



MEETING 5: CONCEPTUAL PORT ALTERNATIVES AND ANALYSIS

Wednesday, March 29, 2023 – 9am-3:30pm
DOT Headquarters, Main Conference Room
24 Child Street, Augusta

Advisory Group Members and the public were offered the option to participate remotely.

Objective: To provide updates on the preliminary OSW Port alternatives, their potential impacts to natural, social, cultural, and economic resources and features using the alternatives evaluation matrix, and related subjects.

MEETING TAKEAWAYS

Contracts for Services to the State of Maine to Advance the OSW Port

1. MaineDOT has three contracts for services to support planning for a deep-water port to serve the offshore wind (OSW) industry.
 - Gannett Fleming, Inc. – \$250,000 for stakeholder engagement and pre-NEPA activities.
 - Moffatt & Nichol – \$2.2 million for data collection, site investigations, and conceptual design, including geotechnical, structural, electrical, and other studies; includes subconsultant, Foss Maritime, for barge concept study.
 - Treadwell Franklin Infrastructure Capital LLC – \$120,000 for preparation of a stakeholder management plan and development and execution of a communications and media strategy for OSW Port development.

OSW Turbine Patents held by University of Maine and Royalties

2. University of Maine System Board of Trustees retains ownership of inventions developed using University resources. OSW turbine patents are held by the Board of Trustees, not individuals. It is the University's policy that royalty income after expenses is shared with inventors.

Vertical Wind Turbines

3. Rolf Olsen previously asked if vertical-axis wind turbines (VAWT), turbines that rotate around a vertical axis (in contrast to the horizontal axis as has been shown in the OSW graphics in these meetings), had been considered for OSW technology. He understood from his reading that VAWTs were less land intensive to assemble than horizontal axis turbines.
4. Via Bill Plumpton, Dr. Dagher shared that VAWTs have not been seriously considered lately. VAWTs have technical design challenges, including how to transmit the torque from the blades to the generator and blade fatigue, which have not been solved for offshore wind conditions. Jake Ward of University of Maine noted if design issues are resolved, turbine manufacturers must further test turbine performance and reliability to guarantee the turbine prior to sale.

General Update on OSW in the Gulf of Maine

5. The State of Maine has completed and published the [Maine OSW Roadmap](#).



6. The Bureau of Ocean Energy Management (BOEM) leads the process for determining OSW lease areas in the Gulf of Maine. BOEM began engagement in May 2022. Progress is reported online at <https://www.boem.gov/renewable-energy/state-activities/maine/gulf-maine>. BOEM's process milestones and estimated dates (per graphics in Matt Burns' slide deck) include:

- Call Area published - Q1 2023
- Designation of the Wind Energy Area (WEA) - Summer 2023
- Commercial lease areas - Q1 2024A
- Auctioning of lease areas in Q3 2024.
- Developers conduct site planning, permitting, and construction; BOEM reviews – 2024-2029.
- Installation/Operation – as early as 2030.

Alternative Port Concepts Updates

7. MaineDOT continues to refine four alternative port concepts.
8. Costs for design and construction have not yet been estimated; concepts are still preliminary. Land costs (i.e., purchase or lease costs) will be included.
9. The impact of southerly fetch has not been assessed on the alternative concepts.

Barge Concept Study

10. Launching moves the foundations from land to the water, where the turbine is assembled on the foundation. Four launch methods were considered. Three have been dismissed due to fatal flaws; no cost estimates were prepared. A custom or purpose-built barge system (tandem barges) remains under consideration. Order of magnitude cost for two barges is \$112 million. It is not yet known if barges are eligible for federal funding from the U.S. Maritime Administration (MARAD).

Preliminary Impact Results

11. The Alternatives Evaluation Matrix is a comparison and communication tool and identifies design considerations and existing environmental resources or features to inform the overall feasibility of a wind port, including a no build option. It neither makes nor informs any decisions about wind port location. This preliminary evaluation precedes and will inform the federally prescribed processes for complying with NEPA and issuing permits under the Clean Water Act, which will be prepared in the next phase of project development.
12. The matrix is approximately 75 percent complete and was provided for Advisory Group feedback.
13. The OSW Port Advisory Group members suggested historic data sources and additional studies that could be used to assess features prior to a formal evaluation of environmental impacts from a wind port.

INDUSTRY UPDATES

14. Links to online videos about the Long Beach, CA Pier Wind Project and the Esbjerg, Denmark Digital Simulation are provided in Matt Burns' presentation.



NEXT STEPS

15. MaineDOT expects to:
 - a. Continue refining the four alternatives; this includes Eastport and its challenges.
 - b. Continue to barge and ramp concepts.
 - c. Pursue the federal port infrastructure grant program for funding for design and environmental work associated with projects in Portland and Eastport, plus design for OSW, targeting Searsport.
 - d. Work with Gannett Fleming to complete the Alternatives Evaluation Matrix and redistribute it prior to the next Advisory Group meeting.
 - e. Schedule the next meeting in mid to late June 2023; scheduling will depend on progress and is likely the last meeting of the Advisory Group. MaineDOT will outline the next phase of work at this meeting.

PUBLIC COMMENTS

16. Members of the public made statements or asked about the following topics:
 - a. State assistance to the host community to address community and transportation impacts.
 - b. Restoration of eelgrass and management of green crabs.
 - c. The relative importance of rail infrastructure to a wind port.
 - d. Federal funding.

