



Department for
Business, Energy
& Industrial Strategy

Marine energy

A call for evidence on the potential of marine energy projects in Great Britain

Closing date: 30 September 2020



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Any enquiries regarding this publication should be sent to us at: Marine.Energy@beis.gov.uk

Contents

General information	4
Introduction	6
The recent Contract for Difference consultation	6
Issues raised by respondents	7
General potential for marine technologies	8
Technology deployment potential	8
The path to commercialisation	8
Costs, cost reduction, and forms of support	9
Wider industrial, employment & economic benefits	10
Specific projects	11

General information

Why we are issuing this call for evidence

This call for evidence seeks views on the scope for innovative marine energy technologies to deploy in our waters. It builds on the consultation we recently concluded on the Contract for Difference scheme, which began exploring how we might support emerging renewable technologies (in particular floating offshore wind) which are still at a precommercial stage of development but have good potential to reduce their costs over time.

Consultation details

Issued: 28 August 2020

Respond by: 30 September 2020

Enquiries to:

Email: marine.energy@beis.gov.uk

Consultation reference: Marine energy: a call for evidence on the potential of marine energy projects in Great Britain

Audiences:

This will be of particular interest to anyone with an interest in marine or renewable technologies, in the future of innovative energy technologies more generally, as well as consumer groups and those with an interest in our energy system.

Territorial extent:

Great Britain: England, Scotland and Wales

How to respond

Please send responses to the email address below. When responding, please state whether you are responding as an individual or representing the views of an organisation. Please do not send responses by post to the department, as we may not be able to access them.

Email to: marine.energy@beis.gov.uk

Confidentiality and data protection

Information you provide in response to this consultation, including personal information, may be disclosed in accordance with UK legislation (the Freedom of Information Act 2000, the Data Protection Act 2018 and the Environmental Information Regulations 2004).

If you want the information that you provide to be treated as confidential please tell us, but be aware that we cannot guarantee confidentiality in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not be regarded by us as a confidentiality request.

We will process your personal data in accordance with all applicable data protection laws. See our [privacy policy](#).

We will summarise all responses and publish this summary on [GOV.UK](#). The summary will include a list of names or organisations that responded, but not people's personal names, addresses or other contact details.

Quality assurance

This consultation has been carried out in accordance with the government's [consultation principles](#).

If you have any complaints about the way this consultation has been conducted, please email: beis.bru@beis.gov.uk.

Introduction

This call for evidence seeks evidence on the scope for innovative marine energy technologies across Great Britain, including tidal stream, tidal lagoons and barrages, floating offshore wind, and wave energy.

It builds on the consultation which recently concluded on a number of proposed changes to the Contracts for Difference (CfD) scheme¹, which began exploring how we might support emerging renewable technologies which are still in a precommercial stage of development but have good potential to reduce their costs over time.

Several respondents to that consultation noted that both floating offshore wind and other marine energy technologies such as tidal stream, tidal lagoons and barrages, and wave energy, had potential to achieve similar cost reductions to fixed offshore wind, and that they could enable the UK's significant offshore energy resource to be used to full effect.

We are therefore seeking further views on the scope and potential of these technologies, to better our understanding of the scale and location of projects that are in development, the opportunities they offer, the timescales for their development, and the challenges that they may face in moving forwards. Some projects are well known to us, but others less so. We are keen to hear from a range of stakeholders.

The recent Contract for Difference consultation

The recent consultation sought views on proposed changes to the CfD scheme, so it can continue to support new generation and provide best value for consumers. The consultation ran from 2 March 2020 to 29 May 2020.

The '*Contracts for Difference (CfD): proposed amendments to the scheme*' consultation sought views on a number of proposed changes to the CfD scheme to ensure the CfD scheme is able to support the increase in ambition needed to deliver the government's 2050 net zero target, while minimising costs to bill payers. CfDs incentivise investment in renewable energy by providing developers of projects with high upfront costs and long lifetimes with direct protection from volatile wholesale prices, and they protect consumers from paying increased support costs when electricity prices are high.

The consultation proposed changes to the CfD scheme that would, if implemented, apply to contracts awarded through future allocation rounds, the next of which is planned to open in 2021. So whilst this call for evidence is intended to inform the broader and longer term set of policy proposals in our forthcoming Energy White Paper, we will respond specifically and separately in due course to the CfD scheme changes on which we consulted.

¹ Contracts for Difference: proposed amendments to the scheme, 2020
www.gov.uk/government/consultations/contracts-for-difference-cfd-proposed-amendments-to-the-scheme-2020

Issues raised by respondents

The consultation asked specific questions relating to floating offshore wind and the changes to the CfD competitive allocation process needed to support early deployment of the technology. Issues explored included the merits of defining a separate definition for the technology category, and broader questions on the merits of introducing floating offshore wind as a separate eligible technology with its own administrative strike price, providing a distinction from conventional, fixed-bottom projects under the CfD scheme; potential trajectories of floating offshore wind deployment in the UK and globally; and what wider benefits or disadvantages floating offshore wind projects may bring to the UK.

