

Evaluation of the Process to Site a Proposed Grid-Connected Wave Energy Test Facility in Oregon

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Executive Summary

The Northwest National Marine Renewable Energy Center (NNMREC) was established in 2008 to support marine renewable energy development through research, education, and outreach. NNMREC supports marine renewable energy development in many ways; one is by providing scaled testing opportunities for marine renewable energy devices in various stages of development.

In 2011, NNMREC began a focused effort to develop an open-ocean facility to test full-scale devices, called the Pacific Marine Energy Center South Energy Test Site (PMEC-SETS). NNMREC partnered with Oregon Sea Grant Extension (OSG) to implement a community process to find the site for PMEC-SETS. Leaders from both organizations began the process by meeting with community leaders in four coastal communities to create awareness about PMEC-SETS, to answer questions, and to gauge the interest level of each community in hosting the PMEC-SETS site. The process continued with community forums regarding the process to find a site for PMEC-SETS. Over time, the potential site for PMEC-SETS was narrowed to Reedsport and Newport, Oregon, and a request for proposals (RFP) was presented to both communities.

This report details an evaluation of this process to determine a final site for PMEC-SETS, and it provides recommendations for future wave energy siting efforts based on the evaluation and relevant literature. The evaluation was conducted using a mixed methods approach of interviews and an online survey. Specifically, it explored whether participants in the process understood the process (the siting of PMEC-SETS), whether they felt heard in the process, and whether they felt they had a real influence on the outcome of the process.

Logistically, there were several successful aspects of the siting process. Most participants in the evaluation reported that they had at least a fair understanding of the process and felt that they had enough information. The most used sources of information about the process came from public meetings and personal communications with process leaders. On average, participants reported that they wished they had been more involved in the process; most participants reported that this less-than-desired involvement was due to personal or professional constraints (not the process itself).

As existing and new uses compete for space in the ocean, more social science research is needed¹ to understand how best to choose sites for new uses. Research about stakeholder engagement in the process of siting marine renewable energy facilities is an emerging field of study, and gaining a better understanding of how to design and implement processes that effectively engage communities in wave energy siting could lead to more-successful siting efforts in the future.

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Introduction

The Northwest National Marine Renewable Energy Center (NNMREC) was established in 2008 by the US Department of Energy to support marine renewable energy development through research, education, and outreach. As a partnership among Oregon State University, University of Washington, and, most recently, the University of Alaska Fairbanks, NNMREC investigates the technological needs, human impacts, and environmental impacts of marine renewable energy. Included in NNMREC's suite of tools is a group of several test facilities, including the planned Pacific Marine Energy Center South Energy Test Site (PMEC-SETS). PMEC-SETS, planned to be operational in 2017, will be the first grid-connected, open-ocean test facility for full-scale wave energy devices in North America.

Conversations about a full-scale open-ocean test facility began in 2005. In 2011, NNMREC, in conjunction with Oregon Sea Grant Extension (OSG), began focused efforts to identify a site for PMEC-SETS (called only Pacific Marine Energy Center, or PMEC, at the time of siting). Leaders from both organizations began by meeting with state and local government officials, the commercial fishing community, and leaders of stakeholder groups, ports, cities, and counties in Coos Bay, Reedsport, Newport, and Camp Rilea, Oregon, to create awareness about PMEC-SETS, to answer questions, to gauge the interest levels of each community to host the PMEC-SETS site, and to seek feedback on what stakeholder groups and individuals needed to be involved. Input was also taken on where to hold public meetings, timing of engagement (to avoid overlapping concurrent events), and other existing community issues the process leaders needed to be aware of.

In August 2012, community forums were held in Coos Bay, Reedsport, and Newport, Oregon. The goal of each community forum was to provide information to the community at large and to begin a dialogue. After completing the community forums, the potential host communities were narrowed to Reedsport and Newport; this decision was based on several factors, including possibilities for ocean sites near the community, community support for hosting PMEC-SETS, and access to existing services and infrastructure.

A community forum was not held for Camp Rilea because siting PMEC-SETS there would require coordination with another wave energy project led by the Oregon Military Department. Although the Oregon Military Department viewed the opportunity to host PMEC-SETS as positive and exciting, the site at Camp Rilea was not pursued after technical analysis showed that in order to provide the depth required for deep-water device testing, the site would have to be located at least 10 nautical miles from shore (further than at any other location). Additionally, due to the onshore site being owned by the Military Department, there was concern about potentially limited access during times of heightened national security.

Coos Bay was not selected for further consideration due to the long distance between potential offshore sites to necessary onshore infrastructure. Additionally, Ocean Power Technologies already had a preliminary permit for a large wave energy development in the Coos Bay area, and there was lack of interest and support for additional development. Also, preliminary conversations were under way with Principle Power about a possible offshore wind project located off Coos Bay but further from shore.

In September 2012, community members in Reedsport and Newport were invited by process leaders to apply to serve on “Site Selection Teams” that would eventually be tasked with preparing a proposal for hosting PMEC-SETS. The Site Selection Teams were meant to broadly reflect the demographics of each community; thus, process leaders sought representatives from commercial and recreational fishing, local governments, economic development, marine infrastructure, local utilities, tribes, education, environmental groups, non-

consumptive ocean recreation users, and the public at large (see Table 1 for the actual representation). Process leaders reviewed the applications and ultimately accepted everyone who applied to serve on a Site Selection Team. The Reedsport Site Selection Team ended up having 18 members; the Newport Site Selection Team had 14.