COMMON TERMS & ACRONYMS FOR VESSELS INVOLVED IN THE OSW INDUSTRY

- **AHTS** – Anchor handling tug supply. Specially designed to handle the large anchors that tether the floaters to the seafloor.
- **Barge** – semi-submersible barge; like a heavy lift vessel to haul ship or an OSW WTG in this case.
- **Delivery Vessel** – General cargo or heavy lift vessel used to transport WTG components to the marshaling facility.
- **CTV** – Crew Transfer Vessel
- **HLSS** – Heavy lift semi-submersible barge
- **SOV** - Service Operation Vessel provide routine repair and maintenance to OSW WTG
 - OSV – offshore vessel; broad term for vessels supporting exploration and production of offshore mineral and energy resources (as stated, but not listed in the presentation)
- **SPMT** – self-propelled modular transport (for equipment).
- **WTG** – Wind turbine generator
- **WTIV** – Wind Turbine Installation Vessel are typically for fixed bottom OSW WTG.

See slide 10 for a graphic from Crowley (Florida-based tug and barge company) depicting many of the vessels described above.



ATTENDANCE

ADVISORY GROUP MEMBERS

Beth Ahearn, Maine Conservation Voters, Co-Chair
James Gillway, Town of Searsport, Co-Chair
Matt Cannon, Sierra Club Maine
Joshua Conover, Islesboro Marine Enterprises (absent)
Habib Dagher, Ph.D., P.E., University of Maine College of Engineering (absent)
Dennis Damon, Maine Port Authority
Eliza Donoghue, Maine Audubon
Francis Eanes, Maine Labor Climate Council
David Gelinias, Capt., Penobscot Bay & River Pilots Association
James Guerrette, Citizen, Town of Searsport (absent)
Jessie Gunther, Retired Judge, Public At-Large Member
Ben Lucas, Maine Chamber of Commerce (absent)
Sean Mahoney, Conservation Law Foundation (absent)
Matt Marks, Associated General Contractors of Maine (absent)
Paul Mercer, Consultant to Governor's Office
Steve Miller, Islesboro Islands Trust
Rolf Olsen, Friends of Sears Island
Mac Smith, Town of Stockton Springs (absent)
Jim Therriault, Sprague Energy

MAINEDOT PERSONNEL & CONSULTANTS

Bruce Van Note, MaineDOT
Matt Burns, Maine Port Authority
Nate Benoit, MaineDOT
Nate Moulton, MaineDOT
Kristen Chamberlain, MaineDOT
Paul Merrill, MaineDOT

Kay Rand, Consultant
Bill Plumptre, Gannett Fleming, Inc.
Adam Archual, Gannett Fleming, Inc.
Michelle Brummer, Gannett Fleming, Inc.

SPEAKERS

Bruce Van Note, MaineDOT
Matt Burns, Maine Port Authority
Jake Ward, Vice President for Innovation and Economic Development, University of Maine

PUBLIC

Carsten Agerbaek
Becky Bartovics
Greg Biddinger
Amy Browne
Steve Bulloch
Celeste Carey
Murray Carpenter
William Carpenter
James Gilbert
Donna Gold
Joshua Goldstein
Drew Hersom
Andrew Johnson
Daniel Kennedy
Haven Ladd
Chris Mayo
Chelsea Pettengill
David Perkins
Beverly Roxby
Joan Saxe
Zach Schmesser
Sue Stafford
Susan White
Dave Wilby
Greg Woodring



AGENDA

1. WELCOME AND OPENING REMARKS

Bill Plumpton, Gannett Fleming, Inc., welcomed Advisory Group members, MaineDOT representatives, and the public to the meeting.

- Bill restated the Advisory Group's role: to strengthen public understanding of the study, planning process, and the regulatory framework for project development and which decisions need to be based; to provide advice and share information with the State regarding the alternative wind port locations and concepts under consideration; and to share the State's progress with member's organizations and constituents.
- He reminded co-chairs Beth Ahearn and James Gillway of their responsibility to adjust the pace of presentation and discussion as needed and noted Kay Rand as the Advisory Group's single point of contact between meetings.

David Gelinas characterized the December 23 and 24, 2022 storm event and its impact on the coast and its relevance to offshore wind and port planning.

- The storm produced 35 mph winds with gusts to 60 mph. Wind direction from the southeast to southwest was unusual; winds are typically from east to northeast to northwest.
- On land, flooding was widespread and 360,000 people were without power.
- Inbound waves were six feet high; reflective waves were 12 feet high.
- Three lines were required to hold tugs to the dock; two lines were broken. Boats remained tethered by a single line.
- The safest location during the storm was on north side of Sears Island.

Jessie Gunter asked how the storm impacted Eastport? Matt Burns noted that there are more than 20 miles of open ocean at Searsport, while Campobello Island blocks the face of the pier at Eastport. Weekly communications from Eastport to the Maine Port Authority did not report similar issues.

Rolf Olsen said he would look for assurance that OSW hulls can withstand atypical storms such as this one. He is interested in more public information or a public forum to explain what OSW might look like and its affect on communities and the economy.

2. CONTRACTS FOR SERVICES TO THE STATE OF MAINE TO ADVANCE THE OSW PORT

Commissioner Van Note and Matt Burns highlighted MaineDOT's contracts for service associated with planning for a deep-water port to serve the OSW industry.

- Gannett Fleming, Inc. – \$250,000 for stakeholder engagement and pre-NEPA activities.
- Moffatt & Nichol – \$2.2 million for data collection, site investigations, and conceptual design, including geotechnical, structural, electrical, and other studies; includes subconsultant, Foss Maritime, for the barge concept study.
- Treadwell Franklin Infrastructure Capital LLC – \$120,000 for preparation of a stakeholder management plan and development and execution of a communications and media strategy for OSW Port development.



