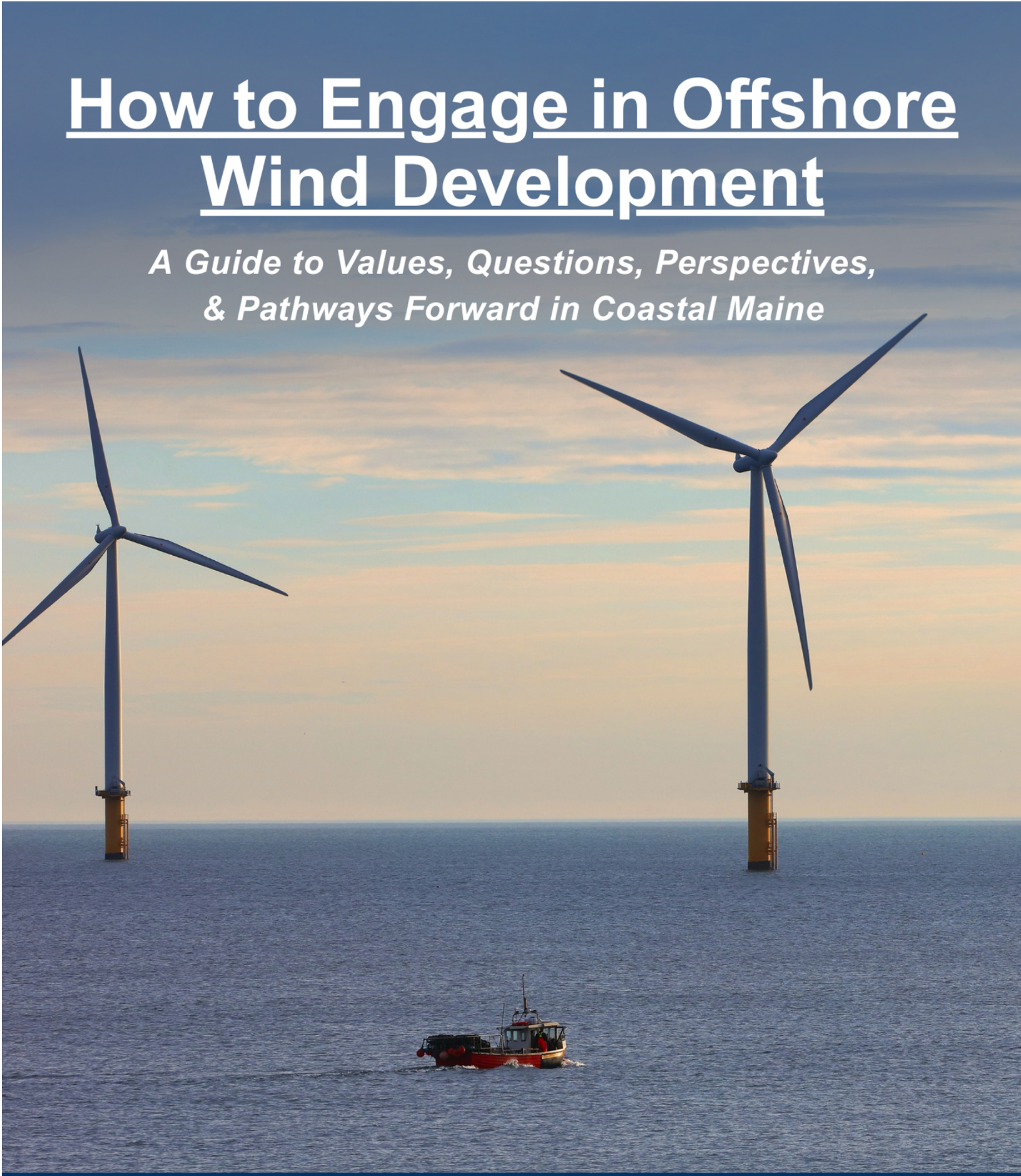
How to Engage in Offshore Wind Development

A Guide to Values, Questions, Perspectives, & Pathways Forward in Coastal Maine



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SUMMARY

The development of offshore wind farms in the Gulf of Maine presents new opportunities and challenges for state and federal governments, tribal nations, and existing ocean users. States plan to use floating offshore wind to meet renewable energy goals and supply needed power to an increasingly electrified nation. Yet the impacts of developing two million acres in one of the most productive marine environments in North America – in which fishing, lobstering, and recreation benefit millions of residents and visitors – remain relatively unknown. As people with different backgrounds, interests, and political and social power convene around this new ocean use in the Gulf of Maine, conflicts arise. This guide provides an explanation for these conflicts and pathways forward to mitigate them.

This guide is designed to support many different people – community members, developers, government agencies and nonprofit organizations – to navigate the ongoing discussions and decisions related to offshore wind development off the coast of Maine. We use the idea of "place-technology fit," or the degree to which an energy project is suitable to place, to capture and illuminate the values, perspectives, and critical questions held by rights holders and stakeholders, and what possible solutions can be identified by thinking about social and economic suitability as defined by place. This guide can serve as a tool to facilitate engagement among different people involved, including as a starting point for the developer requirements in Sections 3.1.1 through 3.1.4 of Commercial Lease OCS-A 0562 published by the federal Bureau of Ocean Energy and Management (BOEM).

Indicators of place-technology fit summarize what we learned about the possibilities for equitable development of ocean renewable energy technology in the Gulf of Maine. The indicators recognize key aspects of place, including living memory, community cohesion, pressing needs, leadership, and understanding the broader community vision, along with understanding what makes sense for rural electricity grids in a changing climate.

Maine is a state that has traditionally relied on relationships of trust and the shared values of its residents to navigate both economic and social challenges and opportunities. This guide highlights how these values, and the trust built from understanding them, can support community adaptation and thriving in the face of ocean renewable energy development.

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Contributions

Dr. Jessica Reilly-Moman, co-PI, contributed original narrative, literature review, scoping, interviews, ethnography, coding and analysis, and content generation and revision to this guide. Dr. Heather Leslie, PI, contributed revisions, advising, and feedback at all stages, as well as critical administrative leadership.

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I. METHODS

During 2023 and 2024, we spoke with forty-two people who represent constituents or were identified as key community members with the ability to speak to the needs and issues of coastal residents, including representatives from the fishing industries, aquaculture, tourism, elected municipal and state leadership, state agencies, homeowners, land and ocean conservation organizations, and community-based organizations. We divided Maine's coast into three regions: southern (New Hampshire border to the eastern edge of Casco Bay), midcoast (eastern edge of Casco Bay to eastern edge of Penobscot Bay), and Downeast (eastern edge of Pen Bay to the Canadian border), to help assess if there were geographic differences in needs, culture and perspectives. We chose interviews as our primary method as a result of a co-produced research process in which we asked potential respondents how they preferred to communicate on this (often stressful) topic. We also attended and observed meetings, using ethnographic methods, from 2021-2024.

Throughout this guide we use direct quotations from interviews. How participants verbalize information is not only important evidence but also represents the many ways of knowing and doing that this research strives to illuminate. Direct quotes engage you, the reader, and the participants more explicitly and directly in the process of equitable knowledge creation, giving participants a more direct voice while still protecting their identities so that they may speak more freely about their perspectives and needs.

The state of the science on the "social acceptance" of offshore wind

This research project is informed by scientists across the globe studying the social acceptance of offshore wind for thirty years. Researcher Susana Batel (2020) has noted that the approach to the research has come in three "waves." First, a normative wave in the 1990s asserted that research on social opposition was needed to reduce public opposition so that renewable energy technologies could be more easily deployed. This research characterizes and categorizes supporters and opponents, often examining if physical proximity, "NIMBYism" (Not In My Back Yard), is the primary explanation for opposition or not. Next, a critical wave in the 2000s arrived as a backlash to the founding research, offering alternatives to NIMBYism, such as explanations built around social and economic ties to place, and considering how processes, such as planning and involved organizations, affect local opposition.

The most recent and third wave of research acknowledges the power imbalances and often unjust and undemocratic implementation of renewable energy technologies. The third wave seeks to identify how conflict can be used to shape practices, policies and regulations to give voice to impacted people, and recognize the ways in which renewable energy technologies are sustainable and unsustainable. Future trends in research point to highlighting the intertwined economic and social systems that drive technology deployment.

II. CONTEXT: OFFSHORE WIND DEVELOPMENT IN MAINE AND THE NORTHEAST

The planning and implementation of offshore wind in the northeast U.S. has been a contentious social issue for twenty-five years.

Many social challenges began with the Cape Wind project in 2001. Cape Wind, first proposed as 170 turbines and scaled back to 130, in Nantucket Sound off of Cape Cod, Massachusetts, was a sixteen-year polarizing fight that began in the Bush administration and ended in the Trump administration. Wealthy homeowners, including the Kennedy family, attacked the project, financing the nonprofit organization Alliance to Protect Nantucket Sound to wage an effective disinformation campaign. During this time, the federal government underwent processes and regulatory changes that slowed project approval: it took the U.S. Army Corps of Engineers over three years to generate an initial environmental impact statement, yet with the Energy Policy Act of 2005, authority over the proceedings was transferred to the Bureau of Ocean Energy Management (BOEM). In 2010, the U.S. Department of the Interior permitted a lease in Nantucket Sound, and in 2011, BOEM approved the project and a power purchase agreement was signed. However, lawsuits from the Alliance and the Wampanoag Tribe of Gay Head continued to slow progress. As the growth curve for offshore wind in Europe exploded in 2010, progress withered under lawsuits in the U.S. In 2015, Cape Wind lost its power purchase agreement, and the project was abandoned in 2017 (for more details on this case, see Evan-Brown and Rodolico, 2021).

Yet as Cape Wind languished, the Block Island Wind Farm, located about four miles off the coast of Block Island, Rhode Island, began construction of five turbines in 2015. By the end of 2016, it was the first operating wind farm in the U.S. Even as the permitting process was held up by litigation around cost to ratepayers for half a decade before construction, local and state support for the project helped to move it forward. In 2024, the 30MW project supplied electricity to Block Island, replacing the island's diesel generators and connecting the island to the onshore grid. The island benefits from broadband fiber cable that was part of a community benefits agreement established between the developer, Ørsted, and the community.

In 2024, the third offshore wind farm in the U.S., South Fork Wind, 35 miles east of Long Island, began sending electricity from its twelve turbines to shore. This same year, the first five of 62 turbines on the Vineyard Wind project, fifteen miles south of Martha's Vineyard and Nantucket, Massachusetts, commenced operation. However, the corporations (such as Avanagrid and Ørsted) pursuing wind energy development cancelled multiple large projects in 2023 due to inflation, supply chain disruptions, and the war in Ukraine, including the 1.2GW Commonwealth Wind project proposed 23 miles off the coast of Martha's Vineyard.

In the meantime, social challenges heated up in Maine. The Gulf of Maine's waters are too deep for fixed bottom turbines; consequently, renewable energy would need to come from the newer technology of floating turbines. The University of Maine developed a small-scale floating turbine and tested it in Castine Harbor in 2013. The UMaine Deepwater Offshore Wind Test Site at

Monhegan Island was selected because of its distance from the mainland (approx. 12 miles), strong and consistent winds, a limited number of fishermen, and its proximity to an island with high energy costs. However, when discussions began between UMaine as the developer and island residents in 2016, the assumption was made that the island would want power from the turbine, as had been the recent case with Block Island. However, Monhegan had recently invested in a more efficient diesel generator, and many residents and fishermen were unwilling to participate in the scoping process: only three of the island's approximately seventeen fishermen engaged in scoping. Participants in our interviews cited the project proponents for incorrectly assuming the needs and wishes of the island community and the coastal community receiving the landing cable. As one person put it, "*If developers talk to who they want to talk to and hear what they want to hear [from town managers interested in augmenting their tax base], they forget there are other people who have huge social influence even if they don't have political influence. Those people are on social media, and often work around and outside the political system to get their agenda met*." As Monhegan Island development continues into 2025 with no turbines in the water, many in our interviews expressed confusion and distrust of the project.