Alongside the responses to this question from the floating offshore wind sector a significant number of respondents replied making a range of comments on other emerging marine energy technologies, notably wave and tidal stream energy. The responses flagged a number of issues beyond those raised in the consultation itself. They discussed, among other things, the early stage of development of the sectors, the need for the technologies to achieve cost reduction and the benefits to the electricity system and economy which could arise if they proceeded to commercialisation. A full summary of these responses will be included in the Government's formal response to the consultation in due course.

In the light of the responses received during this process, the Government has decided that there is merit in seeking views from a wider range of marine technologies to look at what the scope is for innovative marine energy technologies across Great Britain.

The Government has a long-standing commitment to use competition where possible to reduce the costs of decarbonisation and to move to technology neutral competitive allocation approaches across all low carbon technologies as soon as this is practical and effective. We have seen success with this approach in the offshore wind sector in particular and we are keen to have views on how competition can be used help to bring forward other marine technologies.

General potential for marine technologies

The “*Contracts for Difference (CfD): proposed amendments to the scheme*” consultation asked a number of specific questions on floating offshore wind. The questions below provide an opportunity to get the views of the marine energy sector on these issues and to get views on a broader set of questions relevant to all emerging marine technologies which will assist us in broadening the Department’s evidence base in this area.

Technology deployment potential

We understand that floating offshore wind has strong deployment potential in deeper waters off Scotland, Wales and the south west of England, that tidal stream has potential in tidal estuaries around the Severn and north west England but also in areas like the North Wales, and the Highlands and Islands where it can tap ocean currents to make electricity, that wave energy has potential in Scotland, Wales and the SW England, and that tidal range projects could include lagoons and barrages in Wales, the Severn Estuary and north west England. We welcome further evidence and views on the general geographical areas of opportunity for these technologies in the UK.

We also welcome evidence on the realistic deployment potential for the various marine energy technologies – what is a plausible pathway for deployment in the UK? We particularly welcome responses that consider how these pathways take account of likely environmental, social, economic and financial limitations on the deployment of marine technology projects.

We also welcome views on realistic global deployment pathways, considering the state of development of other likely or potential markets for these technologies, and the extent to which deployment in other countries is likely to generate economies of scale on a global scale.

Question 1: We welcome views and evidence on which marine energy technologies have the most deployment potential through the 2030s to meet the UK’s net zero emissions commitments, and what trajectories for deployment are realistic and feasible, both in the UK and worldwide. We welcome views and evidence on the scope for wider benefits, or potential disadvantages, that specific technologies could bring to the energy system as a whole.

The path to commercialisation

The CfD is the main established current support mechanism for large scale electricity generation technologies. It is designed for, and focussed on, projects that are ready for commercial deployment, and that are able to operate for over 20 years; and works by providing stability on future income from the electricity market. The scheme has had notable success in reducing the cost of capital for larger generation projects, and in using a competitive allocation process to minimise the cost of new projects to electricity consumers. It includes provision for support for less established technologies, including via the option of technology-specific minima (ring fences). However, the CfD, while effective at taking new technologies from an early-commercial to a market-competitive stage, is was not designed to support demonstration or pre-commercial projects whose costs or long-term generation performance may be

uncertain. In the past many such early stage projects have benefitted from partial grant funding either to offset costs through innovation or to allow limited testing of prototype devices or small demonstration projects.

The Government has a long-standing commitment to use competition where possible to reduce the costs of decarbonisation and to move to technology neutral competitive allocation approaches across all low carbon technologies as soon as this is practical and effective. We are particularly keen to have views on how this can be achieved.

Question 2: We welcome views on how the CfD competitive allocation process would most effectively support early commercial deployments of innovative marine technologies. We welcome suggestions for approaches that could deliver a clear path towards commercialisation - while also focusing on the more cost-effective technologies and projects? At what stage are technologies ready to seek the support offered by the CfD scheme and bid competitively for contracts? How can competitive processes best be used to drive cost reductions?

Costs, cost reduction, and forms of support

Support for renewable projects through the CfD scheme is provided via bill payers – potentially increasing their electricity costs, in cases where contract support levels are higher than prevailing market prices. In considering the scope for supporting innovative technologies we need to be mindful of the potential impact on electricity consumers both now and in the future. To have a sustainable future any new technology also needs to offer a plausible route to becoming cost competitive with other technologies. We therefore want to understand where the realistic scope for cost reduction arises for particular marine technologies, how innovative marine technologies can compete against other renewable energy options such as fixed bottom offshore wind, and the relative strengths and weaknesses of the various technology options.