In November 2012, a request for proposals (RFP) was released to each Site Selection Team outlining the desired site characteristics, criteria needed for a fully functioning deep-water test site, and the proposal requirements. Both communities put forth proposals in

December 2012 that were evaluated by a team of external reviewers. Selection was based on ocean site characteristics, marine and on-shore cable routes, port and industry capabilities, impacts to existing ocean users, challenges in securing permits, stakeholder participation in the proposal process, and support of the local fishing community. Newport was awarded the bid.

Table 1 shows which groups were represented on each Site Selection Team.

Group Represented	Reedsport	Newport
Commercial fishing	x	x
Recreational fishing		x
Local governments	x	x
Economic development	x	x
Marine infrastructure	x	x
Local utilities	x	x
Tribes		x
Education	x	x
Environmental groups	x	
Non-consumptive recreation users		x
Public at large	x	x
Business	x	

Overview of the Process Evaluation

A graduate student in the Marine Resource Management program was tasked with evaluating the process of siting P MEC-SETS. This graduate student was independent and had not been involved in the process.

Evaluation Questions

The evaluation was built around four main questions:

1. Did participants like the logistics of the process?
2. Did participants understand the process?
3. Did participants feel heard during the process?
4. Did participants feel that they had an influence on the outcome of the process?

Participants

The evaluation gathered data from a variety of participants in the process. Participants in the process fit into five broad categories:

1. The “community leader” category includes leaders from coastal communities. Participants in this category include people such as mayors, city councilors, port commissioners and well-respected fishermen.
2. and 3. Members of the “Site Selection Team” category were split into two categories, based on the geographic community they were representing — Reedsport or Newport. Therefore, there was a Reedsport Site Selection Team category and a Newport Site Selection Team category.
4. The “NNMREC” category includes NNMREC employees and those who served as advisors to process leaders.
5. The “public” category includes those who participated only by attending a public meeting or through personal communication with process leaders and did not fit in the other categories.

Data Collection

A mixed methods approach was used to collect data. Initial, semi-structured interviews were conducted with a subset of process participants who were selected through purposive sampling.^{2,3} These semi-structured interviews were used to inform the design of the questions asked on a confidential, online survey, ensuring the use of appropriate terminology.

The confidential survey was administered online using Qualtrics software. Email addresses were obtained from a list of participants kept by the process leaders; the initial invitation to participate was sent in November 2014 via email. Reminder emails were sent three weeks and six weeks after the initial email. In December 2014, reminder phone calls were made to Site Selection Team participants, who were given extra questions relating specifically to the Site Selection Team portion of the process.

The total number of surveys sent was 130 and the total received was 61, resulting in an overall response rate of 47%. Table 2 lists each respondent category, total respondents, total surveys sent, and the response rate for each category.

Table 2 shows respondents by category and response rates.

Respondent Category	Total Respondents	Total Surveys Sent	Response Rate
Site Selection Team — Reedsport	9	17	53%
Site Selection Team — Newport	9	13	69%
Community Leaders	10	26	50%
Public	23	59	39%
NNMREC	10	15	67%
Overall	61	130	47%

Data Analysis

Data from the surveys and interviews were analyzed using both qualitative and quantitative techniques. Qualitative data from interviews and surveys were analyzed by cataloging recurring themes.⁵ Quantitative data from the surveys were analyzed using traditional methods of quantitative data analysis.^a In particular, a reliability test was used to determine whether a set of questions could be combined into one index to measure a specific concept. After running a reliability test, a Cronbach’s alpha coefficient is calculated. An alpha of greater than or equal to 0.65 allows the individual responses to be combined into one index.⁶

^aDescriptive statistics, t-test, Kruskal–Wallis, Mann–Whitney U test, and reliability test

Key Findings

Logistics

In general, participants were content with the logistical aspects of the process, such as the amount of notice provided, the amount of information provided, and the number of opportunities to engage.

Notice and Timing

Nearly 80% of participants felt they had adequate notice about the siting process before the site was selected in January 2013. When asked how far in advance a community should be consulted before a final marine renewable energy site is chosen, the average response was 22 months.

Information

Overall, participants in the process had enough information about the process, and their most-frequently used sources of information were in-person communication methods. A majority of participants (76%) felt they had adequate information about the siting process, while the remaining participants felt they had received too little information. Participants were asked, “How often did you receive information about the siting process for OSU’s proposed grid-connected wave energy test facility from each of the following?” The responses were based on a five-point scale: Never, Rarely, Occasionally, Sometimes, or Often. The most-frequently used source of information was personal communication with the process leaders, followed closely by public meetings or presentations (Table 3). The more passive forms of digital communication, such as websites, were the least-used sources of information. A majority of participants never used social media venues such as Facebook. In the “other” category for this question, participants listed receiving information from additional groups, notably the Oregon Wave Energy Trust (OWET) and Fishermen Interested in Natural Energy (FINE).