Maine has courted developers while seeking to protect its heritage fishing industries. In 2021, the State applied for a 15.2 square mile lease site in the Gulf of Maine, and passed LD 336, "An Act to Encourage Research to Support the Maine Offshore Wind Industry," which authorizes the Maine Public Utilities Commission to negotiate an energy contract. That same year, the Maine Offshore Wind Research Consortium, an advisory board with representatives from the fishing community, research institutions, environmental groups, the offshore wind industry, and state agencies was appointed and tasked with understanding the local and regional impacts of floating offshore wind in the Gulf of Maine. The research array, which can include up to 12 turbines, will allow the State to study the potential impacts of floating offshore wind. In 2024, Maine and BOEM reached an agreement on the research lease, two months before the commercial auction detailed below.

In 2021, Governor Janet Mills signed a law prohibiting offshore wind farms in state waters. In the discussions between BOEM and state interests in the winnowing of the offshore acreage available for development, the governor's office and the Maine Department of Marine Resources (DEP) joined with fishing organizations to take the area known as Lobster Management Area 1 (LMA-1) off the table for development, at least for the initial lease areas in 2024.

The development of a lease area for the Gulf of Maine, much like other offshore wind processes, took more time than anticipated and received both criticism and praise in our interviews. The original call area was 9.8 million acres in April of 2023, and was reduced in increments to two million acres by April 2024. In October 2024, four of eight designated lease areas parcels were leased at auction for the minimum allowable amount to two companies, Avangrid and Invenergy (for more, see NCOOS, 2024). This siting process is the focus of the experiences and insights in the following sections.

III. CORE VALUES IN COASTAL MAINE

In our analysis of interviews conducted throughout coastal Maine, eight key values emerged:

1. Responsibility to place-based legacies, past and future
2. Commitment to community
3. Autonomy
4. Keeping heritages alive
5. Conservation of place–and place includes the ocean
6. Integrity
7. Reducing consumption
8. Stoicism

Each of these values is tied to others listed; for example, demonstrating care of the environment is tied to sustainability as well as to responsibility to legacies. For all values, place was a recurrent theme that tied people to a location that was more than a location. Below, we provide details for each value.

1. Responsibility to place-based legacies, past and future

There was a strong sense of the importance of honoring the traditions and values of past generations, then carrying these legacies to future generations. In this way, people tethered their responsibilities not only to maintain the past practices and traditions of a place, but to carry those forward for future generations. Individuals, especially fishing community members and Tribal citizens, felt directly tied to the past as much as the future, and they felt personal responsibility to be that link between generations. Consequently, this gave the past and the future a "presence," like a living entity in need of consideration, for people working on or near the Gulf of Maine.

> *I felt it was my responsibility to use what I have to protect our way of life whatever way I could, whether through understanding animals in the ecosystem, or how to integrate with one another. So from my perspective, I have always been on the side of conservation–not of the environment, but conservation of community, autonomy, making sure that the same opportunities that were open to me will be open to my son's generation.*

Place plays a key role in defining and reminding people of these ties. Especially in Downeast Maine, housing may be passed down through generations, serving as a central point for the convening of family and the storing of memories, whether tangible or emotional. When other physical infrastructure, especially docks and working waterfront, was threatened by cultural and economic shifts away from fishing or impactful storms (such as the back-to-back storms in January 2024), this tore at those tethers to past ways of knowing and doing. These changes emphasized for coastal people the importance of carrying those legacies forward–and the fear of being unable to do so.

That's the way my father brought me up: leave things better than when you found them. I intended on doing that.

Responsibilities were not limited to solid ground: the ocean also ties people to their past. Observing one's children and grandchildren on the water was a central theme of fulfillment in the lives of people who worked on the water.

Being able to take my kids out and show them the fishery and see through their eyes, it reinvigorates me. To show them this is magical.

I think about my kids and how hard they work, but not in a way that they hate. They're up at three am at the wharf to go pogie fishing with their dad. [They're] sunburned and tired, but they're learning how to work hard, as a team. They're learning discipline, time management, and they're spending quality time with each other, on the ocean, getting sunlight. That is afforded to us because we're a fishing family, because we're on the Gulf of Maine.

2. Commitment to community

Participants in the research were not only interested in preserving cultural and economic practices for their families and their children: they wanted their community's children to have the same opportunities.

I think what I like most about where I live is that we do have a great community. We work well together, we try to help each other out, we strive for the best we can for the kids and their school systems and recreation activities, and just in general what makes a community. [This is] not just year-round [residents], but also the summer community, because we value those relationships as well.

There was also a strong belief in the power of community to accomplish hard things.

There's no choice but to do what we're doing, and try to save as much [as we can] along the way, to try to retain as much [environmental] quality as we can, and the only way to do that is engaging the entire community. Individuals don't solve problems this big, communities do.

We define community as a group of people which share some commonality, whether geographic location, livelihood, or certain values. In many cases, the concept of community extended to all of Maine. Especially when discussing the benefits of renewable energy, people often wanted to know how the state as a whole would be impacted by projects. For example, the construction of a transmission corridor through the state to bring hydropower directly from Quebec to Massachusetts, bypassing interconnections in Maine yet impacting its people and forests, served as a clear and recent reminder of the potentially exclusive nature of electricity development projects.

Responsibility to community manifested as concern for locally-based jobs. Many communities, especially those in Downeast Maine, had watched children grow up and leave the area due to lack of opportunity. Although they often expressed acceptance of this, towns still strive to find emerging opportunities for work.

> *I feel obligated to the people I fish around throughout the state: to lose this way of life would be unforgivable.*
>
> *I want to see economic success for everyone, but particularly the youth, the young families.*

Very rarely did respondents include groups from outside of Maine in their consideration of responsibility. Some respondents suggested that this might be driven by both place and vocation. Much of midcoast and Downeast Maine is comprised of rural peninsulas, islands and outposts, and fishing communities in particular must cope with the isolating and difficult work of harvesting from the sea. Although the recent pandemic was hardly mentioned in interviews, some noted that it likely contributed to the further isolation of specific communities and people within them. A sense of responsibility to national or global commitments, including those related to climate impacts, did not arise in interviews.

3. Autonomy

> *I just want this next generation to have the same opportunities that I had: to not have to work in a factory for someone else, [but instead] to go fishing and make a decent living.*

Autonomy and agency are powerful forces in Maine. Autonomy, defined as self-governance or the ability to control decision making, went hand-in-hand with agency, which is composed of access to, standing in, and influence in processes (see Senecah, 2023). This manifests in state governance: Maine is a “home rule” state, which gives municipalities significant authority in governance and decision making.

Autonomy was often expressed in employment preferences: fishermen would rather accept the risk of owning and managing their own boat, including the risk of hauling no fish, than work for someone else.

> *We’re independent people who like the lifestyle of fishermen, who like sometimes not making money, and sometimes making a lot. That's our character. We don’t like picking up a paycheck at the end of the week–we like picking up a big check. A lot of weeks there’s no check. We’re not factory workers.*
>
> *To embrace industry would accelerate the absorption of nonindigenous into indigenous [culture]. Eventually that will happen, it's sad, it hurts, there’s not much we can do about it as a marginalized people. I don’t want to accelerate and exacerbate that process.*

When people felt like they did not have agency, as was often the case in the BOEM lease area siting process, interviewees noted that many people preferred to disengage from the process rather than face the ultimate prospect of large-scale industrialization. This was seen as a carte blanche turning over of ocean territory, the use of which had been negotiated over decades, to new, faceless industries.

4. Keeping heritages alive

In Maine, people in ocean-based industries, such as fishing, shipping, and port operations, are proud of the deep roots of their professions. They see themselves as stewards of their industry's practices.

> *I like to break down the working waterfront in more than generic terms. My end is the one no one wants to support. It's very easy to want to support lobstermen. But not a lot of people want a big oil tanker on Pen Bay. But it is an important part of the economy, history and culture. We had a commercial seaport long before the rusticators showed up.*

This value is specifically tied to place. Most coastal communities in Maine experienced some form of industrial development associated with resource extraction over the past four hundred years, whether through logging, ship building, fishing, farming, granite mining, or textile milling, and industrial shipping carried those goods to markets south and east. However, there are only a few communities with a strong living memory of these industrial practices, and even fewer who experience this activity directly today. Commercial ports recognize their vulnerability to changing global markets, especially those with significant fisheries landings or fuel terminals. If communities did not have a recent (~70 years) experience with industrial harvesting or activity of some kind, they struggled to imagine the return of their places to that activity.

> *Fishing is my whole identity and my family. It really is: I'm a fisherman and my whole world revolves around that. It's like the center of the universe for me…And I don't wanna leave. I truly don't wanna leave. I don't want my fellow fishermen to fail. I am totally committed to this town.*

5. Conservation of place–with place including the ocean

Community and place were inextricably linked for most interview participants. In this way, "place" was not solely a geographic location, but included people, activities, culture and history.

> *I identify more with the place where I live more than my work.*

A critical part of place is the ocean. Almost all of the people we interviewed rely on the ocean for some form of sustenance, whether economic, psychological, or cultural. Many perceived the ocean as one of the last places on earth to retain a sense of wilderness.

> *I feel like [the ocean] is still the last great wilderness. [This guides] how I think about the work, and especially about offshore wind. So for me there is still a lot of otherness and unknown there.*

I was just sitting on the deck–we are so lucky, and everyone who lives here is too. My husband smells like the ocean, my kids when they come home smell like the ocean–and diesel fuel and bait. My kids spend all their time on the water in the summer. It's gonna sound so cheesy, but it helps me breathe.

I don't think I could really be content living too far from the ocean. Even just the smell, it's comforting. We have the bell buoy still out there, it's comforting. That connection is profound, it's deep, it's in my blood, in my DNA, it's who we are.

The strong focus on place, especially for people who grew up in Maine and did not travel regularly, meant that empathy for the impacts of energy extraction in other places was rarely mentioned: a few recognized that a strong sense of place could engender myopia.

There is no energy production that is free from impact. I think some of the concerns people have about how we generate electricity we are sacrificing to go to renewables, real and valid, but are they worse than fracking? I grew up in a place where oil and gas fields are my point of reference. So, are people's concerns legit? What will it take to increase our electricity [infrastructure to meet demand]? Is it worse? Depends on whose backyard it is.

6. Integrity

Integrity, or living in accordance with one's values, lies at the heart of coastal narratives. An extension of integrity was a commitment to hard work, and ties to stoicism. Understanding of integrity was recognized as something that takes time, and is a critical part of building trusting, long-term relationships. These relationships have traditionally been the foundation for much of the work between state agencies, organizations, and communities in Maine, but there was an unease about how this might be changing.

The thing I like most about working in Maine is that you have to earn people's respect. Your integrity is the thing people look at and evaluate. Over time I feel like things have become more political, and I would like to see us back away from that. That was not the case when I started.