Discussion

- Steve Miller asked about a Moffatt & Nichol investigation of the role other ports along the coast might play, as a follow-up to the [Offshore Wind Port Infrastructure Feasibility Study](#) (November 2021) that focused on Searsport. M&N report image was sourced in the supply chain report.
 - Matt Burn said that study incomplete and has not been released.

3. OSW TURBINE PATENTS HELD BY UMAINE AND ROYALTIES

Bill Plumpton introduced Jake Ward of the University of Maine, who participated for Dr. Habib Dagher. Bill noted that a question about patents and royalties from inventions was raised after the Advisory Group's July 2022 tour of the University of Maine's Advanced Structures and Composites Center.

Jake Ward noted that the University of Maine System, specifically the Board of Trustees, retains ownership of inventions developed using University resources.

- This is true of all U.S. universities in accordance with the Bayh-Dole Act, formerly known as the Patent and Trademark Act Amendments, enacted in 1980.
- The University of Maine has a policy that all intellectual property developed by UM employees using university resources are assigned to the University of Maine System Board of Trustees.
- OSW turbine patents are held by the Board of Trustees, not individuals.
- It is the University's policy that royalty income after expenses is shared with inventors.
- The patent process establishes where inventions can be manufactured. Patents can be exclusive to prevent manufacture in specific countries.
- The University of Maine is attempting to license some OSW inventions as a package; others may be licensed individually.
- Licensing of OSW components will be non-exclusive, meaning multiple licenses may be sold, though the location of license may be exclusive, such as only for use in the Gulf of Maine.
- If licensing is successful, royalty is paid after operation begins.
- The University of Maine has a license agreement with New England Aqua Ventus for the Monhegan project. This agreement is royalty free to support research and development.
- The agreement for the Maine Research Array is expected to be royalty bearing at 7% of hull costs per project or \$56,000/MW. After deducting legal and marketing costs, the net royalty gain will be shared with inventors.
- A fee per hull is believed to be the best practice.

Discussion

- Rolf Olsen stated that he raised the question about patents and ownership. He read an article about Dr. Dagher that cites his ownership of 80+ patents and raised the question out of concern for Dr. Dagher's extensive involvement in many aspects of OSW.
 - Jake Ward noted that media reports can be incomplete or inaccurate. None of the inventors at the University of Maine own a patent, unless the Board of Trustees reviews and approves the request. Dr. Dagher is a named inventor among others for various OSW components.



4. VERTICAL WIND TURBINES

Bill Plumpton introduced this next agenda item noting Rolf Olsen previously asked if vertical-axis wind turbines (VAWT) had been considered for OSW technology. He understood from his reading that VAWTs—turbines that rotate around a vertical axis in contrast to the horizontal axis as has been shown in the OSW graphics—were less land intensive to assemble than horizontal axis turbines.

Via Bill Plumpton, Dr. Dagher shared that VAWTs have not been seriously considered lately. VAWTs have technical design challenges, including extreme tower height, how to transmit the torque from the blades to the generator at the base, and blade fatigue, which have not been solved for offshore wind conditions. A French company attempted VAWTs at a 2MW scale and abandoned the effort.

Discussion

- Rolf Olsen explained that he had read about VAWT research at Northeastern University at a small scale, 5MW-8MW. He understood VAWT to be as less land intensive at port and to have shorter towers. He raised this question to contribute due diligence toward an unbiased view of OSW technology. He will share the article.
- Jake Ward of University of Maine noted if once design issues are resolved, turbine manufacturers must further test turbine performance and reliability to guarantee the turbine prior to sale. A wind farm developer relies on turbines with guarantees and service records for performance and reliability. The process to certify a turbine is significant for turbine manufacturers is paramount to feasible production and sales.
- The VAWT tower extends from the bottom of the blade to the top of the blade with bearings at both locations. The full blade is in clear air space. The “air gap” is the space from the sea surface to bottom of the blade.
- Paul Mercer noted that the State looked at 2-6MW VAT several years ago. If VAWT advances to become feasible, Maine will reconsider.

5. PROGRESS REPORT: CHANGES TO ALTERNATIVES

Matt Burns, Executive Director of the Maine Port Authority, shared the State’s progress in three areas:

- General Update on OSW in the Gulf of Maine
- Alternatives Port Concept Updates
- Barge Concept study received from M&N/Foss Maritime – related to launch of foundations

General Update on OSW in the Gulf of Maine

The State of Maine has completed and published the [Maine OSW Roadmap](#).

The Bureau of Ocean Energy Management (BOEM) leads the process for determining OSW lease areas in the Gulf of Maine. BOEM began engagement in May 2022. Progress is reported online at <https://www.boem.gov/renewable-energy/state-activities/maine/gulf-maine>. BOEM’s process milestones and estimated dates (per graphics in Matt Burns’ slide deck) include:

- BOEM issued Request for Information (RFI) – August 2022



- Draft Call Area announced – January 2023. Stakeholder meetings in January and February 2023 occurred.
- Call Area published - Q1 2023
- Designation of the Wind Energy Area (WEA; areas most suitable for OSW development) - Summer 2023
- Commercial lease areas - Q1 2024A
- Auctioning of lease areas in Q3 2024.
- Developers conduct site planning, permitting, and construction; BOEM reviews – 2024-2029.
- Installation/Operation – as early as 2030.

