

Ocean energy: key legal issues and challenges

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Ocean energy is a novel renewable energy resource being developed as part of the push towards a 'Blue Economy'. The literature on ocean energy has focused on technical, environmental, and, increasingly, social and political aspects. Legal and regulatory factors have received less attention, despite their importance in supporting this new technology and ensuring its sustainable development.

In this Issue Brief, we set out some key legal challenges for the development of ocean energy technologies, structured around the following core themes of marine governance: (i) international law; (ii) rights and ownership; (iii) consenting processes; (iv) environmental impacts and liability; and (v) management of marine space and resources.

HIGHLIGHTS

- Ocean energy is bringing unique challenges to marine governance frameworks, with legal and regulatory issues frequently cited as a major non-technical barrier to development.
- By requiring exclusive occupation of ocean space, ocean energy is effectively privatising a common good and creating potential for conflict with other rights-holders and existing marine users.
- Uncertainties regarding the environmental interactions of ocean energy devices must be better accommodated in regulatory processes, based on adaptive and risk-based management strategies.
- Marine Spatial Planning has rapidly developed as a tool for managing ocean spaces, though it is not yet clear how ocean energy, and other new marine industries, can be integrated into these processes.

This article is based on research that has received financial support from the French government in the framework of the programme « Investissements d'avenir », managed by ANR (French national agency for research) under the reference ANR-10-LABX-14-01.

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1. INTRODUCTION

The ‘Blue Economy’ discourse promotes development of the ocean as an engine for economic growth. This is intersecting with the environmental imperative to decarbonise the energy system, driving interest in marine renewable energy (MRE) technologies. Ocean energy, utilising waves and tides to generate electricity,¹ is now attracting considerable investment in a number of countries, including the UK, France, the US, Canada, and Australia.

Ocean energy is more than merely a technically challenging extension of onshore renewable energy development: the policy environment, governance mechanisms, patterns of resource use, conservation values, and system of ownership rights are all considerably different (Kerr *et al.*, 2014). Ocean energy is bringing unique challenges to marine governance frameworks, with legal and regulatory issues frequently cited as a major non-technical barrier to the development of this technology (Kerr *et al.*, 2014; Wright, 2015).

In this Issue Brief, we provide an outline of key legal issues and challenges for the development of ocean energy, structured around the following key themes: (i) international law; (ii) rights and ownership; (iii) consenting processes; (iv) environmental impacts and liability; and (v) management of marine space and resources.

2. INTERNATIONAL LAW

Various areas of international law are potentially relevant to the development of ocean energy, though it is clear that the United Nations Convention on the Law of the Sea (UNCLOS) is the primary legal framework, giving States the right to exploit resources within their national jurisdiction (Abad Castelos, 2014). Ocean energy potentially falls within the mandate of a many international, regional, and technical organisations, though at present the link between ocean energy and many existing instruments is merely incidental. All current ocean energy projects are located within the territorial seas of states,² meaning that domestic legal issues are more urgent in the short to medium term.

Key Issues

- How can institutional fragmentation be addressed, particularly as it relates to ocean energy?

1. Ocean energy also encompasses ocean thermal energy technology (OTEC) and salinity gradient technology. The term ‘Ocean Energy’ is used to denote these technologies, whereas the broader term ‘Marine Renewable Energy’ (MRE) also includes offshore wind.

2. I.e. 12 nautical miles.

- What would a more cohesive and functional international framework for the development of ocean energy look like? How will competing policy objectives be balanced and which institution(s) will play a leading role?

3. RIGHTS AND OWNERSHIP

The demand for private or quasi-private rights to marine spaces is increasing, underpinning a gradual shift in the way marine space is conceptualised. New technological and social drivers are gradually supplanting public rights, firstly at the international level by the creation of sovereign rights, and subsequently by the creation of new private rights in marine spaces (Johnson *et al.*, 2012; Kerr *et al.*, 2014).

A right or permission to occupy the marine space and use the resource, whatever the legal form, provides the foundational basis for ocean energy project development. Developers will often require exclusive access to marine resources and space as the nature of ocean energy technologies will generally exclude other users. By requiring exclusivity, ocean energy is effectively privatising a common good and creating potential conflict with: (1) public rights, e.g. to fishing and navigation (Todd, 2012); (2) other quasi-private or private rights and permits in the marine environment; and (3) the rights, including ‘perceived rights’, of communities and existing marine users in a particular marine area (Kerr *et al.*, 2015).

The grant and exercise of private rights to ocean space for ocean energy development is subject to an evolving body of law, and consents for use of marine space fall along a spectrum of weak to strong occupational rights, including: spatial access privileges; tradable occupational rights; long-term leases; and quasi-private and private property rights.

Key Issues

- The extent to which rights can be granted to private users within the marine environment, including the possibility of transfer, purchase and retention of such rights.
- How these emerging private or quasi-private rights will be treated. For example, if the government or regulator cancels a concession, will the right holder be compensated for its loss? In some jurisdictions, important constitutional questions may arise.
- The relationship between rights granted for ocean energy and other forms of rights, privileges and concessions in the marine environment, and how these various rights are integrated with, and organised by, marine planning processes.

4. CONSENTING PROCESSES

Consenting processes are a major barrier to the progress of ocean energy. Considerable regulatory uncertainty remains in many jurisdictions and information regarding the relevant process is often very difficult to obtain (O'Hagan, 2012). The problematic elements of the consenting process include: the number of authorities involved and communication between them; lack of a consenting process tailored to the needs of ocean energy; integration of offshore and ancillary onshore structures; and the time taken to obtain consents.