7. Reducing consumption

Many conversations about energy and the use of resources circled around the need to reduce consumption. This was often tied to the idea of self-sufficiency and individual autonomy.

We're cautious about our energy usage: we hang out our laundry.

I lived for seven years on [a Maine island] without electricity by choice. I wanted to see what that was like. I'm not unfamiliar to life without electricity and realize it can be quite fulfilling.

This frugality creates an undercurrent of desire for broad sustainability, particularly in isolated places.

> *I think the more that people are outdoors and really connecting with natural systems around us, with the ocean, sand, their gardens, it's a huge area of opportunity. Connecting with the natural systems all around us is key to the learning process necessary for transitioning to a more sustainable lifestyle. I think indigenous cultures have understood that if we take care of the clams, the clams will take care of us. It strikes me that there's a growing understanding of the critical wisdom they have carried forward for thousands of years, and how critical it is today. It's a direction. It's not a quick and easy answer, but that's all I know. And you have to act on what you know.*

> *We could just use less. Why [is it] constantly more more more, faster better bigger? [It's because] you can't monetize reducing, can't monetize buying less shit, or using less electricity. It's just really frustrating to have [offshore wind] shoved down our throat: there are other, better things we could be doing.*

8. Stoicism

> *I'm a Mainer, and there are two things we don't own: a generator and an air conditioner. It's not in our DNA.*

Mainers expressed pride in their ability to thrive with limited means and resources, especially if it involved some physical suffering. One of the surprises of our interview process was that, despite Maine's ranking as one of the worst states in the nation for grid reliability, people didn't seem to mind. Like a collective shrug, residents accepted grid unreliability as part of living in the state. Some expressed pride in the ability to last for multiple days without a generator.

However, some people in fishing communities acknowledged that stoicism in the face of multiple assaults on their industry was taking a heavy toll.

> *My issue lately is that the last couple years I have been thriving in chaos perpetually. So I'm not fully recovering from flight or flight, like I used to. I think there are a lot of commercial fishermen that feel this way as well. It's leading to depression, anxiety, stress, grief, and learned helplessness, and these other subtle impacts are more exacerbated.*

IV. PERSPECTIVES ON OFFSHORE WIND PROCESSES

As conversations around offshore wind moved closer to reality and the proposed lease areas in the Gulf of Maine were defined and redefined (2021-2024), stakeholders from around the state attended meetings in an attempt to understand and influence the process. Some were selected to engage with the Maine Offshore Wind Research Consortium and the Maine Offshore Wind Roadmap, while others primarily received their information from Maine's traditional and social media and word of mouth in their communities. When experiences mixed with values and worldviews, perspectives were born. Below, we identify the most common and frequently shared perspectives from across the wide range of stakeholders we interviewed and observed.

"Already baked": Processes lack agency

It was almost universally acknowledged that the federal process for siting wind did not include addressing stakeholder concerns or engaging their interests in a meaningful way. Options to influence the size and pace of development, especially to test the ecological and economic impacts (such as with the Maine research array) before a larger rollout, were not on the table. Most felt that key decisions on location, area and timing were all made before stakeholder engagement began. Multiple interviewees told us that many who attended initial BOEM meetings realized that there was no option for meaningful input and dropped out of the process.

This initial impression continued to cloud interactions and discourage people from staying involved with the process, as they felt that their time was being used to "check the box" for engagement.

> *[BOEM] put out the draft wind energy areas, and it encompassed a huge swath of the Gulf of Maine. I said early on, this is so huge, it was intentionally made big to cut down. Oh Lobster Management Area One, oh no problem, we can eliminate that, we want to work with you. That was baked in. Not all cooking is good.*

Some who remained in the process developed relationships with government agency personnel, sometimes even inviting agency representatives to meet in their homes. A respect for these agency actors grew over years of interactions. However, interview participants pointed out that the people with whom they formed relationships of trust did not have much power within their respective federal offices, and that decisions were being made "at a much higher level."

"Like a train"

Offshore wind was described as having its own momentum beyond the control or influence of Mainers. Identifying offshore wind as a train not only captured that feeling of unstoppable momentum but served as a metaphor to represent the feeling of faceless industrial progress. People felt concerned that there would be no way out, regardless of impacts: no guardrails were identified for slowing or stopping development if it was found to be harmful.

> *Will work on the research array have an impact on [siting]? Will it really? This train is in motion, we're gonna have ocean wind, it will probably be floating, and I don't believe that*

if we found research that said certain species are definitively impacted [that we would stop.] The industry is too much in motion, and the need [for clean energy] is too great.

Context matters: Fishing under fire

For communities, such as the fishing industry, directly impacted by offshore wind development, the impacts of multiple other challenges to their status quo made the prospect of offshore wind that much more difficult to navigate. Maine lobstermen continue to face simultaneous threats: regulations to protect the critically endangered North Atlantic right whale; an increase in the minimum gauge size of harvestable lobsters; rising fuel and operations costs; working waterfront losses sustained during the January 2024 winter storms; and climate change impacts, such as rapidly warming waters causing lobsters to move north and further offshore. The threat of offshore wind–in which corporations seem to be handed hundreds of thousands of acres that was already allocated to existing users–felt like a tipping point for many.

A common result was that stakeholders dropped out of engagement processes. Overwhelmed by the onslaught of multiple threats, an engagement process that lacked agency, had long timelines, no compensation or amenities (such as meals or childcare), and required long travel to attend meetings meant that many impacted voices went unheard.

One of the things I see happening that is frustrating about a process like the BOEM process, is that you have to stick with it. In the early phases, the responsiveness is in slow dribs: no one wants to give all their cards, no one wants to give everything on the first step. They hold back. That makes people feel frustrated. They want to be told everything up front. If you are not giving anything, then the people drop out, and the people that remain carry the burden. You have to go through twenty steps when we could have done it on step one.

"Traumatizing:" No attention to grief and loss

For interview participants most impacted by offshore wind development, the siting process was nothing short of traumatic.

From the fisheries perspective, which doubles at the local community perspective [in many coastal communities], it's very different participating in [the state fisheries co-management process] when you are front and center in that process and it's about you and your work sending your regulations for the industry. It's very different to then participate in a process when you are an afterthought, for whom the primary stakeholders are not you. And it's really clear in offshore wind conversations that communities are the secondary stakeholder. It's like they want to disrupt their lives and livelihoods.

In our interviews, we sometimes received anger and frustration around social research like ours retraumatizing participants. Beyond stakeholder fatigue, we want to recognize this challenge to participants and researchers alike, and the validity of this experience. In some cases, we chose to start an interview or other interaction with a stakeholder by *not* talking about offshore wind,

but rather, about ourselves. We found that sharing about our worldviews, motivations and vulnerabilities could help provide perspective to interview participants and create an interview environment, even online, in which they felt acknowledged and heard.

Interviewees recognized that the grief associated with thinking about the loss of a way of life was not any part of the siting process. When it came up in interviews, participants agreed emphatically that processes for addressing grief and loss would greatly benefit impacted communities–and society as a whole.

> *Having meetings derailed can disenfranchise the public. But you have to let people do that. We see that in fisheries management. Sometimes you have to let people bitch and vent, and then you can move on to something more productive. This is a phase of grief. It's fear. If you try to bypass it, you will miss something. I do think we need to build in that more, not be so afraid of it. It is unpleasant, sure. But I don't know if you can totally avoid it.*

Lacking formal and informal processes customary in Maine

In many of Maine's coastal communities, decision making happens face-to-face among people who have known each other for decades. For example, the "right" to set traps in an area might be governed by informal boundaries that extend back decades and are upheld by the broader fishing community. In a home rule state, much decision making happens at the local level between people who have built time-tested relationships.

> *People are used to having that ability to participate in the process–town meetings at the local level, co-management at the state level–in many different ways.*

Fishermen are accustomed to being part of state fisheries decisions. According to interview participants, Maine's Department of Marine Resources (DMR) has long been considered a partner to fishermen in the state. While that trust has eroded somewhat in recent years, interviewees noted that strong relationships still exist between the industry and DMR.

> *When I think about the process that most communities are used to [in Maine], it's highly local decision making: they go to a town meeting, they hash it out. At state level, decision making around marine resources is done through strong co-management, collaboratively, though formal and informal processes that are influential.*

> *People are used to having that ability to participate in the process in a different way, and for the process to respect their positions and their views and values and take that into account. And maybe the result doesn't come out the way you want, but the process, you were meaningfully heard. I think, looking at BOEM decision making, BOEM processes, [it looks like] 'we'll listen to you in three places in the state.' Then they think they are doing a phenomenal job doing engagement. Maybe that's true, they are adjusting based on some of the input heard, but I don't think people feel like there's a procedural or process equity in this, and that makes it really hard to engage in those processes.*

Distrust from lived and historical experiences with industry and federal regulators

There is an old bumper sticker that can still be found on some Maine vehicles: “National Marine Fisheries Service: Destroying Fishermen and Their Communities Since 1976.” Fishermen blamed NMFS policies and managers for being unable to solve problems of chronic overfishing due to economic incentives, thus causing groundfish stocks to collapse in the 1990s in the Gulf of Maine. According to interview participants, this memory lives on in the fishing community and provides a solid foundation for mistrust in government decision making.

> *You have to acknowledge that the fishery has endured an enormous amount of trauma, and not just the fishermen and businesses, it's the communities. A lot of folks don’t remember what the crash of the groundfish did to this region.*

In addition, distrust has been born from other experiences with industrial development in Maine, including the environmental legacies born from dam building for textile industries and hydroelectric power, which stopped the movement of sea-run fish. In Tribal nations, the destruction of traditional foodways and fish runs is a clear reminder of the consequences of industrial development.

> *The degradation of the globe that we’re precipitating, we don't give it enough attention. Even if [offshore wind development is taken up] under the premise of clean energy or thinking of the future, even if it’s dressed up like that, at the end of the day, we’re still continuing down that road. We’ve never taken a step back: why are we pushing for this? Because we already screwed shit up, it’s another band aid on the path we’re going down. It’s necessary because we already dropped the ball. And I’m not entirely convinced we learned much from that. I’m not entirely convinced we’re doing things to remedy that–we’re just putting out the fires.*

Lack of answers to the “most basic” questions

Even the most informed people noted a lack of answers to basic questions. Some questions cited included: will offshore wind farms help or hurt fish? Will they raise or lower electricity bills? Who benefits from these arrays? How will wind connect with the existing (and inadequate) grid infrastructure?

Participants who regularly attended meetings recognized that there were often missed opportunities to inform the public about what information is available from Europe and beyond, and what is still unknown. Even those with significant experience and involvement in the siting process felt that information was difficult to find and interpret. Some noted that this arose because of limited existing knowledge.

> *Let's talk about new research. Instead of having the same conversation, how can we better engage stakeholders? At the moment, the science is not reaching the average member of the public. Regulators and scientists, we have to be the ones trying to absorb that information. But it still feels alarmingly hard to access. I go to an offshore wind*

conference, I try to read published literature, and it still feels high level with really small datasets. These are new things.

Appreciation for expert experience and interactions

One of the few times that the siting process was cited as effective was when subject matter experts with applied expertise engage with participants in meetings. Learning directly from the engineer who repairs offshore wind turbines, or from the person who lays transmission cable at sea, was cited as the most valuable–and comforting–knowledge.

