that many in our communities depend upon to make a living, feed their families, and enjoy the outdoors.”

Wetland ecosystems are in dire need of protection, and they in turn protect us. We cannot justify the destruction of wetland habitat in the name of green energy to address climate change; only by truly valuing wetlands and conserving them will we be able to address the climate crisis, and protect ourselves and the places we care about.

Part V: Harvesting Soil

The Maine Department of Transportation (MDOT) Sears Island development plan would “harvest” (remove) more than two million cubic yards of soil from the upland development site.

Extent of Damage

According to MDOT consultant Moffat and Nichol’s “Sears Island FOSW Port-Description of project,” the proposed Sears Island development requires “cutting into the hillside to remove” 2,126,000 cubic yards of soil. The removal of more than 2 million cubic yards of soil from an area some 3.5 million square feet in size, starting at the edge of Penobscot Bay and extending up a point 70-90 feet above sea-level, represents unprecedented environmental damage.

It’s difficult to comprehend the scope of such an excavation. One way to visualize the size of this crater on Sears Island’s western shore – you could fit two-and-a-half buildings the size of the TD Garden in Boston into the cavern. Or you could fill 141,723 large, three-axle dump trucks with the harvested soil that, if lined up, would stretch from Searsport to Portsmouth.

The Draft Alternatives Analysis attempts to hide the immense impact of this soil extraction by focusing on the cost of removing some of this soil from the island. The AA reports that some 1,686,000 cubic yards of the excavated soil would be used as fill for the quay extending out into Penobscot Bay and that, “Based on a cut and fill analysis, a net export of 440,000 CY is anticipated for the preferred Sears Island layout.”

Soil Matters

The Maine Geological Survey reports that the last glacier to cover Maine began to recede 21,000 years ago and that the coast, including Sears Island, was clear of ice and ocean some 12,000 years in the past. This means that thousands of years ago the soil MDOT proposes to remove from Sears Island began the dynamic process of combining minerals, organic matter, air, freshwater and life forms under the watchful eyes of the Penobscot Nation ancestors known as People of the Dawn, woolly mammoths, giant beavers, and ancient tundra vegetation.

Over the course of these several thousand years, the soil to be removed from Sears Island created a powerful living ecosystem on the island, what some call a “living skin.” The Earth Microbiome Project finds that “there are hundred-of-thousands of species in a handful of healthy soil.” National Geographic soil scientists report that this massive number of species in soil, “all interact to keep their soil habitat healthy and productive.”

Soil captures climate changing carbon and in aggregate reportedly holds more carbon than all terrestrial plant life on the planet.

Research titled, “The role of soil in defining planetary boundaries and the safe operating space for humanity,” reports that “soils are one of the most complex and diverse ecosystems in the world, hosting a quarter of the planet’s total biodiversity.” The report explains that, “Soil simultaneously acts as both a source and sink of CO₂, and thus plays a critical role in climate change.”

This research concluded, “Soils are a master variable for regulating the critical

Earth-system processes within the planetary boundaries framework, with no other single variable playing such a strategic role across a broad range of the Earth-system processes.”

Compared to Mack Point

The Sprague Alternative for offshore wind development at Mack Point requires very little soil disturbance and the already compacted, industrial soil that would need to be moved contains a far less robust ecosystem than the undisturbed soils on Sears Island.

Broken State Promise

This understanding of the vital role soil plays for humans and the planet prompted agreement among those involved in the Sears Island Planning Initiative (SIPI) that no soil harvesting should ever occur on Sears Island. During Offshore Wind Port Advisory Group meetings, MDOT representatives repeatedly promised to uphold the SIPI agreement when siting an offshore wind manufacturing facility. MDOT representatives now ignore that unequivocal agreement to never harvest soil on Sears Island.

Unusually Deep Sears Island Soil

Soil in the Sears Island development area appears to be unusually deep for a coastal site where bedrock is often present at or near the surface. The Maine Geological Survey of Sears Island reports finding, “till greater than 78 feet deep on the western shore.” The “Natural Resource Inventory” compiled for Friends of Sears Island by Alison Dibble and Jake Maier observed that this unusual depth of soil “suggests that tree growth may benefit from unusually deep root penetration, compared to other coastal sites...”

Construction nears completion of the University of Idaho’s \$25 million Deep Soil Ecotron, created to better understand the role of deep soil “across multiple systems” in addressing human health and sustainable energy.