Discussion

- Paul Mercer explained that BOEM is reviewing one unsolicited lease for research (eligible only to federal or state entities; BOEM determined that the State of Maine was the only potential lease applicant) and one solicited lease (this process for commercial scale OSW production).
- Francis Eanes noted that the public comment period on the draft Call Area closes March 31.
- Dennis Damon noted that the draft Call Area map indicates that there will no development of wind power in state waters. Is this correct?
 - Matt Burns – The draft Call Area is beyond the three miles of state waters.
- Rolf Olsen asked MaineDOT to characterize the competitiveness and pace of the OSW lease process.
 - Matt Burns – OSW is new and contributes to local power supply. No single state will have a complete energy supply chain within its borders.
- Rolf Olsen continued to say if the goal is new sources of renewable energy, collaboration is beneficial. Has there been inter-state collaboration?
 - Paul Mercer – The BOEM process engages a tri-state task force of Maine, New Hampshire, and Massachusetts representatives; known as the Gulf of Maine Intergovernmental Renewable Energy Task Force.
- Matt Canon asked how the WEA is distilled, and if that process has a relationship to ports.
 - Matt Burns – I cannot speak to BOEM’s methodology. Ideally, the port would be central to the WEA and lease blocks.
- Paul Mercer – The Call Area is made available to all potential developers. Developers weigh in where they would like to locate, including consideration of port location and proximity. Five developers responded to the draft Call Area for the Gulf of Maine.
 - Matt Burns – BOEM has online information about this process. See <https://www.boem.gov/renewable-energy/state-activities/maine/gulf-maine>
The Governor’s energy office website has a clearinghouse of information at www.Maineoffshorewind.org.

Alternative Port Concepts Updates

Matt Burns characterized updates to the four alternative port concepts.

Mack Point – 100 acres for OSW turbine production and launch

- Recent refinements maximize the area for production of foundations



- Moffatt & Nichol are exploring options to reduce the need for dredging
- Current dredge quantity estimate is 690,000 CY
- Marine borings will be completed in Spring 2023

Sears Island – 100 acres for OSW turbine production and launch

- No change; no dredge required due to deep water

Hybrid Mack Point-Sears Island – 119 total acres for OSW turbine production and launch

- Foundations to be manufactured at Mack Point and transferred to Sears Island
- Turbines to be assembled and launched from Sears Island; current drawing shows a ramp for launching
- Current dredge quantity estimate is 370,000 CY at Mack Point only

Eastport – 100 acres for OSW turbine production and launch

- No dredge required; upland rock and ledge removal required to create flat area for foundation manufacture

Discussion

- Beth Ahearn asked if costs for design and construction have been prepared.
 - Matt Burns – Moffatt & Nichol has begun work on the preliminary cost estimates, and they have not been completed.
 - Land costs, either purchase or lease costs, will be included.
- Steve Miller asked about the 100 acres listed for Mack Point; the 2021 study listed 85 acres.
 - Nate Benoit – Additional acreage comes from infill and the quay. Wetlands will need to be identified and delineated.
- Rolf Olsen asked if the economic value of current conditions both at Mack Point and at Sears Island had been quantified. He noted that each alternative has a cost to develop and that impacts (positive and negative) are measured against current condition and value. The net cost should account for all.
 - Matt Burns – MaineDOT has not quantified economic values.
 - Bill Plumpton – The assessment of true costs will take place during the NEPA and permitting processes.
- James Gillway asked if the state is looking to purchase land at Mack Point and the tax ramifications?
 - Matt Burns – At this point, a long-term lease would be a mechanism.
- Matt Canon asked about the evaluation of barge versus ramp options for the launch method.
 - Matt Burns – As we get more information on barge and ramp options, we will look at cost, versatility, time to construct/operate, and risk. The concept sketches will show a preferred/final launch facility. We do not have an answer yet.
- David Gelinias asked if Moffatt & Nichol have assessed the structural needs to sustain the southerly fetch, the distance the wind blows over open water resulting in waves.
 - Matt Burns – Not yet.

Barge Concept Study

Matt Burns presented progress to date on alternatives for launching the foundations from land into the water where the turbines are assembled on the foundations.



Four launch methods were initially considered. Three are likely to be dismissed due to fatal flaws; no cost estimates were prepared for these alternative methods.

1. Heavy-lift Semi-Submersible (HLSS)

- An extra-wide HLSS barge and the world's largest self-propelled semi-sub were considered.
- Two vessels, one each from Boka Vanguard and Boskalis, appear to meet the requirements.
- Both vessels are foreign owned; there would be Jones Act implications.
 - Note: The Merchant Marine Act of 1920, better known as the Jones Act, regulates maritime shipping. It requires that any cargo traveling by sea between two U.S. ports must sail on an American-owned ship, built in the United States, and with a majority crew of U.S. citizens.
- Vessels are enormous. It is believed the charter rate for the HLSS vessel would be cost-prohibitive for commercial OSW generation.
 - Note: The slide deck includes photo and video link of a HLSS loading a Carnival cruise ship and a rendering of OSW foundations on SS vessel.
- This option will likely be dismissed.

2. Flat-deck Barge Conversion

- The US Barge fleet has several heavy deck barges.
- A single barge would not perform the work, so joining two barges was considered.
- Some of these barges have the required deadweight capacity but cannot accommodate full width of foundation without overhang that threatens the integrity of the foundation.
- Freeboard (the distance from the water surface to the deck edge) is an issue. The barge's deck edge cannot get close enough to the quay, preventing a roll-on movement of the foundation.
- The barge pair would need a complex ballasting system.
 - Note: The slide deck includes a photo of a heavy deck barge (HDB).
- This option will likely be dismissed.