In many jurisdictions, a clearly identifiable licensing authority is lacking (O'Hagan, 2012), and even small-scale test deployments often have to run the full gamut of existing regulatory processes. This is changing in some jurisdictions, most notably the UK, where regulatory frameworks are being streamlined, e.g. through the establishment of 'one-stop-shop' (OSS) authorities for consenting (O'Hagan, 2012; Wright, 2014a).

Consultation processes have also proved problematic. Effective consultation with stakeholders can reduce risk for ocean energy projects, yet consultation processes are widely viewed as being ineffective (Kerr *et al.*, 2014). Nonetheless, there are some examples of good practice, and ocean energy developers are forging their own extensive consultation processes, sometimes even in the absence of legal obligations (Kerr *et al.*, 2015). It is clear that developers must approach consultation as a crucial part of their consenting process, and the surrounding legal framework should facilitate this.

Key Issues

- How best to modify consenting processes so that they reflect the scale of development, the level of risk posed, and the sensitivity of the receiving environment.
- How to integrate the processes of the various regulatory bodies involved in consenting: e.g. whether it may be possible to extend the OSS approach to grid connection, electricity licensing, and other incidental approvals.
- The development of simple and effective alternatives to OSS for jurisdictions where political will is insufficient to allow for more wide ranging reforms.
- Development and mainstreaming of effective consultation processes in the marine context.
- There are also deeper questions that go to the heart of rights and ownership issues: should decisions regarding allocation of marine resources be made at a more local or regional level, rather than at a national level? Where does the balance of power currently lie with regards to taking such decisions and where should it be?

5. ENVIRONMENTAL IMPACTS

A broad range of potential environmental interactions, both positive and negative, has been identified, though considerable knowledge gaps and uncertainties remain. Ocean energy technologies suffer from knowledge deficiency on two levels: (1) limited practical experience with the deployment of devices, and (2) the difficulty of studying the marine environment. There is limited baseline data regarding the impact of ocean energy devices, which presents a major challenge for developers in carrying out environmental impact assessments (EIAs), and for regulators in approving projects.

These data gaps are compounded by under-developed regulatory frameworks and EIA processes that have not been adapted to better manage uncertainty, improve knowledge generation, and better serve emerging technologies (Wright, 2014b). Regulators have understandably taken a precautionary approach, resulting in an unusually high level of scrutiny. The resulting time and cost is a considerable barrier to development of ocean energy and hinders the generation of additional environmental and technological knowledge that could advance both ocean energy and marine governance efforts.

Uncertainty must be accommodated in regulatory processes, based on adaptive and risk-based management strategies. Options include adaptive management, which allows the regulatory approach and consenting requirements to be adapted over time; the deploy and monitor approach, which permits deployment before complete certainty as to impacts; the Rochdale Envelope, which allows a project description to be broadly defined in a consent application to allow for technological change over the life of a project; and strategic environmental assessment (SEA), which can potentially strengthen and streamline impact assessment processes at the project level.

Key Issues

- Providing certainty for developers, while also allowing for a level of flexibility and ensuring that environmental concerns are met.
- The development of mechanisms to introduce an element of risk into precautionary regulatory processes in a structured and logical manner.
- The extent to which uncertainty can be accommodated within existing legal frameworks, in particular how adaptive and risk-based management strategies interact with more established legal principles like the precautionary principle.
- How the responsibility for addressing information gaps can be shared between developers and the State, what happens to the data collected during environmental monitoring, and how it can be fed back into policy and regulatory development.

6. MANAGING OCEAN SPACE AND RESOURCES

There is an established need for a plan-led and integrated approach to marine governance, and Marine Spatial Planning (MSP) has emerged as the frontrunner concept for meeting this need.³ MSP is intended to help reconcile potential conflicts between different uses of ocean space, while achieving sustainability. However, in its nascent stages, MSP can be ‘all things to all people’.

A major issue for ocean energy within MSP processes is the prioritisation of uses. In Oregon, for example, the MSP process excluded ocean energy deployment in areas with existing users, focusing on constraints to development rather than opportunities for integration. By contrast, Scotland’s approach has been inclusive, developing separate policies for each existing activity in order to make considered trade-offs between users.

It is, however, not yet clear whether ocean energy devices, densely sited in nearshore areas, will be amenable to co-existence. It may instead be preferable to ‘zone’ such uses, either within MSP processes, or outside of them. There has already been some debate as to the relationship between zoning and MSP that may be relevant to the ocean energy sector and other industrial users.

Key Issues

- How best to integrate ocean energy and other new marine industries into MSP processes and how they are prioritised vis-à-vis other activities. Regardless of the approach taken, issues regarding conflict resolution, co-existence and compensation will also arise.
- There may be possibilities for certain activities to co-exist: the legal and regulatory frameworks must be able to support the establishment of multi-use sites where such opportunities arise.
- It is crucial that the sustainability dimension of MSP is not lost in a rush to develop new resources; e.g. sustainability criteria for MSP could be developed. This would be a step toward recognising the environmental benefits of renewable energies and ‘levelling the playing field’ with established marine activities.

3. The International Oceanographic Commission defines MSP as: “a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives that have been specified through a political process.” See: <http://www.unesco-ioc-marinesp.be/>

7. CONCLUSION

The challenges identified in this Issue Brief present a call to action for development of appropriate governance structures for ocean energy technologies. Understanding and addressing the legal challenges will be a major factor in determining whether ocean energy becomes a successful and sustainable commercial-scale industry.

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