Imagine the stories that Sears Island’s thousands-of-years-old, uniquely deep coastal soil could tell. This soil witnessed now-extinct mammals roaming a tree-less tundra after the glacier retreat, rising and falling ocean levels, ancient human tribes sharing sustenance in the species-rich environment, forest communities rising from organic deposits. Sears Island soil deserves respect and appreciation. It epitomizes deep ecology.

The extent of soil removal at Sears Island to accommodate the proposed manufacturing facility there, and the ecological significance of that soil, rises to the top or near the top of the long list of reasons why Maine should prefer Mack Point for an offshore wind manufacturing site, not Sears Island, if any such facility is built in Penobscot Bay.

Part VI: The “Least Environmentally Damaging Practicable Alternative”

Federal Clean Water Act 404(b)(1) Guidelines and the National Environmental Policy Act (NEPA) require that projects impacting wetlands, such as MDOT’s proposed manufacturing, assembling and launching offshore wind facility, “evaluate practicable alternatives to determine if the applicant’s proposed project is the least environmentally damaging alternative.”

The Draft AA falsely concluded that the Sprague Alternative “failed to meet fundamental requirements for a successful port due to multiple operational and practical concerns involving a problematic port layout.”

Problematic Claims

For example, the AA claimed that the location of necessary large cranes in the Sprague Alternative conflict with other operations at the proposed facility. This is simply untrue, as a close look at the proposed Sprague Alternative indicates. Cranes in the preferred Sears Island plan are closer together than those in the Sprague Alternative.

Without proof, MDOT called rail crossings problematic in the Sprague Alternative. In fact, the existing rail connection at Mack Point enhances the value of that project location for delivery of goods and components. The Sprague Alternative even

includes a new rail spur to the north of the site for delivery of steel.

Both the Sprague Alternative and the preferred Sears Island Alternative require extensive but comparable filling of marine wetlands. However, the extent of damage to freshwater wetlands soars in the Sears Island plan while the Sprague plan poses minimal freshwater impact.

The Sprague Alternative requires limited dredging of marine sediment to create greater depth between the southern side of the quay and the channel entry. However, The Sprague Alternative requires considerably less controlled dredging than the AA claims. The AA grossly mischaracterizes the impact of Sprague Alternative dredging by comparing it with a massive 2013 proposed dredging and disposal plan that would have employed open-water disposal of sediment into prime lobster habitat and extended the Mack Point entry channel by 2,000 feet.

The Sprague Alternative's loading capacity at the quay for assembling and launching the turbines matches the loading capacity of the Sears Island Alternative, though the AA inaccurately claims otherwise.

Other misleading claims about the Sprague Alternative found in the AA regarding expandability, wharf directionality and linear configuration, site elevation issues, and costs demonstrate an alarming willingness to obscure empirical facts about the constructability and operational functionality of the Sprague Alternative.

Optimal versus Practicable

It appears that, when reviewing the Sprague Alternative, MDOT applied an "optimal" or "most desirable" filter rather than a "practicable" one. Both online Cambridge and Oxford Dictionaries define practicable as "feasible." During a November 2023 public meeting in Searsport, a MDOT engineering consultant called the Sprague Alternative "viable, just not optimal."

Beyond Practicable

And then, "practicable" alone is not sufficient under federal law; the "least environmentally damaging, practicable" alternative must be identified.

While the AA acknowledged the omission of almost all environmental impact considerations, environmental research by consultants attached to the AA could and should have been discussed and incorporated into this analysis, even if acknowledged as incomplete. In February 2024, Governor Mills claimed preference for developing Sears Island based on "environmental impact," among other reasons. If the Governor based her preference for developing Sears Island in February 2024 after analyzing environmental impact of alternatives, as she claimed, then certainly the Draft AA released 8 months later should have included known environmental impacts as well.

Bias

NEPA and 404 regulations demand an unbiased analysis of alternatives. Evidence shows that MDOT is not unbiased. This MDOT bias resulted in dismissing the Sprague Alternative "for failure to achieve key operational requirements for an OSWP," which the record shows is simply untrue.

Conclusion

Evidence on record proves that MDOT decided to locate the offshore wind manufacturing, assembling and launching facility on Sears Island as early as 2021, consistent with decades-long interest in developing a Sears Island port even in the absence of need.

MDOT, then, rejected the Sprague Alternative using a prejudicial analysis of facility needs and insufficient consideration of environmental impacts. Climate change demands immediate response on many fronts, including enormous reductions in carbon emissions from energy production and use. Climate change response elevates the "least environmentally damaging" code to a level of imperative perhaps never more critical than today. Consequently, we find DOT's rejection of the Sprague Alternative in the draft AA clearly inappropriate, socially irresponsible, and bordering on criminal against future generations.