Though public meetings or presentations were listed as the second-most-frequently used sources of information, some participants felt there could have been better advertising of these events to the general public. For example, one member of the Public category of participants knew about a public meeting only because he or she was connected to OSU. This person added, “Many of the people I spoke to did not know [public meetings] even occurred.”

Table 3 shows the source of information and average frequency of use. Information sources are listed from most frequently used (top) to least frequently used (bottom).

Information Source	Average Frequency of Use
Personal communication with Oregon State University, Oregon Sea Grant, or NNMREC	Sometimes
Public meetings or presentations	Sometimes
Oregon Sea Grant email list	Occasionally
NNMREC website	Rarely
Newspaper	Rarely
Family or friends	Rarely
Oregon State University website	Rarely
Radio	Rarely
Oregon Sea Grant Extension website	Rarely
Social media (such as Facebook or Twitter)	Never

Opportunities to Engage

There were several opportunities to engage in the P MEC-SETS siting process. These opportunities were mainly through personal communication with the process leaders, attending a public meeting or presentation, and serving on a Site Selection Team. Overall, participants wanted to be more involved in the process. Most participants who provided a reason for not being involved cited personal reasons and did not blame the process itself.

The survey asked participants in the process what their *actual* level of involvement was during the process and what their *desired* level of involvement would have been. Responses were on a four-point scale: “not involved,” “somewhat involved,” “moderately involved,” and “extremely involved.” When asked about their *actual* involvement, on average, participants reported being somewhat involved. When asked about their *desired* involvement, on average, participants wished they’d been more involved (between somewhat and moderately involved). The desire to be more involved was statistically significant.^b

Additionally, participants were asked to explain why there was a difference between their *actual* and *desired* participation levels. Of the participants who answered, seven cited personal or professional reasons for not being more involved. For example, one participant

^b A Wilcoxon matched-pairs signed-rank test showed the desire to be more involved was statistically significant ($z = 3.35, p = .001$) with Cohen’s d of .34 indicating a strength of significance between “small” and “medium”⁷

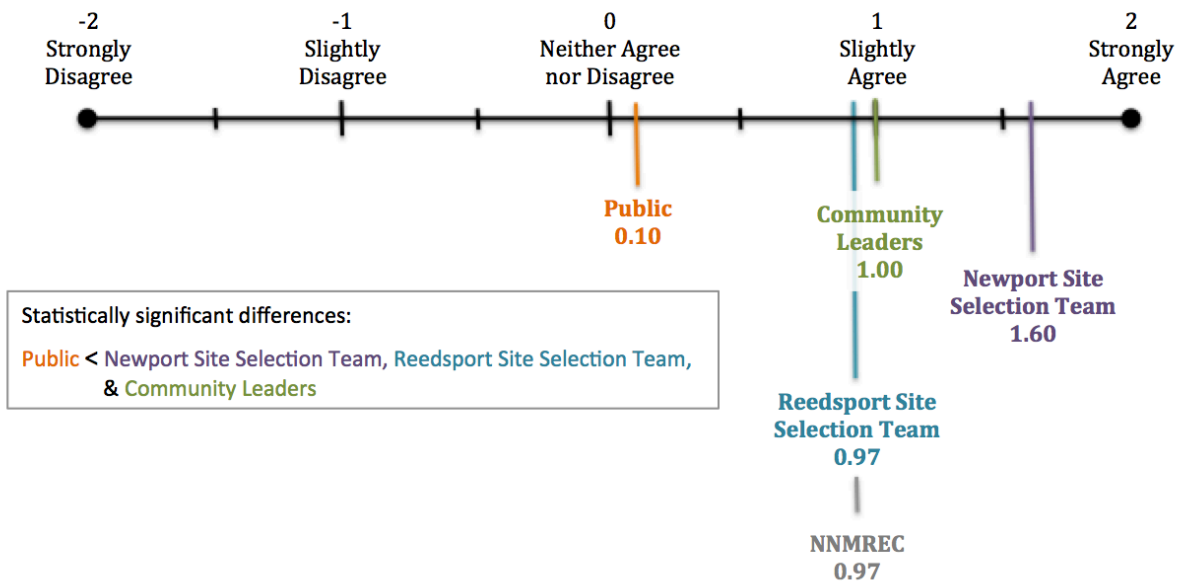
said, “I am a Federal Government employee and had to be careful to act only as a private citizen which limited my involvement.” The remaining two respondents said they were not more involved because they were not invited to participate more in the process.

Understanding of the Process

On average, participants across categories slightly agreed they understood the process. Participants in the Public category had the lowest understanding of the process, while participants in the Newport Site Selection Team category had the highest understanding (Figure 1).

Participants responded to four questions that assessed their understanding of the process. The four questions were combined into a single index^c to address understanding of the process. On average, participants across all categories slightly agreed that they understood the process on a five-point scale, ranging from strongly disagree to strongly agree (Figure 1). The Public category of participants reported a statistically significant lower understanding than the Community Leaders,^d Newport Site Selection Team,^e and Reedsport Site Selection Team^f categories. However, there were no statistically significant differences among the other categories of participants.

Figure 1 shows the extent to which each category of participant disagreed or agreed that they understood the process.