This communication with people with applied expertise worked as culturally-appropriate communication. Experience at sea or directly with a specific aspect of the offshore wind technology seemed to assuage fears and create a more grounded connection for fishermen with the technology. The ability to have questions anticipated and answered by a technical expert allowed siting conversations to expand beyond two-sided conflict, triggered the deep applied knowledge and curiosity of fishermen, and seemed to create a sense of camaraderie among these ocean experts. We suspect that when fishermen could see that men and women like them were participating in the industry, they were able to take a more nuanced and personally-connected view of ocean development.

Misinformation and disinformation campaigns

Interview participants noted how difficult it is to operate when misinformation (false information) and disinformation (deliberately misleading and manipulated information) are readily available and spread through social media and communities.

What people are asking questions about is misinformation-based. That's a big challenge, and something that I know there are a few people thinking about: how to combat disinformation. What do you do when you're faced with disinformation campaigns activating the stakeholders you work with? There are people who have dealt with that.

A full examination of active disinformation campaigns extends beyond the scope of this guide. Interviewees expressed frustration with the speed and tenacity of disinformation, such as the alleged impact of seismic surveys on whales. However, fishermen in particular recognized that confirmation bias for both supporters and opposition of offshore wind led people to choose information that best suited the outcomes they desired.

Frustration with hypocrisies

Contradicting positions, what we call "accidental hypocrisies," abound in offshore wind. While confirmation biases are part of the human condition, offshore wind development in the northeast makes these biases particularly clear.

One of the most prevalent examples of this was the controversy over the potential impacts of offshore wind on endangered North Atlantic right whales. While environmental and government groups minimized the potential impacts, which are largely unknown, to whales and the ecosystems on which they depend, they expressed deep concern for the impacts of fixed gear.

Alternatively, some fishermen expressed outrage (and consequently perpetuated false information) around seismic testing and whale deaths, while the fishing industry fought tooth-and-nail to derail regulations designed to protect right whales from fixed gear deaths. These hypocrisies were fed by the lack of knowledge around the impacts of floating offshore wind *and* the inability to communicate relevant research related to whales.

After speaking with several people about their concern and confusion around the impacts to whales, we reached out to a preeminent whale researcher. They clarified the difference between small and large disruptions to whales, and noted that researchers know what kills whales: gear entanglement and ship strikes. Yet the uncertainty around the impacts of two million acres of development on habitat on which whales rely remained unknown and unaddressed.

> *We need to better articulate the need to do research and understand and answer questions responsive to concerns but also communicate better about the need to balance moving ahead when you don't always know. That has become a bigger sticking point over time. People have so much access to information now. There's a greater sense that we should have all the answers before we do something new. That's a perspective that sometimes we get in [on the regulating side in] fisheries management, that we should not harvest until we know the stock. Fishermen don't see it this way. This is the opposite situation: they want to know everything before we start.*

Frustration with pace

Whether in favor or opposed to offshore wind, many were frustrated with the pace of siting. To engage, actors had to attend multiple meetings and provide multiple rounds of comments. This lease area siting process was reflective of the larger process of offshore wind development as excruciatingly slow and not well streamlined.

> *I was on Martha's Vineyard in 1999 when that very first proposal was submitted–and [Vineyard Wind] just got built. That's how long that process is. Which means the company, the community, everyone is in limbo this whole time. I don't understand the process, even though I understand more than an average person, but it's pretty opaque, and I understand it's infected with misinformation. Given my [role], I can say with good certainty that the federal agencies' community frameworks are not helping create a streamlined, informed process.*

State agencies, while less trusted, still considered a partner

Many interview participants noted that state agencies such as the Maine Department of Marine Resources (DMR) had lost some trust with the fishing industry in the past decade. Although many interview participants recognized that the state had limited agency in siting, they recognized that DMR in particular was still a trustworthy source for information, and considered partners with the fishing industry, for better or worse.

DMR itself hasn't found its path. They have been a bulldog for industry for a long time but haven't had a way to help the industry change.

Deep uncertainty around impacts–and who to trust

The siting process was hampered by a deep lack of knowledge about potential impacts–ecological, economic, social and infrastructural. This included a noted lack of compiled comparative research from across the globe. Although we did hear a typical refrain–"that won't apply here for these reasons"–many recognized that the lack of research feeds disinformation campaigns.

Lack of information about impacts was compounded by the lack of trust between impacted communities and project proponents. Many remained unsure of who they could trust for information and consequently trusted no one. It wasn't just the hollow message; it was the messenger who delivered it.

We don't know for sure [what the impacts will be]: for now, with what we know, this seems like the thing to do…Until we learn more, and over the passage of time, we should always stay mindful: you don't know what you don't know.

Often, and as noted in "Distrust from Lived and Historical Experiences," concerns were rooted in examples of previous industrial development in Maine.

What was the biodiversity like before dams were put in in 1936? You put them in, you should have known those impacts, but we didn't ask until eighty years later…We should know all that data ahead of time, and it should be a requirement for the lease process, articulating 'this is what it looked like when went in, and this is what it needs to look like when it's gone.' And it's not just the concrete and rebar. What about different species, and how different systems were impacted: [for dams, we have to ask] how are we going to fix that now?

Information not available at the municipal level

While there was knowledge around information and its availability for those engaged in state and federal processes, this information was not being distilled or provided in a systematic or even haphazard way to coastal municipalities. Even well-resourced municipalities are capacity-constrained, with limited bandwidth to address offshore wind. In many places, there was genuine interest and curiosity, but no identified access to processes that would keep municipalities and their residents informed. This was especially true in southern Maine.

V. CRITICAL UNANSWERED QUESTIONS

Through our interviews and observations, we gathered and analyzed questions that repeatedly emerged. We grouped these questions into three categories: holistic questions, which capture the entangled social, economic, and environmental factors of offshore wind; impacts and benefits questions, from the electric grid to the environment; and process questions about engagement and the development of offshore wind projects. Finally, we wrap up with one question that we did not hear and believe deserves attention.

1. Holistic questions

Do we really need this?

This was the most common question across interviews. It often arose as a reflection in the interview process. This question captures the lack of knowledge in multiple spaces–energy, climate, infrastructure–in which people felt uncertain about impacts and uneasy about the process and actors.

A common refrain that built on this question was **what about decentralized renewable power?** Many wondered how solar, nuclear and tidal power could meet energy needs. This question reflected the uncertainty and lack of knowledge about the present and future electricity needs in Maine and the U.S., as well as skepticism around the motives to build industrial-scale projects at sea.

> *There's a part of me, a cynical part of me, that sees [these projects as driven by] men who want to build these things and think they are solving the world's problems, but also just like to build big things. They are excited by a big project, excited by having to raise billions for a project and say look, I built this big thing! We're centralizing, yet again, our energy system on these big investments and big infrastructures. When I hear about decentralizing [I think], why not a solar panel on every school in the district? I wonder. It's easier to just do big, but couldn't we solve the problem differently? And the problem is how we generate this much renewable energy.*

Is offshore wind worth it?

Almost all interview participants recognized that tradeoffs are inherent in implementing offshore wind, and this created a source of the general unease. Most did not feel like they had enough information or experience to evaluate these tradeoffs, nor that they could trust many of the sources of information to inform their perspectives. The potential impacts were unclear, but included the loss of heritage maritime industries and related jobs in ports and tourism; unknown ecological impacts; increased costs to the state and ratepayers; and wealth restructuring in the use of ocean spaces that benefited foreign-owned energy companies instead of locally-owned fishermen. The potential local benefits felt speculative but important.

Part of me was excited because it's new and there's some decent jobs that I think could be a part of that. There's decent ocean vessel support that would go with that–but is it worth it?

Another version of this question was built on experience: **how do we know we aren't repeating the mistakes of the past, like with dams?** Mainers and Wabanaki citizens have lived experience with the impacts of large-scale energy projects in dams across the state. A few observers reflected that they were unconvinced that corporate interests would protect the natural resources on which Mainers depend.

What's the broader vision? What's the scale?

For many, there was a sense that the first lease area designation was the beginning of an expansion of offshore wind that would have few limits. The first lease area designation and auction felt like a "test case," and many felt that decision making and action would set a precedent for years or decades to come.

It's not the [wind turbine] in and of itself that's the problem–but is this one project or the first of three hundred? But if you said to me that you could make half the electricity of Eastern Maine with those windmills–that would be an interesting thing to know.

What is the big overall vision for this, and what does that look like? When I travel to other marine ports, I see industrialization, it's so intense, some waterfronts are so industrialized. The rest of the state of Maine is not like that: there are tiny pockets [of industrialization] in Portland, and a tiny pocket in Searsport.

So, okay, this one goes in, what's next? We're all very aware of massive projects on the horizon. How can we be better prepared for the next project?

What is my role?

Towns, community organizations and individuals all struggled to understand their role in the offshore wind siting and development process in the Gulf of Maine. This was recognized as a capacity constraint.

There aren't [coastal] organizations running programming on this. What is the role for all these community organizations in supporting this conversation and communities? BOEM will lease the Gulf of Maine for offshore wind, and we will be dealing with ten years of ups and downs. It's going to be exhausting–and no one is prepared to support communities in doing that.

A significant driver of this question was the widely shared perception that many of the decisions were already made before public comment or any engagement occurred.

2. Impacts and benefits

Who benefits and how? How does Maine benefit?

Questions about the costs and benefits to the state came up frequently. Interview participants wanted to know how tax structures might change and benefit their municipalities, and especially if there were ways that offshore wind capital could support local public education.

> *That tradeoff that you feel, giving up something you don't know what you're giving up. What is the actual benefit to places in Maine?*

> *The tax structure is extremely important to make sure we are on the right track for the community… we want to make sure the tax structure benefits the town for a long period.*

> *What benefits does the state of Maine receive? A lot has been framed as "we need this in the face of climate change," but as a state, what do we stand to gain from this? And I understand it's federal waters, but how does offshore wind benefit the state of Maine and not just New York City and their ability to have neon lights on 24 hours a day? I would like to plan around how it could impact public education. Are there any benefits to public education that could be received from an offshore wind array?*

How will this impact my energy bill?

One of the most common questions was how offshore wind would impact ratepayers. Despite the high price and low reliability of electricity in Maine, many respondents accepted their current electricity situation as "part of living in Maine," but were concerned about the cost of offshore wind to their household and the state.

> *How much do we really need? And will Maine benefit? Will people get free power, or will this triple the bill in January?...[Electricity is] inaccessibly expensive at times. It fluctuates in a way that is inaccessible. The cost of electricity should not be tripling in the month of January–that's cruel. For a lot of people in April, the electricity goes off for a while until they can figure out a payment plan with CMP [Central Maine Power].*

We heard speculation that offshore wind could decrease or increase rates, yet we did not talk with anyone who felt they understood the costs and how these would be passed on to consumers.

> *I've heard a lot of criticism about the net energy idea. How long would the windmill need to generate before it pays itself off? It would be a shame to do all that work and go backwards from an energy or carbon standpoint. I've heard a lot of criticism there: either it hasn't been explained well, or we don't know.*

I think the major thing is how cost effective it is going to be. I can see the islands off the coast of Maine benefiting, maybe with a line to their islands and so forth, but how is this going to be more cost effective than solar or a refined hydro plan or something like that?

What are the biological and ecological impacts?

For many, the most important question after the economic costs were the unknown environmental costs. Some interview participants had traveled to other countries to learn about the impacts of offshore wind on fishing communities, but they left feeling like problems that emerged in other places did not translate to the Gulf of Maine. Questions ranged from the impacts to the bottom of the food web (such as primary productivity) to the top (such as impacts to fish and whales.) Many worried that impacts would stem from the lack of foundational ecological knowledge in the Gulf of Maine.

