

Offshore Renewable Energy – Stakeholder Perceptions and Public Participation in the New Frontier

a report by

Michelle E Portman

Environmental Policy and Management Programme, Geography Department, Hebrew University of Jerusalem

A consensus exists that developing new sources of renewable energy is highly desirable. However, here are many aspects of renewable energy that require careful analysis and exploration. If this does not take place some problems will be solved but others will be created. This perspective demands consideration of public perceptions, values and opportunities for participation in developing new energy solutions, a major challenge when these are based on ocean resource exploitation.

Public Participation

Matters of public participation are not particular to the renewable energy sector or to the marine environment or activities in the coastal zone. Despite this, stakeholder perspectives and public participation are particularly important when the sources of energy being considered are in the marine environment. There are several reasons for this. First and foremost, oceans are public domain resources. Second, almost all the renewable energy technologies considered for the marine environment are new. They have only been refined within the last decade or so and are not well understood by the general public; this could end up causing a backlash against development projects as people are fearful of what they do not know or understand. Third, because information is lacking about the marine environment, members of the public – particularly those who would engage in a public participation process – may contribute valuable information that cannot be found elsewhere. Fourth, disseminating information and giving the public the sense that they are part of the development process will help generate the support needed to bring about the political will to advance policies that will promote development of the sector.

The value of public participation is illustrated by the case of the US offshore wind farm, Cape Wind, first proposed in 2001 in Nantucket Sound off the Massachusetts coast. This project is perhaps the most well-known of all cases of marine renewable energy that has been stalled, although not halted, by public opinion. Many articles both in academic and professional literature have used Cape Wind as a case study,¹⁻³ and a book written in 2008 by two journalists popularised the controversy.⁴

The project began as an array of 170 wind turbine generators (WTG) straddling ocean areas in both state and federal waters. After acquiring numerous licences and authorisations, having undergone extensive impact assessments over the course of many years and being the impetus for regulatory changes (including the Massachusetts Oceans Act of 2008), Cape Wind finally received its federal permitting approval from the Secretary of the Interior on 28 April 2010. (Cape Wind completed state and local permitting in 2008.) Since its inception, the project's developers have reconfigured the farm to include only 130 WTGs and it is now located completely in federal waters.

This case illustrates the importance of public opinion and participation in the development of offshore renewable energy. Both brought about

changes to the project and have supported and impeded its approval. A review of coastal management and marine policy research and literature underscores why proponents of offshore renewable energy need to seek public input and be acutely aware of public perceptions and opinions. A particularly interesting phenomenon that has occurred since Cape Wind was first proposed has been the advent of many marine spatial planning (MSP) initiatives.⁵ The subsequent discussion highlights modes of public participation for development and conservation in the marine and coastal environment and relates these to proactive planning that can be accomplished through MSP. MSP serves as a way to avoid and resolve conflicts of use pre-emptively and, as such, promote progress in the marine renewable energy field.

Public Perceptions and Opinions

Most studies on public opinions about offshore renewable energy have focused on visual impacts and offshore wind as opposed to other marine technologies. Ladenburg and Dubgaard⁶ use 'willingness to pay' to estimate preferences for reducing visual disamenities from future offshore wind farms at varying distances from shore. Survey respondents were willing to pay €46, 96 and 122 per household per year to have the wind farms located at 12, 18 and 50km from the coast as opposed to having them located at a baseline distance of 8km.

An interesting finding of the Ladenburg and Dubgaard study, which took place in Denmark, was the differentiation between responses based on the age of respondents and on whether they had views of real offshore wind farms, either from their residence or summerhouse. Younger respondents (under 30 years of age) and those who had no previous experience with visual disamenities from wind farms exhibited indifference to having wind farms located at the varying distances from shore.⁶ This coincides with a similar finding from Firestone and Kempton's 2007 study of public opinions about offshore wind farms on Cape Cod. Supporters of the Cape Wind project described above were younger, better educated and less likely to see the project from their whereabouts during their daily routine.³ Despite the importance of aesthetics revealed, there is also evidence from studies that a desire to protect the marine environment is an important factor that brings about opposition to offshore wind farm construction.^{3,7}