^a U = 2.54, p = .011, $r_{pb} = .49$; effect size of “large”⁷

^e U=3.62, p<0.001, $r_{pb} = .74$; effect size of “large”⁷

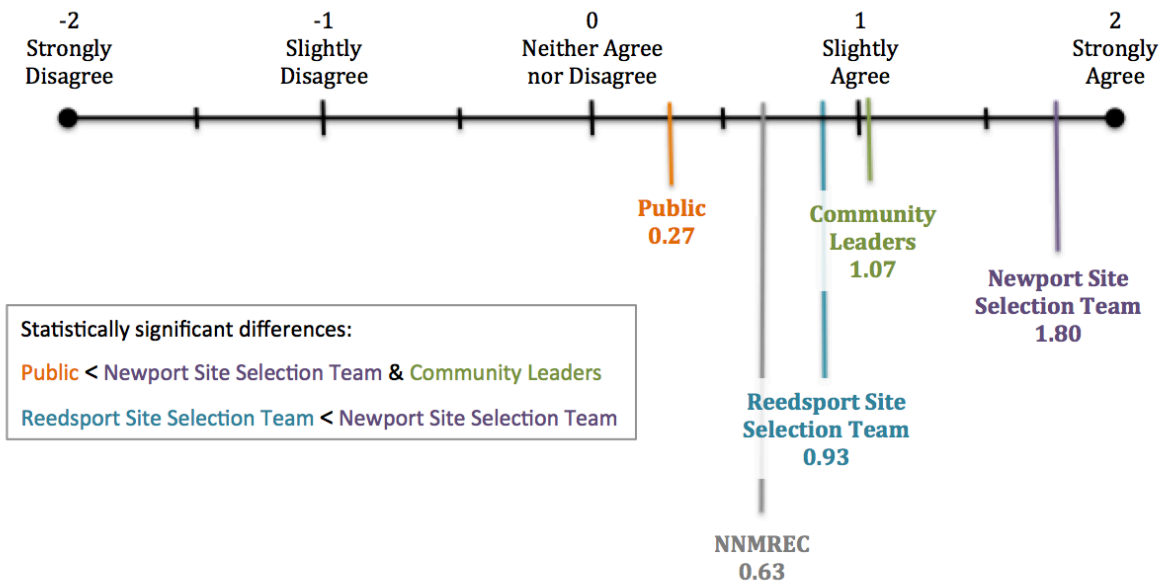
^f U=2.46, p=0.14, $r_{pb} = .49$; effect size of “large”⁷

Feeling Heard During the Process

On average, participants across categories slightly agreed they felt heard during the process. Participants in the public category felt the least heard; participants in the Newport Site Selection Team category felt the most heard (Figure 2).

Participants responded to five questions on a five-point scale, which contained responses ranging from strongly disagree to strongly agree, to assess whether they felt heard during the process. The five questions were combined into a single index^g to address the feelings of being heard in the process. On average, participants slightly agreed they felt heard during the process. The Public category of participants felt significantly less heard than the Community Leaders^h and the Newport Site Selection Teamⁱ categories of participants. Additionally, the Reedsport Site Selection Team felt significantly less heard than the Newport Site Selection Team.^j There were no statistically significant differences among the other categories of participants.

Figure 2 shows the extent to which each category of participant disagreed or agreed that they felt heard during the process.



^g Cronbach's alpha (α) = 0.94

^h $U=2.33$, $p=0.02$, $r_{pb} = .39$; effect size of "large"⁷

ⁱ $U=3.95$, $p<0.001$, $r_{pb} = .80$; effect size of "large"⁷

^j $U=-2.22$, $p=0.026$, $r_{pb} = .54$; effect size of "large"⁷

Influence on the Outcome

On average, participants across categories neither agreed nor disagreed that they had an influence on the outcome of the process. Participants in the Reedsport Site Selection Team category felt they had the least influence on the outcome of the process; those in the Newport Site Selection Team category felt they had the most influence (Figure 3).

Participants responded to six questions on a five-point scale, from strongly disagree to strongly agree, to assess their understanding of the process. The six questions were combined into a single index^k addressing influence on the outcome of the process. On average, across all categories of participation, participants neither agreed nor disagreed that they had an influence on the outcome of the process. The Public felt they had significantly less influence on the outcome of the process compared to Community Leaders,^l the Newport Site Selection Team,^m and NNMREC.ⁿ Community Leaders also felt they had significantly less influence on the outcome of the process compared to the Newport Site Selection Team.^o The Reedsport Site Selection Team also felt they had less influence than the Newport Site Selection Team.^p There were no statistically significant differences among the other categories of participants.

The perception of having less influence on the outcome of the process could be attributed to several factors, although only a few were revealed in this study. Reedsport Site Selection Team members, in the community that was not selected, were less likely to feel they had an influence on the outcome. This is clearly evident when comparing the responses of the Reedsport Site Selection Team with those of the Newport Site Selection Team. Additional comments by people in the Public category of participants showed disappointment in the perceived “lack of weight and consideration given to the information and comments that came from the outreach effort.”

