Department for
Business, Energy
& Industrial Strategy

TLP Tidal Lagoon Programme: Summary value for money assessment

Summary

This note sets out the assessment of the value for money (VfM) of Tidal Lagoon Power's (TLP) proposed programme of tidal lagoons. The assessment has considered the value for money benefits from an electricity system perspective as well as the wider economic benefits such as the value of jobs and export potential. An assessment of whether any proposed lagoon offers a fair return without over-compensation has not been assessed as no contract or agreement has been negotiated.

Overall, the value for money assessment demonstrates that the costs to consumers of reducing the emissions associated with the electricity system would be higher under scenarios where the programme of tidal lagoons is delivered compared to one where other low carbon alternatives are deployed.

This analysis has considered the impact on the UK Exchequer as a whole, as required under HM Treasury guidance. Consequently, consideration of any direct contribution from UK public funds would not fundamentally change the overall value for money conclusion.

Programme

TLP has proposed a programme of six tidal lagoons which, taken together, would generate c.30 TWh annually and cost in excess of £50 billion to build, with the final lagoon assumed to begin generating in 2052. A pathfinder project, Swansea Bay Tidal Lagoon, has estimated construction costs of c.£1.3 billion and would generate 0.52 TWh annually, c.0.15 percent of today's demand. By way of context, the construction of Hinkley Point C is estimated to cost c.£20 billion to generate 26 TWh annually, c.7 percent of today's demand.

Value for money assessment

TLP's proposed programme of tidal lagoons has been subjected to a VfM assessment consistent with that conducted for Hinkley Point C. The VfM assessment comprises of four separate tests, which are summarised below:

Test 1 considers whether a Contract for Difference strike price for a single or programme of lagoons offered a fair return to investors without overcompensation, given the true costs and risks associated with a programme of tidal lagoons. This test has not been conducted as no contract or agreement has been negotiated.

Test 2a considers whether a programme of tidal lagoons is cost-competitive against the likely alternative options for delivering low carbon power. Here the levelised costs per unit of electricity generation for the lagoon projects in TLP's proposals are compared with the levelised cost per MWh of a range of alternative low carbon generation technologies.

Each proposed lagoon has been compared against nuclear, onshore wind, gas with carbon capture and storage, and a number of different offshore wind cost assumptions. All six lagoons, even using optimistic capital and financing cost assumptions, were significantly more expensive per MWh over their asset life than other low carbon alternatives

Test 2b considers the impact of the programme of tidal lagoons on the costs of the GB power system to 2050 and assesses whether there are net social benefits. This test uses BEIS' Dynamic Dispatch Model (DDM) to assess the total electricity system costs of scenarios where TLP's proposed programme of tidal lagoons is deployed.

This compares a scenario where long-term power system decarbonisation is achieved according to the mix of technologies underpinning the government's latest published Energy and Emissions Projections, to another where the programme of tidal lagoons displaces other low carbon technologies while achieving the same level of decarbonisation. This test differs to Test 2a in that it considers additional impacts to society such as the limits of alternative technologies, security of supply, balancing & network costs. Sensitivity analysis is undertaken to draw out to test the robustness of the assessment to key uncertainties.

Taking into account the wider impacts on the electricity system, such as security of supply, balancing and network costs, TLP's lagoon programme has been compared against using nuclear or offshore wind to achieve the same level of generation to 2050. TLP's proposals are estimated to increase the cost of the electricity system by between £2 billion and £20 billion in net present value terms (2012 prices) over the period to 2050. This encompasses scenarios using more optimistic financing and capital cost assumptions for lagoons and less favourable assumptions for offshore wind and nuclear.

The lower end of this range – a net cost of £2 billion – results from comparing a scenario where all six lagoons have 'low' construction costs and 'low' financing costs, against a baseline reference case where the costs of the offshore wind are above the levels observed in the most recent contracts for difference auction. The higher end of this range – a net cost of £20 billion – results from comparing a scenario where the six lagoons have 'high' construction and financing costs, against a baseline reference case where offshore wind costs fall slightly from levels in the last auction and central costs are assumed for nuclear, with only a small reduction from the cost of Hinkley for later plants. All the scenarios that have been undertaken show that a full programme of tidal lagoons is more expensive than either offshore wind or nuclear when analysed using the 2016 or 2017 Updated Energy and Emissions Projections reference cases.

Test 3 considers the impact on GB electricity consumers. Using the same 'with and without tidal lagoons' scenarios outlined for Test 2b, this test considers the estimated change in the typical household electricity bill to 2050 if the programme of lagoons were deployed.