Based on the literature, it seems that offshore wind can claim the ostensible majority of concern expressed by the public compared with that voiced about other types of marine renewable energy. Offshore wind installations are massive, involve significant space and cause considerable visual impacts; other technologies, such as wave and tidal current, are more localised. Most of these technologies are still at a small pilot project stage. Additionally, current and wave projects are located closer in to shore so they do not involve the multi-jurisdictional complexities characteristic of projects that straddle jurisdictional lines or are further out to sea in federal waters. In the US, even wind

installations that are completely within federal areas must meet stipulations of consistency with state coastal zone management plans.² In 1984, the State of California sued the US Secretary of the Interior to stop the sale of oil and gas leases on the Outer Continental Shelf (OCS) (in federal jurisdiction), arguing that a consistency determination was required at the second stage of leasing. To resolve this matter, the 1990 reauthorisation of the Coastal Zone Management Act determined that an 'activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone must be consistent with state Coastal Zone Management Plans'.

Added Conflict in the Coastal Zone

Marine renewable energy is the newcomer on the block, so to speak, when it comes to conflicting uses in the coastal zone. As in general conflict situations, the following three elements are true in coastal and marine areas:

- they involve at least two parties;
- the parties are interdependent, meaning that one party can affect another's ability to reach its goals; and
- the parties have articulated their objections to another's actions or intentions.

To qualify as a conflict over resources there must be the perception of incompatible goals, scarce resources and interference from another party over resource use.⁸ Renewable energy is a use that joins a slew of long-existing traditional uses of the ocean, such as commercial fishing, navigation and tourism, many of which are already conflicting. The investigation into conflicts and alliances in coastal management can facilitate strategic assessment and integrated planning to the benefit of different types of offshore development and uses that may be at odds. As a first step to conflict resolution, policy makers and development proponents should identify the variables of dispute.

For offshore renewable energy the main resource in question is ocean space, although depending on the technology and the extent of the development, biological resources such as marine mammals, fisheries and other non-consumptive uses such as aesthetic resources may also be affected and therefore related to the dispute or conflict. To identify the parties involved, policy makers and planners can use focus groups, snowball sampling, social network analysis, Q methodology and social assessment tools, among other approaches and techniques. Identifying stakeholders and their likely competing goals can serve as a precursor to conflict mediation or, better yet, as part of the MSP process. For example, in an article on combined offshore wind farms and aquaculture projects off the German coast, Buck et al.⁹ examined interests in marine waters because these are pursued by a number of federal and state development authorities, private companies and local politicians. These entities form alliances among themselves, but also with local stakeholder groups (e.g. local fishing communities). The position of members of the alliance will often depend on whether short-term profit or long-term sustainable revenue is their ultimate goal. In such a case, the MSP process can help strike a balance between various long- and short-term goals.

Marine Spatial Planning and Renewable Energy

MSP is a public process of analysing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives that are usually specified

through a political process. The last few years have seen an explosion of interest in MSP as a practical approach to managing both conflicts and compatibilities in the marine environment in the face of increasing development pressures and interest in the conservation of nature. Originally conceived as a management approach for nature conservation in Australia for the Great Barrier Reef Marine Park over 30 years ago, it has been used recently in the more crowded seas of European countries. Here it has been an effective process for achieving multiple objectives and has spread quickly to places as disparate as the US and Vietnam. The Vietnamese government has identified long-term conservation and sustainable management of the seas and coastal ecosystems as one of its top priorities and the Vietnam Administration of Seas and Islands has been in active partner in developing a step-by-step guide for Marine Spatial Planning published in 2009 by UNESCO.¹⁰ MSP can promote environmental protection while supporting development interests and sustainable economic growth. As an example, environmental assessment for a wind farm proposed in the German Exclusive Economic Zone (from 12–200 nautical miles from shore) would cost about €1million to prepare. The German federal government has already conducted a strategic environmental assessment for its marine spatial plan, but it includes priority areas for wind farms. Therefore, the costs of preparing and reviewing an environmental assessment for permits sought in a 'priority wind farm area' will be reduced or avoided.¹¹