^k Cronbach’s alpha (α) = 0.95

^l U=2.14, p=0.033, $r_{pb} = .43$; effect size of “large”⁷

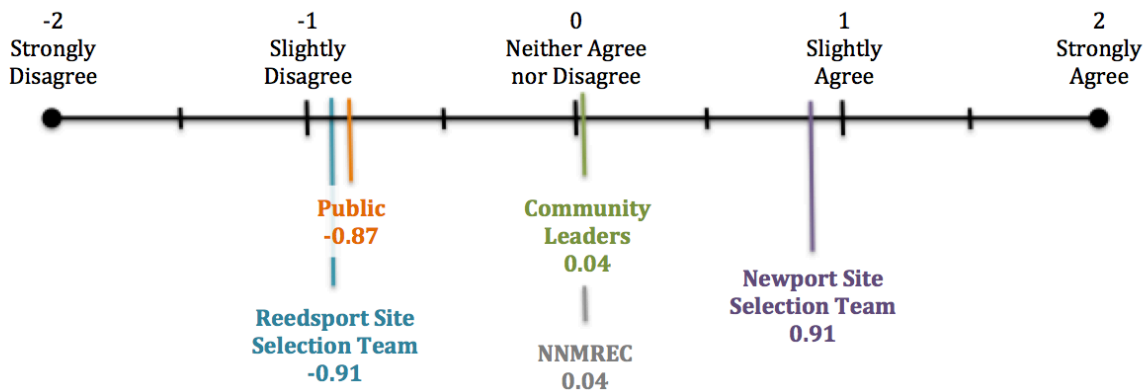
^m U=4.03, p<0.001, $r_{pb} = .74$; effect size of “large”⁷

ⁿ U=2.63, p=0.008, $r_{pb} = .48$; effect size of “large”⁷

^o U=2.09, p=0.037, $r_{pb} = .50$; effect size of “large”⁷

^p U=-3.301, p=0.001, $r_{pb} = .78$; effect size of “large”⁷

Figure 3 shows the extent to which each category of participant disagreed or agreed that they had an influence on the outcome of the process.



Statistically significant differences:

- Public < Newport Site Selection Team, Community Leaders & NNMREC
- Community Leaders < Newport Site Selection Team
- Reedsport Site Selection Team < Newport Site Selection Team

Greatest Strength of the Process

When asked what the greatest strength of the process was, participants listed several. Participants identified the communication and outreach portion of the process as a strength. Particularly, participants were happy with the physical presence and availability of the process leaders. The process leaders themselves were named several times as the greatest strength in the process. They were associated with trust, openness, strong facilitation, and being good listeners. One participant appreciated that the process leaders listened to what people wanted, and, of equal importance, to what they did not want — referencing specifically communities that were not interested in hosting the site and were therefore excluded from the late stages of the process. Some participants in the Site Selection Team (in both locations) thought using a competitive process for selecting the site was a “great way to get communities to want to welcome marine renewable energy,” and that competition led to stronger proposals and, ultimately, stronger support.

The NNMREC crew had a good relationship built on honesty and openness with the Fishing Community. —Newport Site Selection Team member

Greatest Weakness of the Process

There were few weaknesses listed. The main two were a perceived bias toward Newport and a perceived bias toward the commercial fishing industry.

The top complaint about the process was the perceived bias toward Newport. People within every category except for the NNMREC category held this view. A participant in the Public category cited the greatest weakness of the process as “it’s obvious preference for the Newport site prior to the formal decision,” while a participant in the Community Leader category said, “It was going to be Newport from day one.” Another member of the Public category said, “I am somewhat disappointed, as a resident of [the southern Oregon coast], that Newport tends to get the lion’s share of interest, attention, and money from Oregon’s universities...”

Though working with the fishing community was perceived as a strength of the process, the amount of power given to the fishing community in choosing the site was perceived as a weakness of the process. While one participant felt the fishing industry should be given more power because “it was generally felt they could suffer a loss economically,” most participants felt the power afforded the fishing industry was too great.

Commercial fishing is important and we need to keep that industry vital and sustainable. That said, however, the process should proceed with everyone aware that the fishermen do not own any ocean areas or bottom...these places are instead owned by the public and should be treated as such. —Newport Site Selection Team member

Site Selection Team Process

Site Selection Team members from both locations (Reedsport and Newport) were asked a series of additional questions specific to the Site Selection Team portion of the process. Overall, a majority of Site Selection Team members felt the representation on their respective Site Selection Team was appropriate, and most members indicated they would participate in future processes to site marine renewable energy. Two criticisms of the Site Selection Team process were that the site-selection criteria shifted and that fishermen had too much influence over which sites were proposed.

The majority of Site Selection Team members (78%) felt there were no individuals nor categories of stakeholder groups missing from the Site Selection Team that should have been represented. Two Site Selection Team members felt that three groups — local natural-resource conservation groups, shipping industry, and tug operators — should have been on the Site Selection Teams but were not.

When asked whether they would participate in future siting processes, over half the Site Selection Team members (54%) said yes. An additional 21% would maybe participate again,

This was a good experience and the team worked well together to create a final proposal that I was proud of. —Newport Site Selection Team member

while only 8% would not participate in future processes. There were only a few specific critiques of the Site Selection Team process. One complaint shared by both teams was that the time allowed for creating site proposals (two months) was too short.