What was the biodiversity [of rivers] like before the dams were put in in 1936? You put them in, you should have known that–don't ask that now, 80 years later.

…from cabling?

There was disagreement about the potential impacts of EMF (electric and magnetic fields) from submarine cables. Although many cables already exist, questions remained about the amount of electricity carried by transmission cables. In interviews and meetings, peer-reviewed research on the impacts on species in other locations were used to fuel questioning. However, all parties seemed to lack context to understand the impacts as compared to other existing ocean impacts, and how these might be additive (or not.)

I guess the electric cables running to shore are supposed to be buried a few feet underwater. I've heard concerns about stray electricity and EMF levels bothering marine life right on the ocean floor. Once again, I can't verify, I heard in operation in Europe that crab and lobster will congregate next to cables. I heard they became hypnotized and stopped moving by some amount of electricity, and doing so killed their metabolism and they just died right there. It just deserves looking at. The marine ecosystem is really sensitive.

...from underwater noise?

Along with cabling, vibration from towers and anchor chains, especially at the magnitude of a wind farms with hundreds of turbines, concerned meeting attendees and interview participants. Although evidence may exist from the few other examples of floating wind, these were not presented or accessible, and these farms are at a smaller scale.

I've heard that the wind turbines can be 800 feet tall. Do the blades create a lot of noise underwater?

What happens in a storm?

Any person who spends their days working on the water in the Gulf of Maine or observing the sea wondered how floating turbines would be able to withstand regular forty-foot seas, typical gale force winds, and ice storms.

> *Now I've heard from three different people: how will it handle this weather? These are relatively shallow seas, which fishermen know mean a lot of waves and wave action, depending on direction of fetch. It's a reasonable question. Someone at the Fisherman's Forum asked and did not get a satisfactory answer. I don't know that anyone there knew. Likely the manufacturers do know the answer to that question, it's a perfectly reasonable question. What happens where a hurricane hits the Gulf of Maine?*

> *What will happen to these things? The Gulf of Maine is a nasty place come January. It isn't any pleasure cruise for these things. It's nothing to see 30-foot seas out there. What happens when it's tugging on wires constantly for three to five days straight? There's no way to produce energy efficiently out there.*

How will this impact the grid?

We were somewhat surprised to discover concern about the impacts of "plugging in" new (an intermittent) generation to the current electricity grid, as this was a common question. Even those not closely tracking the function of U.S. electric power systems–which was almost everyone with whom we spoke–there was a baseline knowledge that the aging grid is unable to handle the additional wind capacity. However, no one had information about plans to upgrade and adapt infrastructure ahead of offshore wind development.

> *I think transmission will be a big part of this conversation and is outside of the planning process. The transmission corridors are easements and not taken into consideration. A general transmission pathway is considered, but not fully analyzed as to specific pathway to getting to shore. I think it's a looming question.*

This question gets to a larger foundational question: **what is the plan across sectors and geographies for the integration of renewables?** As many interviewees experienced increased rates or controversies around the capacity constraints of bringing "community" solar farms online, they reasonably questioned how their rates would be impacted by the addition of much larger renewable energy projects.

3. Process

How will my community's interests and needs be heard and met?

Processes, actors, and timelines (despite the frequently used colorful BOEM timeline) were unclear and felt intentionally opaque to many people engaged in the siting process. During our three years of observation, public meetings often repeated content and format: government actors sat on one side of the room, asking for feedback, without providing clear parameters for

decision making. The public or community sat on the opposite side of the room, asking the same questions they had asked in previous meetings.

> *Stakeholders were brought in after many of the decisions already made, which made the legitimate participation of stakeholders later in the process so difficult in that they had limited effect.*

What is the plan for decommissioning?

Especially for people with experience with dams and their decommissioning, there was concern about the limited information available about decommissioning. People wanted to know about timelines, processes, costs, logistics, and unintended consequences during decommissioning. It was not clear how materials would be recycled, and some were concerned that significant amounts of material would be left in the ocean to degrade.

> *That's one of the problems with offshore wind and floating offshore wind, and all of these projects: the developer doesn't have the full plan and blueprint when they start a project.*

This question gets to issues of understanding the lifecycles of wind energy projects and how industries decommission their generation capacity in the 21st century.

4. A critical question we did not hear

How will the changing climate impact wind farms?

One of the fascinating aspects of this research was how infrequently people talked about future climate changes and impacts. This may have been a result of the interview questions and our participant pool, but we were surprised that these questions about future conditions did not come up during public meetings. There seemed to be a general lack of planning around future climate conditions during our observation period (2021-2024) and how these may impact the multiple user groups in the Gulf of Maine. While some research has begun to look at how humans and other species are changing their behavior in response to climate change in the Gulf of Maine, how these might interact with industrial infrastructure did not come up.

VI. KEY FINDINGS

The section takes our research on values, perspectives and unanswered questions and analyzes them together to generate seventeen key findings. Each of these findings is a stand alone topic that, taken together, illuminate the social dimensions of offshore wind in Maine.

There is a spectrum of perspectives.

Offshore wind is often portrayed as two groups in opposition–for or against offshore wind. But in interviews, participants held complex and nuanced perspectives. Even those generally in favor often felt "uneasy" about offshore wind.

The social and cultural pressure to choose a side was striking and was felt by participants across communities. For those working in environmental protection and conservation roles, they felt significant pressure to accept and unequivocally support offshore wind. Their organization's public stance often did not align with their nuanced concerns about environmental and social impacts. For those in the fisheries, there was a clear recognition that more renewable energy would be necessary in the future, and a strong interest in electrification of the working waterfront, but uncertainty about what changes needed to support renewable energy and existing fisheries simultaneously. Overall, many felt an unease with both the process and the actors with the political power (governments, developers, and sometimes the fishing industry).

> *I would really like to see the diversity in perspectives that people have around offshore wind. It feels like the conversations are anti- and pro-offshore wind, and those are the only two stances. And there's a lot more nuance that people aren't sharing in the public sphere, being afraid to be perceived one way or the other by their peer group.*

Critical questions have not been answered.

An entire section of this guide is devoted to illuminating the unanswered questions that emerged throughout our interviews and interactions. Some questions are broad–why are we doing this?–and some specific–how will turbine vibrations impact whales? But all people had unanswered questions about impacts and tradeoffs. Many of these questions were considered foundational to understanding the most basic overall impacts, encompassed uncertainty about potential vast impacts, and remained unanswered over long periods of interaction with federal agencies.

> *The people I've talked with about this are left with more questions than answers, at least in this moment. There's a lot of hesitation, because we just don't know. There isn't very good messaging around the whole process.*

> *I don't feel like the info shared is often nuanced enough or realistic. I've taken a step back. There's not a lot of new information or answers to questions that people have been asking for five years now.*

> *We really don't know the most basic answers to questions: we don't know if turbines will help or hurt fish populations system wide.*

Offshore wind symbolizes more than offshore wind.

"Offshore wind" is a boundary object: a symbol that is judged and evaluated differently depending on one's worldview. In many conversations, offshore wind was a symbol of a person's broader political and social orientation. As a symbol, it captured and represented a few different things: climate action and a liberal orientation; protracted fights among institutions and coastal and island communities (such as Monhegan; see Background); and renewable energy industries not in sync with the rural Maine lifestyle (see Renewable Energy Lumping, below.)

Respondents lamented this additional baggage that offshore wind carried, but recognized that it was founded on experience in which development processes did not properly prepare for engagement with and support of communities.

> *Climate change has been so weaponized. Commercial fishermen get vilified. They have actually just been adapting and working with the environment for so long, but now this thing is weaponized, so of course they're going to say fuck climate change, because it's being used as tool [to support corporate interests], as opposed to something that makes everyone better.*

Opposing sides share values–and coping mechanisms.

Even as people chose stances for or against offshore wind, they used the same values to justify those opposed stances.

For example, the value of responsibility to legacies was used in interviews to support and oppose offshore wind. For the person opposed to offshore wind development, they wanted to preserve the experience of being on the sea–without industrial development–for their children. For the person in favor of offshore wind development, siting turbines in the Gulf of Maine would mean lessening the climate impacts that would change the ecosystem that they knew and loved and wanted to share with future generations. Both wanted to preserve the experience that they had for their kids and their grandkids–they just focused on different potential impacts they hoped to mitigate.

Similarly, opposing sides had shared coping mechanisms that were often improvised and *ad hoc*. Defensiveness was cited as a response by both the fishing community and the federal government when asked to justify their positions. Defensive positioning was observed in the language of documentation and in public meeting interactions, and government and developer proponents along with the fishing industry were acknowledged throughout our interviews as acting defensively. We bring this up to note that both sides share this coping mechanism, and this points to the need, at the least, for different communication strategies, and more broadly to recognize the unacknowledged values that drive decision making in offshore wind development.

Communities do not have a way to process grief and loss collectively.

Communities faced with impacts from offshore wind are overwhelmed and in need of spaces for grief and loss. The fishing community, and those dependent on it, faces this immediate need.

However, this grief was also shared by those who witness climate impacts to the state and the country. This is another example of a shared experience by opposing sides.

> *I think everybody has to go through it. I think there was a sense of loss of pristine environments when we started to engage with offshore wind, like it's a space not developed–it's touched by humans but not developed. There's a real sense of loss associated with that…And for those who are supportive [of offshore wind], the question is always 'what's the alternative,' and 'how will we address climate change?' That's a different sense of loss. So both sides are feeling a sense of loss, but on a different time scale.*

Narratives are powerful and constraining – some fear for their safety and that of their families.

People expressed feeling trapped in their community's narratives about offshore wind. For example, the "climate narrative" is a particularly powerful and pervasive narrative stating that climate change is a global crisis that must be addressed as rapidly as possible with any reasonable means. This narrative leans towards technocratic solutions that fit within the existing political power structures which often benefit large corporations that have the capital and political power to utilize the existing centralized energy infrastructure to build large renewable energy generation.

> *There's still not a clear recognition that these are projects that have the potential to shift wealth around and redistribute wealth, and most of the redistribution is going away from coastal communities, and from people currently using that part of the ocean, toward somebody else who isn't local. It's not like we're redistributing from one fisherman to another, or have figured out how to do this. We're redistributing it to multinational companies with private investors. Then we say, here's a community benefit agreement to make you whole. Offshore wind will benefit specific people in real ways, and some set of people will take it on the chin–and we wonder why those people are not in favor of it.*

Although Maine has values of autonomy and independence, this was trumped by a collectivist culture and narrative in fishing communities. While this narrative of always supporting a fellow fisherman at sea helped to create a tight knit and safer community, this meant that fishermen could be bullied into silencing their more nuanced views of offshore wind.

> *There's so much antagonism, if you do this [try ropeless gear or support offshore wind], you'll be blackballed, there's a real feeling of threat. It feels mafia-like. There's a real actual feeling of family wellness at stake. It's terrifying that we're in that climate. That's the way people feel about the gear, and also the way they feel about offshore wind. If you participate, you're in bed with the enemy. [The strategy of the lobstering fleet has been that] if we don't engage, we are saying no. And then it won't happen. And that's been successful, so far [with ropeless gear and right whale regulations.] I don't think that's going to work long term, but that's what they're going with. If we bully everybody into keeping the party line, we have uniformity, and we can say, this is how the industry*

feels. If you go against that, the lobster industry is such a community: to be a dissenter within the party line is not easy, and there's retribution.

Municipalities do not have the capacity to assess impacts or benefits from offshore wind.