The US

The US federal government's efforts at MSP are an outgrowth of the US Commission on Ocean Policy's findings published in 2004.¹¹ In December 2009, President Obama's Ocean Policy Task Force released its Interim Framework for Effective Coastal and Marine Spatial Planning.¹² Under the Framework, coastal and MSP will be regional in scope, developed co-operatively among federal, state, tribal, local authorities and regional governance structures. A major portion of the framework is dedicated to involving stakeholders and the public. There is also frequent mention of marine renewable energy, particularly wind, wave, tidal, current and thermal, as a new ocean use. In a recent analysis of stakeholders involved in MSP prepared for the US National Oceanic and Atmospheric Administration's Coastal Services Center, renewable energy siting stood out as the primary current and future driver of MSP efforts.¹³

The UK

The UK government has gone further than the US, with the recent passing of the Marine and Coastal Access Act in 2009. This is a single piece of legislation dedicated to protecting the marine environment that coincides with the UK's push to develop offshore renewable energy. The act has created a new marine planning system designed to bring together conservation, social and economic approaches for use of resources in the UK's territorial seas. The Marine Management Organisation (MMO) will have responsibility for preparing marine plans that will be a source of information that marine stakeholders can use when considering where and how they might carry out activities. The intention is to achieve consistency – operators and regulators in a given area will be steered by the same plan, thus bringing about a reduced regulatory burden and streamlined licensing. Renewable energy proponents will be able to construct and operate facilities based on a single consent from the MMO. To avoid conflicts with marine conservation priorities, four regional subcommittees (England, Wales, Northern Ireland and Scotland) have started working with local groups

and businesses. These MMO regional projects aim to proactively identify which areas will be designated as marine conservation zones.

Recommendations for Moving Forward

Developers and policy makers interested in stakeholder involvement as a way to avoid or ameliorate conflicts between offshore renewable energy and other coastal and marine uses have a wealth of literature to draw from. They can use recommended practices for involving the public generally in integrated coastal zone management,¹⁴ in MSP,¹⁵ in marine protected areas¹⁶ and in specific initiatives, such as the European Marine Strategy Directive.¹⁷ They can also draw on experience in public participation in renewable energy development, although the marine and coastal environment provides a special case. Members of the general public and some stakeholders providing input to offshore renewable energy projects may have more of a cursory knowledge of the marine environment than their counterparts would have of the terrestrial environment.

Firestone and Kempton's 2007 study on Cape Cod found that many opinions had little connection to facts presented in the Cape Wind's environmental impact statements, suggesting that opinions are preconceived.¹ Objections to terrestrial renewable energy development vary greatly depending on the particulars of the physical environment where projects are being proposed (e.g. rural or urban) and the technology being used (e.g. solar panels or biogas). Similar variance will most likely occur in terms of marine renewable energy projects once technologies and alternatives are better understood.

In any case, project proponents should consider public participation as a major step in project development. Some ways of achieving effective public participation for coastal management include:

- early identification of all potentially interested parties;
- informing these groups and/or individuals of upcoming decisions and how they may be affected; and
- making full information clear and available in advance of any public forums or gatherings at which comments and input are sought.

The decision-making body should issue its decision(s) in written form, perhaps as findings. An interested reader would learn from these findings what the body's decision is, on what it is based and any assumptions that went into it. All final decisions should be publicly issued.^{14,18} As a big part of decision-making for offshore renewable energy will depend on the environmental impact assessment (EIA) process especially in the US, best practices for public participation in the EIA are also of interest. Scoping is the first step of the EIA process during which the topics to be reviewed and assessed are determined. For such an initial stage, offshore project proponents should:¹⁸

- communicate clearly, fully and on a level that is understandable by the public and stakeholders;
- seek broad-based participation that be as inclusive as possible;
- lead a process for prioritisation of topics proposed for assessment;
- support 'three-way' learning that is based on knowledge from local stakeholders and resource users, experts and previous/parallel experience(s); and
- consider various alternatives early in the EIA process.