The biggest complaint from Site Selection Team members on both teams was that the site selection criteria were not always clear or that they shifted throughout the process. A participant in the NNMREC category also noted that the selection criteria “seemed to be in flux during the process.” A couple of the Site Selection Team members felt they understood the original selection criteria but that they were not the same criteria used to evaluate the sites. However, as was previously noted, the Site Selection Teams were provided with a Request for Proposals (RFP) to guide the development of their proposals, and an independent comparison of the RFP and the score sheet used to rate the proposals shows the same selection criteria were used in both documents.

One Site Selection Team member felt the greatest weakness in the Site Selection Team portion of the process was allowing fishermen to “put some pretty serious constraints on the locations that they’d ‘allow.’” This person added that Site Selection Team members were not comfortable enough to make alternative recommendations, and that when fishermen chose the site for the test facility, “it was like a secret meeting that did not include the [Site Selection] team.” Additional participants outside of the Site Selection Teams agreed with this sentiment, as described previously in this report.

General Marine Renewable Energy Siting

In addition to the questions related to evaluating the process for siting PMEC-SETS, the survey also asked a few questions about wave energy siting in general. Data from this section could provide helpful information in future siting efforts.

Groups Impacted by Wave Energy Development

Survey participants were asked how they thought different stakeholder groups would be impacted by marine renewable energy development on a scale from strongly negatively impacted to strongly positively impacted, with an option for not impacted at all. Several respondents noted that impacts would be different based on project specifics such as the size, how many devices, and the types of devices. Participants felt that commercial fishing would be the most negatively impacted, while scientists would be the most positively impacted (Figure 4). Participants, on average, did not think Tribes, non-consumptive recreation ocean users, coastal residents, tourists, or non-profit organizations would be impacted by marine renewable energy development.

Figure 4 shows how survey participants thought certain stakeholder groups would be impacted. (Note: This figure does not show groups identified as having no impact.)

Strongly negatively impacted	Slightly negatively impacted	Stakeholder	Slightly positively impacted	Strongly positively impacted
		Commercial fishing		
		Recreational fishing		
		Local government		
		Local businesses		
		Local utilities		
		Scientists		

Most-Important Groups to Engage

When asked how important it is to engage with certain groups about putting a marine renewable energy development in their community, survey respondents felt it was moderately to extremely important to engage with every group listed except tourists, who were listed as slightly important to engage with. When asked which group is the most important to work with when choosing a site for a marine renewable energy development, the most frequent response was commercial fishing (46%), followed by local government (12%). Process participants recognized that different developments would have varying impacts and potentially different stakeholders who would need to be engaged.

Stakeholders listed as moderately or extremely important to engage with:

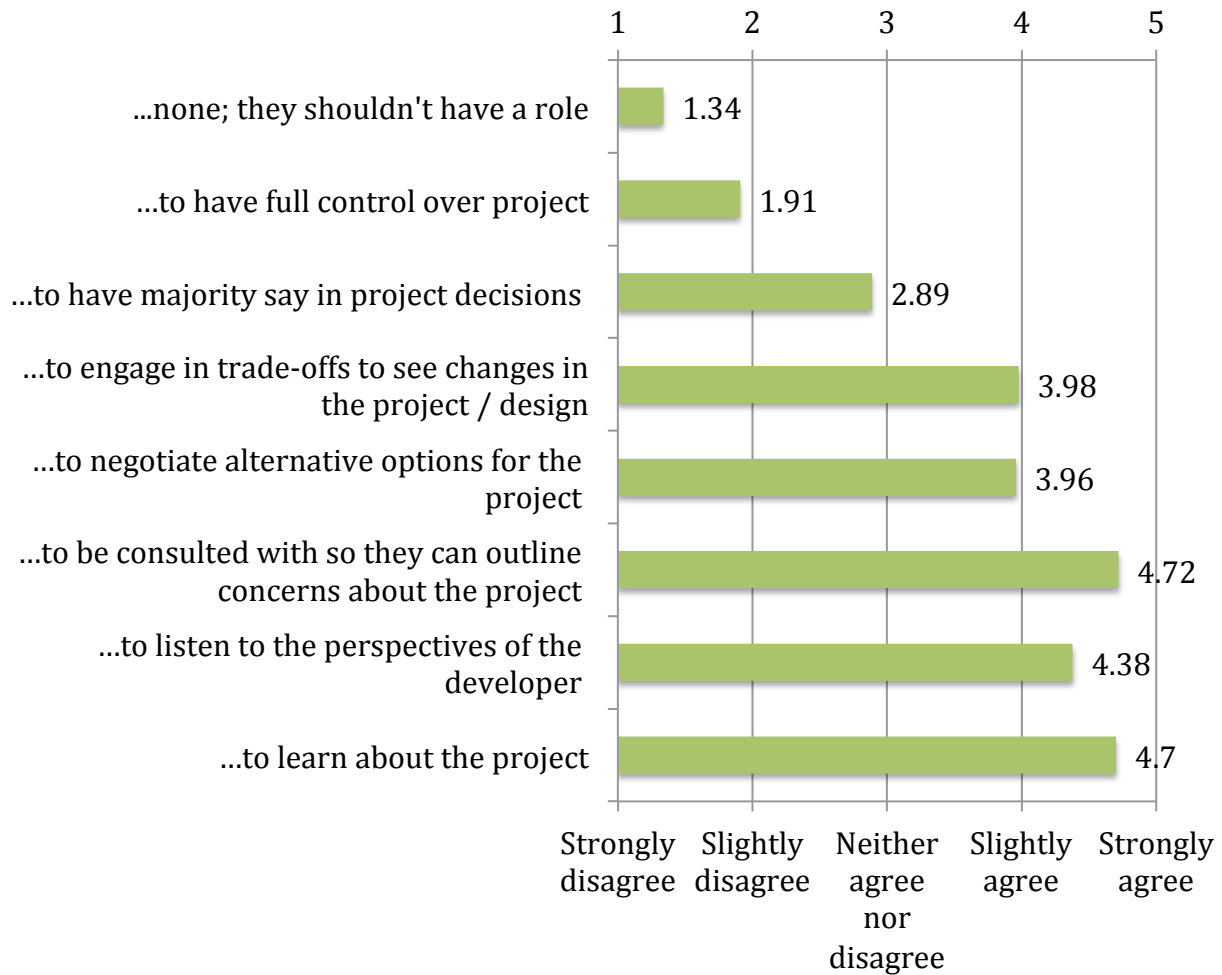
- Commercial fishing
- Recreational fishing
- Local government
- Local business
- Local utilities
- Tribes
- Non-consumptive recreation
- Coastal residents
- Scientists
- Non-profit organizations