The impact of the support through Contract for Difference (CfD) costs for TLP's lagoon programme on household electricity bills has been estimated and compared to deploying nuclear or offshore wind in its place. All the scenarios considered assume a 35-year CfD,

and do not test TLP's alternative financing proposals – for example for a 90-year CfD. Compared to nuclear and offshore wind, TLP's lagoon programme would add between £6 and £35 on average per year to the bill of each of the over 30 million households in the country between 2031 and 2050 (2012 prices). That could cost the average household consumer up to an additional £700 between 2031 and 2050. The lower bound of this estimate is based on a scenario in which all six lagoons have 'low' construction costs and 'low' financing costs, with offshore wind costs above the levels observed in the most recent contracts for difference auction.

The limitations in the modelling used to conduct the analysis are set out in Annex A. The modelling assumptions are set out in Annex B.

Further considerations

Cost reduction potential

Future cost reductions for tidal lagoons overall depend heavily on site-specific factors, such as the tidal range, which are largely unrelated to the scale of deployment. In terms of the scope for substantial future capital cost reductions, the opportunity for tidal lagoons has been assessed as being limited. While there is some potential for cost reductions in engineering works, these may be offset by challenging weather conditions and limited supply chain capacity to deliver a programme of lagoons. Independent technical advice suggests that 5 percent would be a realistic figure, lower than the circa 10 percent savings suggested in the Hendry Review.

Export potential

Independent consultancy advice to government suggests that UK export potential is limited to design, development and consultancy. This view was also taken in the Hendry Review, which stated that there are substantial uncertainties regarding the likelihood of other countries developing their own lagoon programmes, and even so it would be a 'leap of faith' to assume the UK would be the main beneficiary. The Review concluded that international opportunities would be 'good to have' but they are not sufficiently concrete that they can be relied upon.

Wider benefits

The analysis undertaken for tests 2a, 2b and 3 suggests that Tidal Lagoons from an electricity market perspective are relatively high cost compared to the alternatives. However, there are other perspectives, not least regarding wider benefits.

Using evidence provided by TLP, the net impact (compared to an assumption of displacing offshore wind) of the development of a programme of lagoons on employment benefits and innovation benefits to the UK and areas local to the proposed tidal lagoon sites has been monetised.

As with any such programme, a number of jobs would be associated with the lagoons' construction. The Hendry Review noted, however, that only 28 long term jobs would be associated with the operation and maintenance of Swansea Bay Tidal Lagoon.

Employment benefits were evaluated based on a wage premium approach, calculated as the difference in wages in the tidal lagoon project against regional wages. This represents increases in economic productivity from the same units of labour used, which is assumed to be measured by the relative premium in wages. Innovation benefits are likely to arise

from the development of the six sites, the design of the turbines, and the post-project monitoring. The R&D element is treated in a similar way to a capital investment, which depreciates over time, as the new information gained from building the tidal lagoons gradually diminishes and becomes obsolete. Spillover effects are also incorporated to capture the likely benefits to the non-tidal sector. Environmental impacts, tourism impacts and up-skilling are not monetised.

The estimated wider benefits of deploying a full programme of 6 tidal lagoons range between c.£0.4 billion and £1.2 billion in the central scenario using site-specific wages (2012 prices), and inclusive of the innovation benefits. The range in wider benefits demonstrates the high degree of uncertainty in the estimates but even in the high case is less than the increase in electricity system costs presented in test 2b (including the very optimistic case).

The wider benefits of developing a programme of tidal lagoons such as the long-term jobs and global export opportunities do not fundamentally alter the conclusion that a programme of tidal lagoons is unlikely to be value for money for the UK energy consumer/taxpayer.

Annex A: Limitations

1. The **main limitations** of the modelling are:

   (i) Modelling is undertaken in light of uncertainties, including but not limited to the cost of construction, financing costs and the cost of capital, wholesale energy prices.

   (ii) DDM simulates until 2050. Modelling is inherently uncertain beyond 2050.

      a. The net present value figures produced by the DDM assumes capital expenditure (capex) costs are spread over the lifetime of the asset. Therefore, only the capex share up to 2050 is included. This is the same for the other technologies such as nuclear (asset life of around 60 years).

      b. It is assumed that each tidal lagoon has an asset life of 120 years. However, this may involve additional costs beyond the reserve funds that are not currently factored into the developer's financial model. Additional pre-development costs are not included. Final contracts and pricing has not yet been achieved.

   (iii) The timing of generation will shift for lagoons as tide time shifts day-to-day. The Hendry Review was not conclusive on the impact of a portfolio of lagoon on the peak demand. The contribution of tidal lagoon at peak demand (de-rating) is set to the average tidal load factor and a simple de-rating assumption is applied for illustrative purposes[1].

   (iv) Decommissioning costs are uncertain and not modelled. If decommissioning costs were high, they could put upward pressure on levelised costs (test 2a) and downward pressure on the net present value (test 2b).