For MSP, involvement of the public will depend on the political or legal context, which is something that varies greatly from country to country and is often culturally influenced. Involving stakeholders early on in decisions for MSP will engender and encourage compliance with rules and regulations later on. As with EIA for offshore renewable energy proposals in particular and for coastal zone management in general, at the very least involving stakeholders in a proactive planning process will help all those involved realise the complexity of the marine management area. It will highlight human influences and reveal the underlying (often sector-orientated conflicts). It will also reveal the perceptions and interests that stimulate and/or prohibit the implementation of policies. Stakeholder involvement may generate new options and solutions that otherwise might not be considered. Ultimately public participation and broad stakeholder involvement can expand and diversify the capacity of the planning team through the inclusion of information gleaned from local knowledge and traditions.¹⁰

Conclusions

There is no doubt that public opinion and public participation practices will play a role in efforts to solve the climate and energy crises. Many of the technologies being considered by policy-makers, scientists and environmental advocates are new and many of them are being addressed in public forums. Although public opinion has halted several test sites for carbon capture and sequestration in Europe¹⁹ and terrestrial wind farm sites are frequently limited in scope or rejected all together following public debates,²⁰ public opinion has also put pressure on policy-makers to move forward with renewable energy. This has resulted in policies that support offshore renewables, particularly in Europe. In most developed countries, public participation is an accepted part of decision-making for large projects and certainly for projects in the public domain or those that are financed – even partially – by public funds. Improved decision-making is particularly critical in the coastal zone, especially in near-shore marine areas where there are multiple jurisdictions and myriad stakeholder groups who have traditionally had open access to resources. In democratic societies, development in the marine environment is likely to result in some loss of public access and public trust protections. As such, policy makers are not only wise to consider the public and involve them in decisions, but they have an obligation to do so. ■

1. Kempton W, Firestone J, Lilley J, et al., *Coastal Management*, 2005;33(2):119–49.
2. Santora C, Hade N, Odell J, *Ocean & Coastal Management*, 2004;47(3–4):141–64.
3. Firestone J, Kempton W, *Energy Policy*, 2007;35(3):1584–98.
4. Whitcomb R, Williams W, New York, Public Affairs, 2007:352.
5. Portman ME, Duff JA, Kocpol J, et al., *Energy Policy*, 2009;37(9):3596–607.
6. Ladenburg J, Dubgaard A, *Energy Policy*, 2007;35(8):4059–71.
7. Dimitropoulos A, Kontoleon A, *Energy Policy*, 2009;37(5):1842–54.
8. Reed MS, Graves A, Dandy N, et al., *Environ Manage*, 2009;90(5):1933–49.
9. Buck BH, Krause G, Rosenthal H, *Ocean & Coastal Management*, 2004;47(3–4):95–122.
10. Ehler C, Douvère F, Paris, UNESCO, Intergovernmental Oceanographic Commission and Man and the Biosphere Programme, 2009.
11. US Commission on Ocean Policy, Washington DC, US Commission on Ocean Policy, 2004.
12. Interagency Ocean Policy Task Force (IOTC) (2009), Washington DC, A report prepared for The White House Council on Environmental Quality; The White House Office of the Press Secretary, (2010), 'Executive Order – Stewardship of the Ocean, Our Coasts, and the Great Lakes. Available at: www.whitehouse.gov/the-press-office/executive-order-stewardship-ocean-our-coasts-and-great-lakes.
13. Eastern Research Group, Available at: www.csc.noaa.gov/publications/MSP_Stakeholder_Analysis.pdf.
14. Cidin-Sain B, Knecht R, Washington DC, Island Press, 1998.
15. Pomeroy R, Douvère F, *Marine Policy*, 2008;32: 816–22.
16. Dalton TM, *Conservation Biology*, 2005;19(5):1392–1401.
17. Fletcher S, *Marine Pollution Bulletin*, 2007;54:1881–6.
18. Portman M, *Marine Policy*, 2009;33:332–38.
19. Haszeldine RS, *Science*, 2009;325:1647–52.
20. Walker G, *Land Use Policy*, 1995;12(1):45–59.