Role of Community Members in Wave Energy Siting

Participants were asked for their opinion on the role of community members when choosing a site for a marine energy development. Responses were recorded on a five-point scale, from strongly agree to strongly disagree. On average, process participants strongly agreed that community members should learn about the project and be consulted with, so they can outline concerns about the project (Figure 5). Participants slightly agreed that the role of community members is to listen to the perspectives of the developer, negotiate alternative options for the project, and engage in trade-offs to see changes in the project/design. Participants strongly disagreed that the community should not have a role in choosing a site, and they slightly disagreed that the community should have full control over the project.

Figure 5 shows the response to the question, “To what extent do you disagree or agree with each of the following statements about the role of the community members when choosing a site for a marine renewable energy development?”

The role of community members when choosing a site for a marine renewable energy development should be...



Discussion and Conclusion

Considerations

It is always important to recognize potential recall bias⁴ in this type of evaluation. For this study, there were two years between the conclusion of the siting process and the beginning of this evaluation. While the recall bias does not in any way invalidate the results of this evaluation, it is important to keep in mind that some of the finer details of a participant’s involvement might have been lost from his or her memory. Additionally, participants’

feelings might have changed between the end of the process and the beginning of the evaluation.

The process reviewed in this evaluation was for a small-scale research facility for wave energy devices and the siting process was led by people in the academic realm from Oregon State University and Oregon Sea Grant Extension. It is important to note that commercial wave energy developers would have varying sizes, specifications, and effects. Additionally, the responsibility for any siting process would fall on the private company pursuing the development.

Don't expect subsequent projects that are privately funded to have the resources or patience to think that local stakeholders are going to dictate so much about the project. —Participant in the NNMREC category

Many process participants noted that this siting process was unique in that it was for a “research facility” of limited size and was not led by a public agency or a private developer. One participant said, “It [this process] might not work for other types of projects. Each project needs to develop its own approach that recognizes the characteristics of the project and the full-spectrum of stakeholders involved.” Additionally, the process may be different depending on the types of devices and the size of the development. One participant stated, “The process would need to be modified considerably due to the nature of what will end up offshore.” A Site Selection Team member added, “This bottom-up approach is how these types of sites should be developed. A top-down approach would have been much more difficult and painful.”