3. Towable Modular Barge System

- This system consists of smaller structures that interlock to construct floating platforms. Components can be trucked over the road.
- This system is commonly used for creating work platforms for cranes and construction equipment. It is highly versatile and there are many manufacturers (e.g., Flexi-float and Poseidon Barge).
- The concept would use common-size smaller barges joined in a 'T' configuration to accommodate the triangular foundation footprint.
- This concept would be a novel approach and would require significant study by class and marine warranty companies before serious consideration by the State.
 - Note: The slide deck includes a rendering.
- This option will likely be dismissed.

4. A custom or purpose-built barge system (tandem barges) remains under consideration.

- If a pair of barges were designed with correct proportions, it could support the floating foundation.
- Ballast systems and stability towers would be designed for the barges.
- A 430-foot x 120-foot x 26-foot single barge concept was selected for further study.
- Two barges joined with a 5-foot structural interface provides a 245-foot-wide launching platform.



- Barge and dock design needs to consider large tidal range and sea level rise.
- Barge should be capable of getting the deck as near to level to the dock face as possible.
- A significant freeboard is needed, meaning a bigger and more expensive barge.
- Further study would be required as well as discussions with a ship builder regarding location.
- Rough order of magnitude (ROM) cost is \$112 million for two barges and does not include operation and long-term maintenance costs.
- It is not yet known if barges are eligible for federal funding from the U.S. Maritime Administration (MARAD).

Discussion

- Jessie Gunther asked: Does the barge carry the foundation to the farm?
 - Matt-Burns – No, it moves the foundation from the land into the water; the towing to the farm is separate.
- It was asked if the barge is eligible for federal funding sources.
 - Matt Burns – MARAD has a federal shipping financing program, which supports OSW activity. The State will need to ask if a barge to serve OSW would be eligible.
- Dennis Damon asked what water depth is needed to launch the foundation once the foundation is on the barge.
 - Matt Burns – 60 feet
- James Gillway asked what launch options California is using at Humboldt Bay – barge or ramp?
 - Matt Burns – A semi-submersible barge.
- Beth Ahearn asked when the cost estimates for the barge concepts will be available.
 - Matt Burns – For the first three options, there were fatal flaws; no cost estimate will be prepared. Both barge and ramp options have significant costs. Mechanical controls added to a ramp improves smoothness and adds cost.
 - Jim Therriault noted the potential need to dredge the bay if the ramp alternative is selected.
 - Matt Burns – The State will need to explore and select the best launch method for floating foundations.
- David Gelinis asked about the weight of the foundation.
 - Matt Burns – We estimate 14 tons.
 - David Gelinis - Can the barge be kept level when sliding such a heavy item onto the barge?
 - Matt Burns - Yes
- It was asked if towing vessel support is available.
 - Matt Burns – Existing tugs are ship-assist tugs. Heavier duty tugs would be needed. The cost would be borne by the developer.
- Rolf Olsen asked if the State is looking to invest in partnership for renewable energy.
 - Matt Burns – Some states have required developers to pay for some port costs. The State could develop then lease the facility. No model has been selected.
 - Paul Mercer – In some states, the developer is very involved in supporting the cost of development.
- David Gelinis asked about the lifecycle of a barge system.
 - Matt Burns – It would have to be a minimum of 20 years to be feasible.



- Paul Mercer – Long-standing shipping companies, such as Crowley and Edison, are looking to serve OSW port needs.
- Matt Burns referenced the July 2022 presentation that showed an image of a Crowley “fleet.”
- Paul Mercer – This barge technology is not entirely new. Companies have been serving fixed bottom turbines with anchor handling vessels.
- James Gillway noted that foundations will need to return to port for research, maintenance, new blades, and nacelles. Vessels will be needed to assist in these movements.

Matt Burns provided narration for a series of renderings showing:

- 1) foundations on green blocks awaiting transfer to a barge.
- 2) Red self-propelled modular transports (SPMTs) beneath the foundation between the green blocks; the SPMTs roll into place, lift the foundation, take the load, and roll the foundation onto the barge
- 3) Red SPMTs lower the foundation onto blocks on the barge, then roll back to land.

The barge pair/system is still under study.

- Dennis Damon – How did foundation get on the blocks? Can the foundation be built on the SPMTs?
 - Matt Burns – The can either constructed on blocks or jacked up.
 - Paul Mercer – Cranes are also involved.
 - Matt Burns – The size/length of the foundations 350 feet.
- David Gelinias asked about the duration of the transfer.
 - Matt Burns – it is most of one day.
 - David Gelinias – How will the transfer method compensate for the tide during that time?
 - Matt Burns – It can be done with the transfer initiated at low water.
- Matt Canon asked if the foundations could be lifted into water.
 - Matt Burns – At 14 tons, they are too heavy.
- Rolf Olsen said he spoke with Stephanie Watson at the Governor’s Office, and he sensed a lack of coordination between the Governor’s Office and MaineDOT.
 - Matt Burns – Ports were a topic in the *Roadmap* and its working groups, especially the Supply Chain, Workforce, Ports and Marine Transportation group. The *Roadmap* determined the need for a port.

Jessie Gunther asked about Sean Mahoney’s email and Kay’s response about tribal interests. She asked for confirmation that tribal consultation is not the duty of the Advisory Group.

- Bill Plumpton noted consultation with tribes is very prescriptive—think, nation-to-nation communication only. The results of the effort will be available during preparation of an environmental impact statement (EIS). Which agency will lead the EIS has not been determined.
- Beth Ahearn affirmed that consultation occurs government to government.