Municipal-level leaders are overwhelmed by meeting the daily needs and yearly needs of their districts, from school budgets to wharf and town landing repairs. Consequently, offshore wind was not at the top of the list of priorities. However, everyone with whom we spoke wanted a better and comprehensive understanding of offshore wind and how it would impact their community and Maine. Many marveled that they had no access to this information, and it wasn't being provided to them by the state.

I think there would be a lot of questions if we had more information. It's hard to have a question if you don't know what it is you're looking at…I guess I would have a million questions if I knew what was being thought and planned, and that information hasn't been really offered out.

Accepting offshore wind would require a culture shift for some communities, which is a slow process.

A culture shift is a significant change in a society's values, beliefs, norms and practices. To accept the inclusion of offshore wind in the Gulf of Maine will require a significant shift in values and norms for Maine's fishermen.

Moving the [fishing] community culture from stiff and bitter resistance to working relationships with the [government and developers] takes a lot of time. It's about creating pathways for the fishing industry to maintain their pride and sense of their own community's values and worth, and moving slowly enough that the culture changes without it being upsetting.

There is a synonymous and simultaneous process happening in many of Maine's coastal communities: an influx of new residents that hold a certain worldview and set of values can disrupt tight-knit communities with an existing and different set of values. Maine is well-known for its distrust of people "from away," a label that has been weaponized to belittle new and different perspectives. However, in interviews, there was not a blanket distrust or dislike for new residents; instead, town leadership in particular grappled with what they perceived as a disregard for existing community values, even as these were not clearly defined in communities. Generally, existing residents felt that the practice of "*understand, before trying to be understood*" was not often deployed by people new to communities or by those from outside of Maine, such as federal agencies.

I think there's always those that will say, "those from away don't belong here, they don't have our values, they don't have the town's best interest at heart." My approach has been to say, then educate them, let them know what is important to us, let them know we care to listen, but understand that this is a town we've had for longer, and

> *it's important for them to understand what our values are. In those discussions, like during town meeting time, you have those opportunities to do that.*

"Doing offshore wind right" could address individual and collective needs.

It became clear in the research process that there are two layers of needs in Maine's communities. First, individual needs include the pressing, tangible needs of communities: housing, jobs, food security, and climate adaptation. Then there is another, more foundational layer that underlies *how* these problems are addressed as a community: preserving cultural identities, community vision, and a social safety net as cultures shift. These we call the collective needs.

> *I think there's probably two real broad categories [of needs in our community]. We are still struggling with some basic fundamental human rights and needs, there is still that: clean water, food sovereignty, affordable housing, safe warm housing, basic substance abuse, mental health, huge health disparities, all those basic things. Those are real things we can have an impact on, and can change and improve upon, and maybe that's a good way to look [at needs]. But then longer-term ones, which speak more deeply about our existence, along the lines of retention of culture, our identity as individuals, connectivity with the natural environment, and preservation of all those things that make us who we are.*

The phrase "doing it right" was often used in impacted communities to describe the desirable outcomes of the offshore wind siting process, and it encompasses both individual and collective needs. These included dignity and agency, forthright communication, energy and general education, and equitable economic opportunity. In particular, some local leaders envisioned decision making processes around offshore wind, such as community visioning, could help to elevate and create spaces for "collective" needs.

Experiences with other renewables informs how people think about offshore wind.

From electric vehicle (EV) charging infrastructure to heat pumps to solar farms, coastal residents often spoke unprompted about their experiences with other renewable energy technologies. Those experiences seemed to be lumped together with offshore wind, creating a worldview or narrative that lumped all renewable energy technologies together. This often informed how people perceived the overall fit of renewable energy in their locality and state.

For example, almost every person interviewed Downeast brought up EV charging infrastructure, noting the incongruence of the Maine Governor's Offices' push for vehicle electrification (to meet the state's climate goals) with the difficulty of operating electric vehicles in rural areas that lack sufficient public charging infrastructure. In areas that were experiencing solar farm development Downeast, the challenges with getting these solar farms online were brought up in interviews. These perspectives contrasted with conversations in the midcoast and southern Maine, in which EVs and charging infrastructure were not mentioned.

Distrust of process comes from multiple sources and drives mis- and disinformation.

Distrust of process extends beyond the most recent BOEM lease area siting and into state and regional contexts. In general, we could summarize these sources of distrust as including

- Inherent uncertainties (around the technology itself and the impacts);
- Poor past communication, especially with the Monhegan project;
- The lack of agency in an "already baked" engagement process;
- Unfamiliar processes for sharing ocean spaces with developers who remain faceless and opaque; and
- Key critical unanswered questions.

> *I have a few [questions], but the problem is that we can't find a new neutral answer. Because if I asked somebody that's on one side of the aisle a question, they're going to use the data that backs up what they say. On the other side, the same: the truth always lies somewhere in the middle. Most of us are in the middle but can't get any traction because we can't trust anybody.*

Disinformation came up frequently in interviews. The vector of information was one of the primary issues: interview participants were not sure who they could trust, which resulted from flawed engagement processes and practices.

> *[Disinformation campaigns have affected the process] more and more in the past two to three years. It's a real disservice to the process. I have said to a couple fishermen lately, there are some real reasons to be concerned, but you have to know enough so you're concerned about things that really matter and not losing sleep about things made up. So you have whipped people up into concerns that aren't scientifically valid,* and *they also have important concerns that the agency folks start to shut down. [The agencies] think that all the concerns are just from reading social media. And if we could separate the two, there are some very valid concerns and really important information that we don't have now about impacts. We need to make sure that we don't do the same things we did with dams: we took a lot of dams down. These are valid concerns.*

Fit of a project for a place is best examined at the municipal or "portshed" scale.

For the purposes of our interviews and interactions, we loosely divided Maine into three existing areas: southern (New Hampshire border to the eastern edge of Casco Bay), midcoast (eastern edge of Casco Bay to eastern edge of Penobscot Bay), and Downeast (eastern edge of Pen Bay to Canadian border). We divided these areas for comparative analysis, and there were some distinct differences:

- The most pressing near-term needs differed by coastal location: southern Maine struggled with traffic congestion and housing; midcoast Maine was focused on housing; Downeast had a different set of considerations, namely jobs and diversified employment;
- Downeast has a different experience with and orientation to renewable energy, given its more rural characteristics;
- Southern Mainers municipalities felt less informed and up to date on offshore wind development.

However, each of these regions contain municipalities that have drastically different histories and demographics. Neighboring municipalities can be very different culturally, even as they share values. For example, “portsheds,” or the wider geographic area that benefits from the economic and social activity of a port, with living memory of and experience with industry sometimes expressed the desire to attract more industrial activity. However, even industrial heritage is not a monolith in Maine, and the fit of technology for a place depends on multiple factors, which we address and discuss in the Indicators section.

The accountability for potential impacts remains unclear.

Ultimately, the potential impacts of offshore wind, in particular the biological and ecological impacts, is one of the biggest unknowns. Although many recognized the need to move forward without all of the knowledge needed to protect systems and species, there was also unease around the process for reckoning for harm.

> *What happens if we see a biological disaster from these things? Is there a process to take permits away? They don’t know. They’re moving ahead with something they don’t know. There's no process to not move ahead; it’s agenda driven, not science driven. I think anything that has to do with natural resources, such as the Gulf of Maine, or being on a mountain top in western Maine, should be science based, not agenda driven.*

Personal relationships matter.

Frequently, personal relationships, or the lack thereof, made siting processes feel accessible or inaccessible to participants. Fishing industry advocates often held an amazing amount of compassion for the federal employees who had endured the years-long siting process with them. This was a testament to their strong-held value of integrity and their desire to build meaningful relationships.

> *I think the rank-and-file BOEM worker has been as accommodating as they can to us– and still keep their job from their bosses. I’ll put it that way. It isn’t the rank-and-file people, I’m on a first name basis with those guys, I like those guys, they’ve been in my home, we had a meeting in my home. And I feel bad for the beating they get from people. It’s their higher ups that are pushing this. They don’t have to go out and face the people. [The rank and file] guys have to. They're in a hard spot, I think. I feel bad when they get a bunch of crap, it’s not their fault. They're doing what they're told, like any other guy for their job.*

It was frequently recognized that, to build relationships across these divides, community-based organizations could build lasting relationships that understood and connected with local values and priorities.

> *Lean on trusted partners and voices. Who are communities already tuned into? This does have that feel of having to do a kind of town hall community by community, making sure people have a chance to ask the questions they want to ask…Developers are not*

generally great listeners. They have such a strong agenda, to spend time listening just means being fired at with questions. But I do think ultimately figuring out some way of having dialogue with communities [is needed], making sure they understand what is happening and why.

Dialectics and false choices abound for all positions.

A dialectic is when a person holds two seemingly contradictory viewpoints, yet both are true to them. Offshore wind development is rife with dialectics, such as the need for more renewable energy at a large scale because of fossil fuel extraction, while acknowledging that many of the same companies promoting and delivering on renewables are the gas and oil giants who fueled climate change. Consequently, some felt that they were being forced to make a false choice between climate action that follows the business-as-usual energy development path, and the perpetuation of the fishing industry, which has perpetuated its own set of significant ocean harms.

It feels like we're overlooking the fact that people, in the name of something righteous [like climate action], will ruin the lives of individuals.

Another frequently cited dialectic was the general use of the endangered North Atlantic Right Whales to further the argument both for and against offshore wind. Lobstermen expressed deep frustration that they were being asked to drastically change their fishing gear, with expensive technology, to preserve a species that they felt they were not primarily responsible for harming, while offshore wind was being allowed to develop vast areas without any evidence that their industry would measure and be accountable for harm. On the other side, proponents of wind felt frustrated that fishermen were citing potential impacts to whales while not being willing to accept their role and responsibility in adapting to protect the whales.

Clean energy solutions are not yet connected with climate impacts.

In the middle of conducting our research, two back-to-back winter storms in January 2024 devastated the coast of Maine. Public and private working waterfront infrastructure was damaged, in some cases totaled, just a few months before the opening of fishing seasons. When we had the opportunity in interviews to specifically ask about how decision makers saw the connection between mitigating actions, such as renewable energies, and their adaptation to storms, they noted that these were not connected in their decision making, and more broadly were unconnected.

VII. PATHWAYS FORWARD: PRINCIPLES FOR ENGAGEMENT

In both interviews and ethnographic interactions, participants were asked to identify potential improvements to address perceived problems. When synthesized with the literature around public participation in environmental decision making, the following principles for engagement practices emerged.

Follow existing best practices for engagement

> *The notion that fishermen are just insane for reacting to [the casual introduction of offshore wind], angrily–I don't know what kind of planet you have to be on to not understand why they respond that way. So having a little sensitivity and using best practices for engaging with the community–making time and space to have real conversations, being an honest broker about the tradeoffs–is a way forward. This is not just to get approval and get buy-in, but it's the way to build a sort of future where all can make decisions.*

Best practices for engagement include many of the factors listed in the following section, but can also be found in research and practice around public participation in environmental decision making (e.g., Senecah, 2023; Dietz and Stern, 2008), offshore wind siting processes (e.g., Dwyer and Bidwell, 2022), and Maine-based engagement research around ocean renewables (e.g., Johnson et al., 2015).