[1] The engineering issue is that tidal lagoons are predictable, but not fully dispatchable. By sacrificing output tidal lagoon could become partially dispatchable. The water could be stored in the lagoon until it is required at low tide. This would mean lower CfD payments and would not be economically advantageous to an operator. Hence each lagoon is assumed not to be dispatchable. The tides vary around the coast, a portfolio of projects would look more like base load power than a single project. However, as tides around the UK are correlated, there would still be periods of several hours each day when they could not dispatch. These would be at random periods with respect to peak load on the grid. As a result the programme of tidal lagoons is treated as being completely non-dispatchable.

Annex B: Modelling assumptions

The value for money assessment follows an established set of tests that are applied to energy projects of this nature. The tests have been applied using established methods, objective analytical tools, and the Department has sought independent technical expert advice on the key inputs and assumptions.

An independent technical adviser has provided: assumptions used to calculate levelised cost of electricity for each lagoon. Costs are based on current data at the time of collection and have been reviewed throughout. The key levelised cost information are: net power output, availability profile, load factor profile, pre-licensing costs, technical and design, regulator and licensing and public enquiry, Capital cost (excluding interest during construction), infrastructure costs, operations and maintenance (O&M) fixed fee, O&M variable fee, insurance, connection and Use of System charges, and decommissioning costs.

The assessment assumes inflation to be 2 per cent per year and a CfD length of 35 years is assumed. Wholesale prices were taken from the 2017 Energy and Emissions Projection.

A range of scenarios have been tested in order to capture the uncertainty around the assumptions made. For example, sensitivity analysis has been undertaken using different assumptions for cost of capital, capital expenditure costs, and assumptions on costs of other technologies and different wholesale price projections.

Some additional assumptions are listed below:

a. It is assumed that that De-rating[2] for tidal lagoons are set equal to estimated load factor to account for their intermittent but regular and predictable electricity generation. Other intermittent technologies that are not predictable generally have a de-rating lower than their load factor.

b. Tidal lagoons will not take part in the balancing mechanism.

c. Generation timings for lagoons. In real life, the timing of generation will shift for lagoons as tide time shifts day-to-day. However, it is assumed output will be flat across the day at the average load factors for each lagoon in the programme.

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[2] De-rating is the probability that a technology will be available at peak demand.

Department
of Energy &
Climate Change

Swansea Bay Tidal Lagoon: potential support for the project through the CFD mechanism

Stakeholder Engagement Document

January 2015

URN 15D/015

Any views in relation to this document should be sent to us at ORED.Stakeholderengagement@decc.gsi.gov.uk

This document is also available from our website at www.gov.uk/decc

Contents

General information

Purpose of this document

Tidal Lagoon Power Ltd (TLP) has a well-developed proposal for a tidal lagoon project in Swansea Bay and is seeking a Contract for Difference (CFD) for the project to enable it to proceed. DECC is considering entering into a bilateral negotiation for a CFD with TLP.

In line with the Electricity Market Reform (EMR) Delivery Plan and the Government response to the consultation on directions to offer CFDs, this document sets out the process that we would intend to follow, should we enter into such a negotiation and invites views on the proposed approach.

Issued: 23 January 2015

Respond by: 20 February 2015

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How to respond:

If you wish to respond to this engagement document then we would prefer responses in an electronic format and sent to the email address above. However, hard copy responses may also be sent to the Department at the postal address above.

Additional copies:

You may make copies of this document without seeking permission. An electronic version can be found at www.gov.uk/decc.

Confidentiality and data protection:

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1. Introduction

1.1. The Government is committed to achieving its low carbon energy goals through the deployment of a diverse range of technologies. Recent analysis[1] found that tidal lagoon technology could theoretically contribute up to 25TWh/year – the equivalent of 8% of the UK's electricity consumption in 2013[2] – of indigenous, predictable and low carbon electricity. It could also contribute to economic growth and have significant supply chain and wider benefits.

1.2. Tidal Lagoon Power Ltd (TLP) has a well-developed proposal for a tidal lagoon project in Swansea Bay and is seeking support for the project through the Contract for Difference (CFD) mechanism. In the National Infrastructure Plan[3] (NIP) published on the 2 December 2014 the Government announced that it would commence closer discussions with TLP to establish whether a potential tidal lagoon project at Swansea Bay is affordable and value for money for consumers (without prejudice to the planning decision[4] on the project). Serious consideration is now being given to the possibility of entering into a bilateral negotiation for a CFD with TLP, also without prejudice to the planning decision. This would enable us to more fully assess the value for money case for the Swansea Bay project as well as provide an opportunity to investigate further the potential of tidal lagoons in the UK and their associated benefits based on a real case.