6. PROGRESS REPORT: PRELIMINARY IMPACT RESULTS

Matt Burns and Adam Archual, Gannett Fleming, Inc.



Bill Plumpton turned the meeting to the Alternatives Evaluation Matrix, a four-page table of design and environmental screening criteria across the top and no-build and build alternative locations down the left. The matrix is a communication and comparison tool. It is not a decision-making tool. The EIS and permit applications will contain much more information for decision-making.

Two maps are provided:

1. Maine OSW Port Features Mapping - Eastport 2023-03-06.pdf
2. Maine OSW Port Features Mapping - Searsport 2023-03-06.pdf

These illustrate the locations of ports in black with the hybrid shown in red and the locations or extents of features for which public geospatial data is readily available.

The Advisory Group was asked, if you know of data in the matrix that is inaccurate or out of date, please advise us. If you know the source of a more recent or more accurate data set, or a study that uses a more recent data set, please share.

Criteria 1. Satisfies Purpose and Need – all build concepts meet purpose and need; no build does not.

Site Requirements, Logistics & Constructability – Matt Burns highlighted the group of criteria, many of which have been discussed throughout the Advisory Group meetings.

Criteria 2. Contiguous Upland

Criteria 3. Water Frontage – minimum of 1500 feet

- Steve Miller asked if accommodation of delivery vessel is essential. Use of the cargo pier at Mack Point is still an open question.

Criteria 4. Federal Maintenance Navigation Channel Access (minimum)

Criteria 5. No Air Draft & Direct Access to Open Water – Travel through Canadian waters noted for Eastport

Criteria 6. Wharf Accessibility High Tide and Flood – tide range for Eastport is higher (~2x) than Searsport sites.

Criteria 7. Impacts to Navigation – The matrix reflects input from Penobscot Bay Pilots only; the State still needs to interview Eastport pilots

- Steve Miller – The issues of wave and fetch need more research and quantification. There is great respect for the Penobscot Bay Pilots; they move vessels safely.

Criteria 8. Dredging & Disposal – The matrix shows preliminary data and is subject to change as concepts are further refined. The amount of rock excavation at Eastport is significant.

Criteria 9. Upland Site Preparation – The matrix shows preliminary data and is subject to change as concepts are further refined.

- Steve Miller – I presume a confined aquatic disposal (CAD) cell will be required for all Searsport sites. Is that true or conditional/unknown?
 - Matt Burns – the State knows of no disposal sites available to receive the quantity of dredged materials being considered and a CAD cell would be required.
 - Paul Mercer – Did the Army Corps of Engineers (USACE) state that a CAD cell is required?



- Matt Burns – No. The State’s preferred plan is to dispose of dredged material on Sprague’s upland property as the most beneficial method. It is not located in the water column and useful to Sprague terminal. The USACE recommendation for a CAD cell is pending.
- Jim Therriault – Does USACE choose where the CAD cell goes? Can we negotiate its location to avoid future relocation?
- Matt Burns – I assume the USACE would locate the CAD cell as close to the dredge site as possible.
- David Gelinis – There is a substantial body of past documents (testimony) about dredging that should be considered.

Criteria 10. (Site) Currently Available – All four build sites are available, as qualified in the matrix.

Criteria 11. Cost – This is a placeholder for preliminary cost estimates. These are not included at this time but will be added, in next version of the matrix.

Adam Archual, Gannett Fleming, Inc. presented the remained for the matrix. Adam noted that the data varies in time; some data is more recent than other data. The matrix quantifies the direct impacts where possible; if it was not possible to quantify the direct impacts, and for the indirect impacts, they were qualified:

- Direct impacts – caused by the action
- Indirect impacts – caused by the action later in time or physically removed, but foreseeable
- Cumulative impacts

Impacts to Waters of the U.S. (WOTUS), Wetlands & Waterbodies from Dredge, Excavation, Fill, Conversion

Criteria 12. Freshwater Wetlands and Vernal Pools – results were from existing datasets; specific locations of wetlands and vernal pools will be delineated.

- Rolf Olsen – Vernal pools are listed as not present.
 - Adam Archual – They are not present according to the online datasets used.
 - Steve Miller – The Sears Island Planning Initiative produced characterization maps based on investigations by Normandeau Associates. Steve can provide documents. Forested wetlands within the footprint are approximately 19 acres and nine vernal pools, as mapped by MaineDOT. He does not see 86 acres of open water at Mack Point.
 - Adam Archual – Please share the documents referenced. On the map, fresh water and open water are marked according to the U.S. Fish and Wildlife Service’s National Wetland Inventory.

Criteria 13. Streams

- Steve Miller – There are two streams in the Sears Island development area as documented in the Sears Island Planning Initiative and investigations by Normandeau Associates.

Criteria 14. Navigable Waters

Criteria 15. Coastal Wetlands

Criteria 16. Eelgrass – Data is from both historical records and a recent 2022 survey.

- Rolf Olsen – My understanding is that eelgrass surveys are completed every 10 years.



- Kristin Chamberlain – Data is from the Department of Marine Resources historical mapping. The 2022 survey was a survey conducted by MaineDOT to inform this process.
- Steve Miller requested that the Advisory Group receive the survey report.
- Matt Canon – Is there a requirement to restore areas previously inhabited by eelgrass? Why did it disappear?
 - Bill Plumpton – The EIS will identify impacts of reasonable certainty and consider mitigation measures. Consideration of mitigation could explore restoration.
 - Kristin Chamberlain – Eelgrass beds move over time.
 - Beth Ahearn – They move based on climate change and predation by green crabs. Green crabs are invasive. They proliferate in warmer water.
- Matt Canon – Is Maine DEP doing vegetation monitoring, based on the bill passed last session?
 - Jim Therriault – The bill dated July 8, 2021, requires regular monitoring of eelgrass beds.