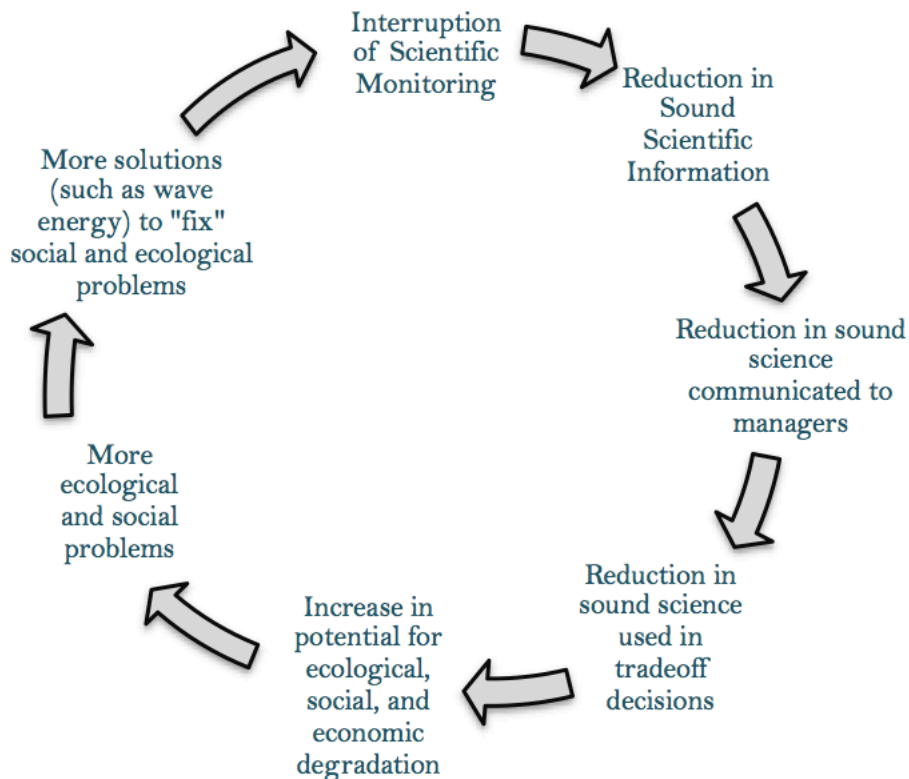
Impact to Stakeholders

Participants in this evaluation felt that tourists would not, on average, be impacted by wave energy development, and they only slightly agreed that it is important to engage with tourists when making a decision about where to site a wave energy development. It is important to note that since this was a confidential evaluation, the background of each respondent is not known. If there were any tourists included in the evaluation, it was likely a very small number. Additionally, it is not known how many respondents are associated with tourism-related industries. Other studies with more of a focus on residents outside of siting areas, or with a larger representation of respondents working in tourism-related businesses, might obtain different results.

Participants in this evaluation felt that scientists would be the most-positively impacted by a wave energy development. Literature has shown, however, that scientists can be negatively impacted by offshore energy development, especially when they are barred from accessing a long-term research site. One study showed that there can be a cyclical effect when scientists are excluded as stakeholders and their research is therefore

impacted by development.⁸ This cycle, shown in Figure 6, can lead to scientific research being interrupted, ultimately resulting in the availability of less scientific information for making informed management decisions.

Figure 6 shows the “feedback loop potential if the scientific community is not included as a stakeholder in the marine spatial planning process.”⁸



Reflection of a Process Leader

The previously reported results were solely from the evaluation participants. The following is from the process leader from Oregon Sea Grant Extension, who was interviewed two years after the completion of the process (and before this evaluation was completed). The interview focused on her advice for future efforts and her reflection on the process used for PMEC-SETS.

Adequate capacity and staff time are required for community engagement efforts. For example, it would have been great to have a dedicated note taker so lead staff could focus on facilitation. Additionally, it would have been helpful to have two lead staff members focusing on facilitation and communication with community members.

Find out the nuances of each community. For example, learn whether there are existing barriers to communication among stakeholder groups within a community. Additionally, find out whether there were past projects that left the community disheartened.

Put in more time up front to build rapport with the community. A commercial developer may not have existing name recognition or the existing trust that the process leaders for the P MEC-SETS process had. Therefore, they will need to spend more time in the beginning talking about who they are as a company, before jumping into what their project will be.

Hire someone local to facilitate the outreach-and-engagement process. This will help in building trust and learning the nuances of each community.

Recommendations

Stakeholder involvement is an important component in marine renewable energy siting. Studies have shown that renewable energy projects often fail due to lack of consideration for the interests of stakeholders.⁹ In recognition of this, Ocean Renewable Power Company, a tidal energy company based in Maine, operates under the belief that “agencies give permits, communities give permission.”¹⁰

The recommendations listed below have been drawn from the evaluation of the P MEC-SETS process and a review of literature on community engagement, marine renewable energy siting, marine spatial planning, and other relevant topics.

Create a plan for stakeholder engagement. Stakeholder engagement is sometimes viewed as burdensome. Being clear on, and designing an active plan for, stakeholder engagement can help establish realistic expectations and lay the groundwork for a smoother process.¹¹

Begin stakeholder engagement early. Several studies have shown that early stakeholder engagement is key to a successful process.^{9, 10, 12} Stakeholder engagement should begin as early as possible. Participants in this evaluation suggest beginning 22 months before a site is to be chosen.

Use a variety of methods for information sharing.¹³ Participants in this process preferred in-person communication through public meetings or directly with process leadership. Find out the communication methods best suited for the communities where the process will take place. Relying solely on digital communication likely will not work.

Partner with a local organization or resident to learn about the community and help build trust. One study found that community members praised an offshore marine renewable energy developer for hiring local people to aid in its outreach process.¹⁰

Familiarize yourself with priority issues facing the community. Find out whether there is anything else happening in the community that could impact the siting process. For example, are there other marine renewable energy developers working with the community? Have there been recent land use decisions that were controversial?

Build trust within the community. Trust has been defined as “the willingness to rely on those who have the responsibility for making decisions and taking actions.”¹⁴ This evaluation showed that, from the perspective of the participants, trusting the process leaders was one of the biggest strengths. Several studies have also shown trust to be an important component to success and that trust can reduce the amount of active opposition to a project.^{11, 15, 16}

Future Work

Future research could compare this process, which was specifically for a research facility, to a process used for siting a commercial wave energy or other marine renewable energy development. Furthermore, this evaluation was of one process; future studies could compare siting for this research facility with siting for other offshore research facilities. Finally, an investigation into the pros and cons of using of a competitive process to site wave energy would be helpful if a similar process were to be used in the future.

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