An example of a framework for best practices comes from the nation's first functioning offshore wind farm, Block Island. According to Dwyer and Bidwell (2022), a "chain of trust was fostered through **informal efforts of process leaders to meet stakeholder expectations** concerning process leaders' ability to work for the public interest, provide **meaningful engagement opportunities**, and to **produce non-discriminatory outcomes**." The chain of trust starts with process leaders, which includes individuals from agencies and offshore wind companies. Without trust established with that first "link," followed sequentially by the second and third, the outcome of acceptance is difficult to achieve.

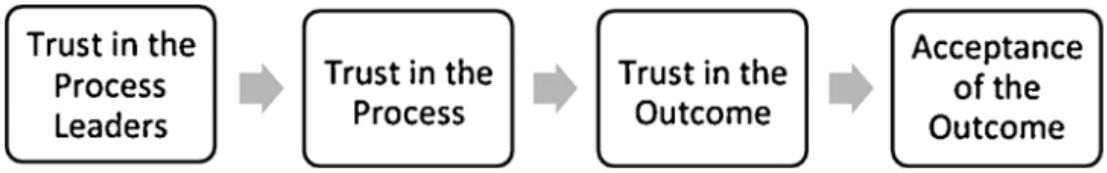

Fig. 1: The "chain of trust," from Dwyer and Bidwell, 2019.

In Maine, the company pursuing tidal power development in Downeast Maine, ORPC, was recognized for supporting stakeholders with practices such as

- **listening**;
- **seeking and acting on community advice** for siting;
- having a **fully-staffed office** in the town, Eastport;
- taking **ownership of mistakes** made in the decision making process; and

- **keeping their word,** choosing to incur financial expense and slow the project to preserve rapport and relationships (which was noted would ultimately save time and money in the long run).

Some best practices, such as **using a trained facilitator in meetings**, have supported ongoing climate processes in Maine, and were added to state and federal offshore wind siting processes during our research. While these facilitators in Maine often have not only facilitation experience but deep knowledge of past communities' experiences with energy development, their ability to support communities was hampered by the lack of agency for existing ocean users.

Possible action: Utilize existing leadership in Maine for engaging coastal and impacted communities to build critical initial trust with communities. Agencies and developers can **build on long-standing relationships and culturally-savvy communication**, as well as expertise for more general engagement practices, by **partnering with people and organizations known for their strong community relationships**. However, as the research from the first offshore wind farm in the U.S. points out, there must be genuine intent to listen to and empower communities.

Create agency throughout the development process

> *One of the things I'm trying real hard to impress: public comment is not engagement. It's performative unless you make it meaningful. All regulatory frameworks have a public comment requirement, but you know what they never require? They never require the regulatory agency to respond. They don't have to adapt anything, based on public comments.*

Agency–the access to, standing in, and influence of a person or groups in a decision-making process–was cited as a critical missing component of offshore wind engagement. When the process is perceived as "already baked," there's a recognition of the limits of actual influence over the process. Giving existing ocean users and impacted communities agency may involve engaging trusted interlocutors who are able to serve as translators and broker more equitable decision making using unconventional yet culturally-appropriate methods.

> *We're not discovering these things together: we're being informed then asked to either justify or fight against [offshore wind development].*

> *It's not the developer's job to make us feel good. It's the developer's job to follow the rules. It's the government's job to work with communities to establish rules in which developers can work.*

Possible action: Government agencies and developers can utilize **trusted community organizations** to create spaces and **processes outside of the standardized engagement** and required public comment to increase local influence on development. This may include utilizing trusted interlocutors to engage fishermen in the design of farms, or creating multiple methods, from roundtables to art shows, to hear community needs and concerns. For a more

transformative approach, agencies can **build requirements for agency for impacted communities into multiple phases of the development process, not just siting.**

Improve communication

Throughout interviews, communication emerged as a clear challenge for individuals and communities. These challenges centered on exchanges with federal and state agencies and offshore wind proponents and would likely apply to developers. The following four factors emerged as areas where proponents could demonstrate their commitment to equity and integrity in the development process.

1. Lead with listening

There was a broad feeling that very little had been done to understand not only the needs of those directly and potential impacted by offshore wind development, but the broader social, cultural and economic impact to the heritage industries and local legacies that are important to the people of Maine.

Possible action: Programs exist, such as the **Serving with Dignity training** (Johnson, 2024), to support groups, organizations, and agencies to engage with dignity. This training helps actors recognize the traps of indignity (shirking responsibility, avoiding conflict, being the victim, resisting feedback, shaming to deflect guilt, or developing false intimacy) and provides a baseline for best practices of engagement.

2. Be transparent

Throughout the siting process, participants felt that their questions were not being answered, which fostered an active distrust from the perceived lack of transparency. For example, participants did not understand how information gained from the state's research array would inform decision making for siting, construction or operations.

> *I think there are concerns, a perceived lack of transparency around how parallel processes are happening. There's the state research array, then the federal government auctions off lease sites: some constituents don't understand the difference. [With the research array,] I don't understand how what we learn is going to potentially change how things are done.*

> *The easiest thing would be if wind energy admitted no one would be able to fish, instead of pretending there's a future coexisting with harvesters. Look at the way they are anchored: any layman would know that trawls would get caught up in the cable. I think in terms of how we build resilience in communities: just allow people to breathe and accept the change and figure out how to adapt, instead of malign it. It's so confusing and pushing it down the line forever.*

Possible action: Build **communication pathways** by providing information to existing government and community organizations in which **communities trust the messenger**.

Governments and developers could widely **share a matrix or framework used for decision making**. Finally, communication channels should be two-way, have clear parameters (i.e.., with memorandums of understanding,) and build agency for impacted communities. Best practices suggest that these practices take place with existing community organizations and leaders as interlocutors.

3. Engage in culturally appropriate ways

The maritime professionals who attend meetings and participate in siting and development processes are experts in their areas of work and hold deep knowledge about the resource they harvest and the environment in which they work. These professionals consequently respect the expertise of other maritime professionals with direct experience.

> *When I hear fishermen engaging in offshore wind conversations, there's a set of questions that aren't being answered, or not being answered in a culturally relevant way. Why are we doing this? How many turbines? Where will those be? The geographic distribution is not going to benefit [fishing] communities. The "why" questions are not getting answer well…I wonder if the environmental community were straight with the fishing industry: yes, this will impact you, you will take it on the chin, but you have to do this, because the alternatives are so much worse for society, and we need to figure out how to compensate you and make you whole. What I hear environmental communities talking about is general benefits. But wind impacts win out every day in the conversation.*

Possible action: Partner with community-based organizations to bring specific **experts, especially those with direct experience working on the ocean,** to meetings to talk about their profession and what they have learned while laying cable, building turbines, or driving ships for construction projects. In addition, discussions with people in the same profession (i.e.., fishing, shipping) in other places who have adapted may lend legitimacy and bring a broader perspective on action. Foundational to much of this action is **seeking to understand, accept, and operate with respect for the values** of the impacted people.

4. Structure the process to accommodate grief and loss

It was acknowledged throughout our interviews that communities are being asked to change, and loss is a significant part of that, not unlike communities that are being forced to migrate based on sea level rise impacts. A critical component is to acknowledge the time this will take, and structure and pace the process accordingly. An outcome of proper pacing is allowing for culture shift.

> *We can't get [to climate mitigation] fast enough, but what holds it back is the need to do a lot of political work. It's hard: culture doesn't change quickly.*
>
> *Moving the community culture from stiff and bitter resistance to working relationships with the other side takes a lot of time and is about creating pathways for the fishing industry to maintain their pride and sense of their own community values and worth, and*

move slowly enough that the culture changes without it being upsetting. You change a culture one human heart at a time. We have to do this with offshore wind. It's in the early stages.

Possible action: Utilize the **expertise of mental health professionals, facilitators, and trusted interlocutors** to support structured environments in which people can **share their stories, emotions and experiences tied to place, and grief and loss can be acknowledged and honored**. Only after a **significant amount of time** and engagement can these processes then be directed to supporting communities in providing solutions that give agency to the aggrieved parties.

5. **Intentionally provide information to municipalities and local leadership**

Especially in southern Maine, leadership at the local level had extremely limited information about the basics of potential offshore wind development in the Gulf of Maine. For example, more than once we found that people were assuming that the turbines would be visible from their iconic shorelines and beaches, which is not the case.

If we know that we are not choosing between migratory birds and marine mammals and offshore wind, that there can be a compatible coexistence, then it won't be the cause of demonstration and disruption and further division in communities.

Possible action: Developers or governments can fund outreach through state offices or trusted organizations, specifically providing **technical capacity to provide basic and requested information** for coastal communities. A data repository is not enough: **real live people already trusted by communities**, or those with the methods, resources and commitment to build that trust, are needed to engage with communities to translate the research, science, and steps of development.

Reduce the engagement burden

Interview participants told us that many people potentially impacted by offshore wind development dropped out early once they perceived the process as "already baked." For those who remained–individuals, organizations, and agencies–the iterative nature of the siting process, in which the dimensions of the proposed lease area were repeatedly whittled, felt like an unreasonable burden, particularly because many of the same questions were not addressed.

Possible action: As community-based organizations know, local social and thought leadership is a critical component for motivating action more broadly in a community–and this leadership may come from far outside the usual actors engaged in governance processes. **Finding and supporting this local leadership**, in an authentic way, can: provide a more direct pathway for agency for those impacted; elicit better information exchange; engender equitable compensation for those who serve informal leadership roles in their communities; and support more equitable power sharing. However, finding the existing leadership in communities and leaning on them to induce cultural shift is not realistic or authentic; instead, real agency can be

created for impacted groups with t**ransparent timelines and requirements for developers to respond community concerns**.

Counter disinformation effectively

Interview participants stressed the impact of active disinformation campaigns on the social viability of offshore wind. Many felt they were being bombarded with information that they struggled to verify, but they often accepted information that confirmed their existing biases in favor of or opposition to offshore wind. There was a wide range of sources that interview participants cited as where they receive their news about offshore wind. Although social media was often brushed off as the vector for disinformation, proponents acknowledged that their use of social and traditional media was limited and ineffective for communicating information and building trust.

Possible action: Provide **regular face-to-face meetings and convenings**, especially with technical experts on specific topics who have direct experience that communities value (i.e.., the technical knowledge required to work as an engineer at sea). Analyze and conduct **targeted research to effectively counter disinformation** that leans on **Maine values and communication channels**, especially using social media and traditional media pathways that communities trust.

Make equitable engagement easier.

Meetings and other forms of engagement did not provide transportation, compensation or childcare. Since the public meeting format was recognized as increasingly ineffective, other formats that allow for more interpersonal trust building, such as focus groups, would also allow for the engagement of groups with specific needs, such as transportation for seniors and childcare for working families. It would also help to use engagement methods that are grounded in long-term relationship building, and to engage trusted Interlocutors.

Community-based organizations understand the values that are important to Mainers and are accustomed to working collaboratively within the boundaries of these values. In addition, research shows that in public participation in environmental decision making, values matter as much as facts (Dietz and Stern, 2008).

> *Oil and coal are very popular in Wyoming because they know how to get along. They know that whatever costs may come to ranching and farming are offset by benefits to communities from exploitation of energy resources. We don't have that same understanding in Maine, not even a bit. Our fishermen are only seeing existential threats. Nobody has been able to tell them that you're going to be okay.*

Possible action: In addition to public meetings, **additional formats (focus groups, small group meetings, potlucks, interviews, etc.) for engagement** can target specific populations and provide needed accommodations. If there are ways that offshore wind can support economic security, these need to be translated to potentially impacted communities.