Fisheries

Criteria 17. Endangered Atlantic Salmon and Sturgeon

- Jim Therriault – The Shortnose Sturgeon is present at Mack Point but not at Sears Island?
 - Adam Archual – The entire area should be noted as a consultation area for sea turtles, salmon, and sturgeon as a species group.

Criteria 18. State & Federally Managed Species

Criteria 19. Shellfish

Wildlife, Plants, & Habitat

Criteria 20. Plants – Specific field surveys will need to be completed.

Criteria 21. Animals & Birds

- James Gillway – Why include the eastern ribbon snake, which has not been observed in recent years (since 1973)?
 - Adam Archual – Historical occurrences were reported in the datasets used.
- David Gelinias – Are sea turtles included based on habitat range not observed presence?
 - Adam Archual – Yes.
- Dennis Damon – Are the Right Whales in the range? Do we need to add right whales?
 - Adam Archual – Historical occurrences of the Right Whale are noted approximately one mile offshore.
- James Gillway – The bald eagle nest has moved from the location noted on the map. It may still be within the footprint.
- Beth Ahearn – The woodrush is shown in the hybrid alternative but listed differently under Mack Point and Sears Island.
 - Adam Archual – This will be corrected.
- Jessie Gunther asked about whales.
- Dennis Damon – The Monarch Butterfly is shown.
 - Rolf Olsen – There is or was a Monarch Butterfly way station on Sears Island. There is also a sign about the bald eagle nest on the private portion of Sears Island.



- James Gillway – Is it a bald eagle or an osprey nest?
- Rolf Olsen – It is the federally protected bald eagle, as I recall.

Natural Features

Criteria 22. Groundwater & Aquifers

- Rolf Olsen asked for definitions of groundwater and aquifers.
 - Adam Archual – An aquifer is a drinking water source.
 - James Gillway – Specifically an underground cavern.

Criteria 23. Floodplains & Coastal Features

- Beth Ahearn asked about differentiated features/terms (e.g., coarse grained flat vs. intertidal coarse grained flat).

Cultural Resource

Criteria 24. Archeological – Adam noted studies have not been performed.

- Rolf Olsen said a preliminary archaeological investigation was done alongside geotechnical investigation.

Criteria 25. Historical Architecture

Criteria 26. Tribal Interests – Incomplete

Property Impacts /Existing Uses

Criteria 27. Recreation & Conserved Land

- Rolf Olsen – There was earlier discussion of a new road along the western edge, not Jetty Road. Should that be listed here?
 - Matt Burns – We are currently assuming use and improvement of Jetty Road.

Criteria 28. Residential

Criteria 29. Business & Commercial & Institutional

- Beth Ahearn – Regarding “Canadian Pacific Rail would be displaced,” there is prior reference to discussion with CP to determine impact.
 - Matt Burns – We assumed any impact would require relocation, not removal. We will clarify.
- Jessie Gunther – Rail is shown at Eastport. But I do not recall rail having port access or activity. This was noted as a negative impact.
 - Matt Burns – We would need to look at that.

Criteria 30. Farmland

Criteria 31. Aquaculture

- Steve Miller – There are two pending agricultural licenses/leases for aquaculture south of the footprint at Sears Island.

Community, Economic, & Social Impacts – Adam Archual stated these have not been assessed yet.

Criteria 32. Visual / Aesthetic & Lighting



Criteria 33. Noise

- Rolf Olsen – Called out Route 1 and lack of current estimates of workforce.
 - Matt Burns – Workforce needed is likely 300-400.
- James Gillway – It would be good to have a presentation to the community once port design and workforce is more clearly defined and before finalized. Visualization would be extremely helpful to the public’s understanding.
- Steve Miller – Suggest adding 800-foot turbine, once installed on foundation, and cranes, and fencing as a visual impact.

Criteria 34. Hazardous Waste

Criteria 35. Air Quality - Incomplete to end

Criteria 36. Climate Change & Resiliency

Criteria 37. Host Community Benefits & Impacts

Criteria 38. Environmental Justice

Criteria 39. Proximity to Labor Markets & Affordable Housing, etc.

Criteria 40. Legal or Policy Issues that affect implementation

Criteria 41. Economic Contribution of Existing Uses to Local Economy

- Rolf Olsen – Visitors have an economic impact by their spending at restaurants, shops, etc. We have no data or way to measure existing impact.
 - Adam Archual – The economic impact of visitors to Sears Island requires detailed consideration. It is noted and will be considered during the process for complying with the NEPA.
- Jessie Gunther – There has been no representation from the Eastport community. She expressed concern about the level of diligence to explore Eastport.
 - Matt Burns – If it is on the matrix, we are still studying and have not ruled it out.
- Beth Ahearn – The Tribe seemed disturbed by the road alignment through the reservation.
- Dennis Damon – A substantial removal of ledge is concerning. There are nearby domestic wells and one industrial well. Wells would be adversely impacted. These two factors make an OSW port at Eastport less feasible from his perspective.

7. INDUSTRY UPDATES

Matt Burns included several industry updates in his slide deck.

- Long Beach, CA Pier Wind Project – a 400-acre, all-fill footprint. See slide deck for link to video.
- Esbjerg, Denmark Digital Simulation – another link in the slide deck. Esbjerg, Denmark is Europe’s offshore wind energy hub.
- Maine OSW *Roadmap* has been completed.
- New London State Pier, CT – Designed to serve fixed bottom OSW. Construction of delivery berth is complete with 5,000 psf for components. The rest of facility to come online later in 2023.