Question 3: The government welcomes evidence on how specific technologies expect to reduce costs to the point where they can be commercially competitive with other renewable and low carbon generation options. Where does the scope for cost reductions arise, and what scope for innovation exists in the sector? What trajectories for cost reduction are realistic and feasible – at a project level but also across the relevant sector? We also welcome evidence of any successful approaches to cost reduction that have already been adopted.

Question 4: If specific emerging marine technologies are unlikely to be able to compete with other marine technologies for income based on the electricity they generate; what forms of support could move the technology towards commercialisation in the short term? We particularly welcome evidence on why any proposed approaches are likely to be effective, how they can be designed to minimise costs to consumers, and how long before the technology will be able to compete against other technologies.

Wider industrial, employment & economic benefits

Development of any marine energy technology has potential to create new supply chain opportunities, however we also recognise that some technologies may provide particularly strong scope for strategic employment and development opportunities.

We are keen to understand what specific strengths we currently have, in terms of skills, industrial capabilities, and development experience. A strong offer would aid the case for investing in particular marine technologies. We would be keen to secure maximum economic benefit from the development of any marine technologies.

Question 5: We welcome views on which areas of industrial potential the UK has specific strengths in. Is there a natural pathway from one sector to another as we transition to a low carbon society? What particular strengths does the UK bring to the development of specific marine technology sectors or projects, and what opportunities and risks are present? What wider benefits to UK, or to particular regions, do you expect to emerge from particular technologies?

Question 6: We welcome information on the potential development of the supply chain. What activities can be undertaken as part of the development of early projects to further strengthen the supply chain for marine technologies? Are there opportunities for early knowledge sharing and standardisation in the industry, and how could they be maximised?

Specific projects

This section is focussed on our call for evidence on projects that are currently in development, and will be of particular interest to respondents involved in the development of specific projects in the marine energy sector.

We are keen to better understand the range of projects that exist, and their stages of development, as well as the challenges that they foresee in moving towards commercialisation.

Question 7: We welcome information on specific projects that are in development – including the type of project, the capacity (MW) and power output profile (MWh), the type of power it will generate (flexible / dispatchable / etc), the envisaged deployment areas (or preferred sites, in cases where they are already identified), the expected level of investment, and the expected level of employment during the development and operational parts of the project.

We are keen to better understand the current stage of development of projects, and their expected timelines. We appreciate that dates can be uncertain and would welcome any comment on the level of uncertainty that is currently envisaged.

Question 8: We welcome any information on the expected development timescales of projects from their current stage of development through to deployment and commissioning. It would be helpful to understand the status of projects and the timeline for reaching the following milestones. Where a milestone is partially complete, it would be helpful to know when work started, and when it will be finalised:

- Detailed technical front-end engineering and design studies.
- Environmental studies necessary for the consenting process.
- Development Consent Order.
- Marine License (where distinct from the above).
- Crown Estate or Crown Estate Scotland Seabed leases.
- Financial Close.
- Major contract procurement processes.
- Onshore and offshore construction/installation.
- Grid connection agreements.
- Commissioning and generation.
- Other key milestones not listed.

The technologies that are planned to be deployed in some marine energy projects may currently be at a relatively early stage of development, with scope for generation to be more resilient as the sector gains experience of construction and operation. We welcome any evidence that will improve our understanding of the anticipated operational performances and learning potential.

Question 9: We welcome information on the level of ‘availability’ that is expected in connection with the project, what type of operations and maintenance activities are foreseen to be necessary, and how these will be undertaken. What approaches are planned with regards to potential issues that arise during the design lifetime and how will learnings be considered and shared?

Any project in a marine environment is likely to create some environmental impact, and all projects are required, under the Energy Act 2004, to have a decommissioning plan in place. We are keen to understand the scope of potential environmental impacts of specific projects, and what steps are being considered to manage these impacts.

Question 10: We welcome information on the expected environmental impacts of developing the project – as well as its carbon footprint. Are any environmental considerations particularly challenging? How will decommissioning of the project be undertaken at the end of its working life and is being considered during the design of the project?

Securing investment is fundamental to realising any project. Projects that are at the pre-commercial stage of development often attract a different type of investor to more mature technologies. We are keen to understand how your sector raises private finance, the level of interest that exists and how you think that might change over time.

Question 11: What is the appetite for investing in this area at present? What types of investor are you engaging with? Are there sufficient private sector investment opportunities available? What types of issues are being raised by potential investors? How do you anticipate investor engagement evolving as the project/sectors mature?

This is an opportunity to reflect on whether there are any non-financial challenges that make it difficult to realise your project. We are particularly interested in any issues that are market wide and impact more than one project.

Question 12: Are there any non-financial barriers to realising projects? We would welcome an outline of the issue, and any thoughts on how the barriers could be overcome.

This consultation is available from: www.gov.uk/government/consultations/potential-of-marine-energy-projects-in-great-britain-call-for-evidence

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