VIII. PATHWAYS FORWARD: ADDRESSING INDIVIDUAL NEEDS

The following two sections emerged from the needs expressed communities relative to offshore wind. These ideas expand beyond engagement principles into future and broader aspects of offshore wind processes. The possible actions for each of these four needs is included in their descriptions.

Clear methods for dealing with uncertainty and harm

The nature of offshore wind development in the northeast is inherently uncertain, given the current lack of industrial development on the outer continental shelf. Many acknowledged that, given the lack of research on impacts in the Gulf of Maine, there would likely be unintended consequences, and that it is not the role of corporations to protect the environment, but the role of government. As a result, interview participants noted that it would likely be the **responsibility of government to provide clear parameters for delineating the consequences for negative impacts.** However, the **Maine research array** presents an opportunity for r**esearchers and practitioners to clearly delineate the boundaries** for those harms.

Increased federal-level support for the fishing industry

A specific solution that came up to support the fishing community was to **increase support** from within the federal government.

> *We could do more to improve our agency for commercial fishing. Part of the reason the industry is so dehumanized is that we have no advocacy in our agency for us as human beings. The USDA advocates for the farmer, but there's no consideration for commercial fishermen. We have no equivalent for livestock* ***insurance*** *or the farmers and ranchers* ***stress assistance network****, no CDC data around depression and anxiety, none of those things. I'm at a loss why we don't do better by the seafood and fishing industry, and I think it comes down to the agency that manages us. They could do better.*

In the case where federal agencies themselves are disempowered to make changes to support more meaningful engagement, corporations may also be influenced by their shareholders and public opinion.

Rural-appropriate energy modeling that includes centralized and decentralized options

The energy mix that is needed to not only support increasing electrification but grid resilience in the face of increasing climate impacts is unclear for Maine. As a result, energy modeling that factors in the rural, remote and forested aspects of grid maintenance, as well as the benefits and challenges of community-owned microgrids and generation, need to be considered. The model of broadband deployment and ownership in Maine may be a useful case study for understanding where centralized versus decentralized energy will work more effectively for communities.

In our interviews, it was common for participants to accept that their electricity would be unreliable because they lived in Maine. However, those participants who had access to **energy cooperatives or small-scale utilities** were more satisfied with their electric power bills and reliability.

Community investment plans

Community Investment Plans, particularly for directly impacted fisheries, leverage international energy company financial power to benefit impacted small family businesses at the local level. An example from the United Kingdom: the developer of the Thanet Wind Farm off the coast of Kent District, UK, upon commissioning, constructed an extensive maintenance facility and dockage for service vessels in the port of Ramsgate. As part of waterfront development, a commercial fueling pier was built and a 20-year fuel concession was granted to the Thanet Fishermen's Organization. That income source now funds the Organization's community activities, vessel insurance programs, and management of fishermen's interactions with Thanet Wind Farm and the London Array.

IX. MORE PATHWAYS FORWARD: ADDRESSING COLLECTIVE NEEDS

The following solutions emerged repeatedly and across all regions. A central theme for all these solutions was place: supporting visioning processes, local education, and using and building local skills and workforce.

Community visioning

One of the most common emergent needs at the municipal level was community visioning. Municipality leadership found that they did not have a way to reconcile the values of their varied constituents, and they felt that they were not getting a full picture on community sentiment on any contentious topic, from offshore wind to cruise ship docking. Consequently, they felt they needed a process outside of comprehensive planning to understand and come to consensus around the values they wanted to uphold in their communities. Once these values were clear, this would help make values-based decision making central to any new technology or action. **This ultimately reflected a strong desire across the state to make decisions based on collectively-determined values and empowers communities to seek and find common ground as demographics shift in coastal communities.**

Specifically, communities sought to have **facilitated conversations utilizing novel methods outside of town halls that allowed for more one-to-one interpersonal interactions**. To engage with the entire community, they recognized the need for childcare, transportation for the elderly, and the need to have gatherings at various times of day. Many suggested that **youth** could be better represented in these conversations. Only once a community defined their shared values could they then determine and derive, for example, what community benefits would be appropriate as part of a package from offshore wind. Ultimately, they stressed that it was not just vision, but the impacts of that vision on others: not the what of the vision, but the how**. As members of Generation Z take interest in the impacts of climate mitigation,** communication strategies that use storytelling instead of confrontation may be an effective way to engage with both community members as well as government representatives and developers**.**

Possible action: Evidence-based guides to community visioning can provide the foundation for next steps (e.g., Maine State Planning Office, 2003). However, these processes will likely have to be tailored to the community's existing formal and informal processes and rely on novel engagement methods (such as arts-based research and engagement methods such as community potlucks, storytelling, and community performances; see Wake et al. 2020 for one example). Community visioning processes will likely require extensive time invested in building relationships with people who struggle to make time for town meetings, thus requiring a commitment to equity.

Education: Energy 101, funding for K-12

Across communities, there was strong support for place-based education. This manifested in three specific needs:

1. Broader availability of basic knowledge about electric power systems, an "Energy 101;"

2. Specific curriculum to educate K-12 on electric power systems: their governance, engineering, and how they related to social, economic, and climate-related needs;
3. General funding and attention for public K-12 education as a negotiated benefit from offshore wind.

Possible action: There were many ideas on how to best spread accurate information about offshore wind facts, from interpretive signage in town kiosks to billboards depicting the “view” of offshore wind (just a view of the ocean). Among the educators with whom we spoke, they stressed that additional curriculum should be carefully created to support K-12 teachers and not add to their burden.

Local employment: Utilize existing skills and train locally

Place-based economic opportunities that recognize and utilize existing skills were central to those who were interested in hosting and interacting with wind developers. Especially in areas that already have significant port infrastructure, there was a desire to keep these ports alive and keep opportunities available for local families.

Possible action: As much as possible, developers need to **hire locally** and work with the state to develop the specific training needed to build a local workforce. The Port of Norfolk, Virginia, provides a blueprint for working with unions to source employment locally for offshore wind development, and **unions** can work with municipalities to ensure that local workers are not displaced.

X. PROPOSED INDICATORS OF PLACE-TECHNOLOGY FIT

Indicators that measure the degree to which offshore wind is a fit for a place must balance the desire for methodological consistency with the need for flexible methods that embody the changing contextual realities in communities (Bours et al., 2015). Each of these indicators is a composite of the values, key findings, and pathways forward. They represent the qualitative framework under which further qualitative and quantitative metrics can be derived.

1. Living memory of industrial heritage

Communities with recent experience with industrial-scale development, from shipbuilding and port activity to commercial-scale aquaculture, held an understanding of the tradeoffs and benefits of industry, as well as knowledge about tax structures. In contrast, areas that have memories and lived experience with the negative interactions of industrial development, such as those from dams or irresponsible aquaculture, tended to not be as willing to embrace industry.

2. New industry clearly meets a basic local need (jobs, housing) without harming community cohesion

Beyond the social interactions held in the memory of coastal communities, communities were highly motivated by the loss or gain of employment. In some cases, the loss of income was also associated with a loss of autonomy–replacing independent owner-operator positions in the fishing fleet with corporate aquaculture nine-to-five positions was seen as a fate worse than death for some. However, if positions could support the local economy by capitalizing on existing local skill sets and labor, and/or meeting critical needs such as low- and middle-income housing, this potential was more likely to be considered.

3. Fits the community's vision, as determined by a deliberative values-centered process with strong leadership

One of the most common refrains from people engaged in local governance, from municipal decision makers to individuals working with community-based organizations, was the recognition of the need for a community to determine its own longer term, values-based vision. This was seen as a separate process from comprehensive planning. In community visioning, a community would deploy informal deliberative processes based on relationship-building and supporting the needs of different sectors in the community. Leadership within the community is critical: in some communities, leadership was open to pragmatic and innovative changes to address challenges, while in others that leadership advocated for the status quo. However, without strong local leadership, these processes had the potential to exacerbate polarization.

4. Community resources to advocate for agency and justice

Those consulted in this research did not feel they had sufficient agency to be able to advocate and support their community, from individuals working in fishing sectors to those managing municipalities. Possible next steps could include funding technical community engagement capacity (through community-based organizations and trusted interlocutors) to navigate and advocate for just outcomes.

5. Project supports wider portsheds

Offshore wind has the potential to impact not only coastal communities and those who work on the water, but also geographically more extensive “portsheds” that benefit from and support a port’s economic and social activity. Most people who work on the coast cannot afford to live there anymore, especially in southern and midcoast Maine. Although the scope of this work did not include inland communities, their inclusion was cited as an important consideration for future engagement.

6. Clear plan in place to address potential impacts

Identifying and characterizing the potential impacts of a project, and agreements on how these impacts will be addressed, begins with the direct impacts to fishing and seafood communities and extends in uncharted ways to broader geographic and economic communities. Maine Statute 3407, the Maine Offshore Wind Renewable Energy and Economic Development Program, begins to outline the need to avoid, minimize and compensate for impacts. This is an area where the public and engaged communities and organizations struggled to find clear parameters for impacts that would trigger action.

7. The renewable energy “mix” is clear and factors in grid infrastructure, current and future climate conditions, and the desired energy independence of the community

A myopic focus on offshore wind as a primary solution to meet renewable energy and decarbonization goals does not adequately address the interests and needs of small and rural coastal communities. Better understanding of the factors most important for energy independence and reliability is needed.

CONCLUSIONS

Despite the challenges in floating offshore wind development in the Gulf of Maine, determining place-technology fit provides a potential pathway for understanding which Maine communities would be the better fit for offshore wind development. As projects proceed, this guide can serve:

- Developers seeking to build lasting local and state relationships that benefit the function, reputation and economic viability of their projects, allowing them to effectively meet regulatory requirements;
- Communities who want to understand how to draw out more equitable engagement from offshore wind proponents, including government agencies and developers; and
- Organizations who can do the essential work of connecting community members and developers.

Understanding the core values of communities is critical to building the relationships on which renewable energy development can break out of business-as-usual pathways to better support the economic and social integrity of coastal communities. Answering long-standing questions will help to support and build trust. From our key findings come clear potential solutions:

- Utilize evidence-based best practices; create agency throughout the development process; improve communications through listening, transparency, engaging in culturally-appropriate ways, allowing time for loss and culture shift, and creating information flows to the local level; reduce the engagement burden; and counter disinformation using effective channels.

- Existing community-based organizations can support the translation of values and practices through long-standing relationships of trust. They can provide the space and opportunity to undertake the community visioning needed for decision making around novel technologies such as offshore wind. Through these honest brokers, the abundance of perspectives on offshore wind can emerge organically, and, if done carefully, without threat to those with interests and perspectives from outside their social groups.

- Better understand the appropriate energy mix, from centralized and decentralized generation, for a climate-changing world. Energy systems can build on values of autonomy and responsibility to place that are critical to the economic and social independence of Maine's coast.

Finally, our indicators of place-technology address the nuanced impacts and benefits of offshore wind development, providing a simplified set of parameters to think about engagement throughout the development process. By specifically examining the

1. Living memory of industrial heritage;
2. How new industry clearly meets a basic local need without harming community cohesion;
3. The community's vision, as determined by deliberative process with strong leadership;

4. A community resources to advocate for its own agency and justice;
5. How the project(s) supports wider portsheds;
6. A clear plan in place to address potential impacts; and
7. The renewable energy mix that factors in grid infrastructure, current and future climate conditions, and the desired energy independence of the community;

coastal communities have a pathway to engage and move forward towards renewable energy, whatever that may look like, on the level of local impacts, with the ability to move towards change focused on collaboration instead of conflict.

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