Matt asked if Advisory Group members had updates to share.

- Rolf Olsen asked if the Maine wind port would be distinct among OSW ports
 - Matt Burns – Maine’s port will be purpose built for floating OSW. Other New England and Mid Atlantic ports serve fixed bottom and have no fabrication; foundations are loaded in water depths less than 200 feet. New London is now staging and has received a Wind Turbine Installation Vessel (WTIV).

8. WRAP UP AND NEXT STEPS

Matt Burns stated that MaineDOT expects to:

- Continue refining the four alternatives; this includes Eastport, and the State will consider its challenges.
- Continue to analyze the barge and ramp concepts.
- Pursue the federal port infrastructure grant program for funding for design and environmental work associated with projects in Portland and Eastport, plus design for OSW, targeting Searsport.
- Work with Gannett Fleming to complete the Alternatives Evaluation Matrix and distribute it prior to the next Advisory Group meeting.
- Schedule the next meeting in mid to late June 2023; scheduling will depend on progress and would likely be the last meeting of the Advisory Group. The State will outline the next phase of work at this meeting.

Bill Plumpton noted four follow-ups to the day’s discussion of the matrix:

- We should consider some select outreach to our advisory group members to clarify and potentially elaborate on a few potential impacts and considerations.
- Add more site-specific information to our features mapping and quantify the potential impacts from the port concepts. Wetlands at both Sears Island and Mack point are example of site-specific features information to be added.
- Additional Advisory Group input: call or reach out if you think of an impact to add to the evaluation matrix, positive or negative.
- The State should give thoughtful consideration to the potential ramifications of developing the OSW port at Eastport. He recalled the conversation at the September 2022 meeting about the stringent requirements for alternatives in accordance with the Clean Water Act. Section 404 of Clean Water Act requires a permit from the USACE for the discharge of dredged or fill material into Waters of the US. To issue a 404 permit, the USACE must assure, among other things, the project complies with the U.S. EPA guidelines. The USEPA’s guidelines requires that there be no other practicable alternative that has less adverse impact on aquatic systems or said another way, the State needs to advance only the least environmentally damaging practicable alternative (LEDPA) if it is to get a permit from the USACE.
 - LEDPA. The LEDPA has two parts: least environmentally damaging and practicable alternative.
 - Least Environmentally Damaging
 - Alternative with least impact to Waters of the U.S.; waters include wetlands, water quality, and aquatic life if there are no other significant impacts.



- Practicable Alternative has four parts:
 - Does the project satisfy the overall purpose?
 - Is the project capable of being done? The State should consider the earthwork necessary to make a level port facility and reflect on if that is capable of being done.
 - Cost
 - Is the property or alternative “available”? The State should give Estes Head a hard look and consider the existing operations that would be removed and determine if the property is truly available.

The agenda for the next meeting is likely to include:

- Changes to the alternatives and additions to the alternatives evaluation matrix
- the State would like to hear from everyone on the advisory committee for a few minutes each on the alternatives and their potential impacts as the State moves forward with starting the process for complying with NEPA and the preparation of permit applications: thoughts, opinions, comments, even recommendations on an alternative that may one day represent the LEDPA.
- Next steps
 - Prepare Environmental Impact Statement and body of knowledge needed for permit applications.
 - Public Outreach

Comments/Questions

- Dennis Damon – Costs are important, even if preliminary. He asked for the opportunity to review and comment on costs/benefits of OSW port investment.
 - Bill Plumpton – Would costs limited to cost of construction and to the nearest \$10M be reasonable to provide to the Advisory Group, not necessarily quantified benefit costs.
 - Matt Burns – That is reasonable.
- Jim Therriault asked to receive advance material with sufficient time to review.
- Rolf Olsen requested the matrix in its native Excel file format for viewing. He expressed appreciation for the meeting. He requested follow-up on the nation-to-nation protocol for consultation.
- David Gelinias – Asked for clarification: is the next meeting the final meeting? Many members are volunteers.
 - Bill Plumpton – It is highly likely that the next meeting will be our last. Scheduling will be contingent on adequate progress.

9. PUBLIC COMMENT

- David Perkins – An estimate of 3,400 jobs came from M&N report (2021). What help would the State offer the host community to absorb the workforce? Road infrastructure for future traffic volume and weights?
 - Bill Plumpton – We will request an updated number of operational jobs to better estimate traffic and other impacts.



- Celeste Carey – She agrees with warmer water and green crabs as reasons for eelgrass decline. We need to keep restoring the eelgrass and fight the green crabs. The Maine Climate Council has a focus on eelgrass restoration. Eelgrass beds have been known to wax and wane. Also, if the OSW port were on Sears Island, birds would be impacted by nighttime construction and operations.
- Andrew Johnson – The Eastport rail line is infeasible to be continued/restart. The right-of-way has been sold. Is rail a critical infrastructure component, or of less importance?
 - Matt Burns – For floating OSW, we believe most components will be delivered by water. Many components are too big to travel over the road or rail. Raw materials might arrive by rail, but a lack of rail is not a limitation.
- Amy Browne – Is federal funding specific to Searsport?
 - Matt Burns – Applications to the federal funding program are more competitive when targeted to a specific site, versus multiple sites.
- Amy Browne – Will federal funding be sought to further explore Eastport?
 - Matt Burns – Not currently.

ADJOURNMENT OCCURRED AT 3:03 PM.