1.3. In the Government response[5] to the consultation on directions to offer CFDs we committed to engage with stakeholders in developing any new arrangements for applying for a CFD outside of the generic application process. In line with this commitment and in response to the calls for transparency made during that consultation, this document sets out the background to the proposed project, the approach that Government proposes it would take if it enters into bilateral negotiation for a CFD with TLP and invites views on the proposed form that any bilateral negotiation could take. Any views are to be submitted by **20 February 2015**. A Government Response will be published subsequently.

1.4. It is important to note that whilst we think that the approach set out in this document to meet our commitment to seek views is suitable for this project and may be suitable for other similar situations it is not intended to act as a precedent for any other projects seeking support through the CfD where the strike price has not been administratively set. It may be appropriate to discharge this commitment to engage stakeholders in different ways depending on the individual technology. Views expressed in response to this document could be used to inform any decision in relation to similar situations in the future, where this is appropriate.

1.5. **Any potential future negotiation would be without prejudice to the planning decision on the project. Any decision to offer a CFD would also be subject to strict value for money considerations, the funds available within the Levy Control Framework (LCF) at the time of a decision and be subject to State aid approval.**

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[1] http://www.thecrownestate.co.uk/media/5476/uk-wave-and-tidal-key-resource-areas-project.pdf
[2] Final Electricity Consumption taken from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/337649/chapter_5.pdf
[3] https://www.gov.uk/government/publications/national-infrastructure-plan-2014
[4] http://infrastructure.planningportal.gov.uk/projects/wales/tidal-lagoon-swansea-bay/
[5] https://www.gov.uk/government/consultations/electricity-market-reform-emr-contracts-for-difference-regulations

1.6. Any CFDs signed following a Secretary of State direction to offer will be published once completed, including the strike price and the reference price, having redacted any other commercially sensitive information.

2. Policy Context

2.1. In October 2010, the Government concluded it did not see a strategic case for public investment in a tidal energy scheme in the Severn Estuary, but the outcome of the feasibility study does not preclude a privately financed scheme[6].

2.2. The Energy and Climate Change (ECC) Select Committee report on "*A Severn Barrage?*"[7] recommended in June 2013 that a more incremental approach using alternative technologies (such as tidal lagoons) should be considered first. The Government's response to the ECC report, published in September 2013[8] made clear that the Government remains keen to hear about well-developed, privately-funded proposals for harnessing the power of the Severn Estuary – be it through a barrage or other means. Any privately funded tidal range scheme would need to credibly demonstrate strong evidence of (i) value for money; (ii) economic benefits; (iii) energy savings; and (iv) environmental impact mitigation before the Government could take a view on its potential.

2.3. The EMR Programme was established to deliver the investment in low carbon energy and reliable electricity supplies that the UK needs, while minimising costs to consumers. It is designed to facilitate this vital investment through two mechanisms: the CFD and the Capacity Market. CFDs are the main policy vehicle for supporting the delivery of low carbon electricity. They provide long-term price stabilisation for low carbon plant, allowing investments to come forward at a lower cost of capital and therefore at a lower cost to consumers.

2.4. 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. The strike prices for a number of current and emerging technologies, including large hydro, tidal range (including tidal lagoon and tidal barrage), Nuclear and CCS are not included in the EMR Delivery Plan[9]. A strike price for tidal range was not set because of lack of available cost data. In addition, Government felt that it was not appropriate to set a strike price for tidal range as a technology in the EMR Delivery Plan (covering the period 2014/15 to 2018/19) given the significant cost variation likely from project to project, dependent on location.

2.5. The lack of a strike price for large hydro, tidal range (including tidal lagoon and tidal barrage), Nuclear and CCS means that there is currently no generic competitive CFD allocation mechanism applicable to projects using these technologies. The aim is to build competition into the allocation arrangements for these technologies where this is feasible, although it is recognised that in the period of this EMR Delivery Plan (2014/15 to

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[6] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/50064/1._Feasibility_Study_Conclusions_and_Summary_Report_-_15_Oct.pdf
[7] http://www.publications.parliament.uk/pa/cm201314/cmselect/cmenergy/194/194.pdf
[8] http://www.publications.parliament.uk/pa/cm201314/cmselect/cmenergy/622/622.pdf
[9] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268221/181213_2013_EMR_Delivery_Plan_FINAL.pdf

2018/19) appropriate prices for these technologies are likely to be determined on an individual basis as projects are identified for support.

2.6. Further to the publication of the EMR Delivery Plan, DECC consulted on the regulations under which the Secretary of State for Energy and Climate Change can direct the Low Carbon Contracts Company (LCCC) to enter into CFDs with eligible generators. The Government's response to that consultation notes that '*if the Government creates any new processes for applying for a CFD it would be the Government's intention to clearly describe how the process would operate and to engage with stakeholders during the design*'. The objective of this is to improve the transparency of the process for negotiating CFDs while retaining the Secretary of State's flexibility and discretion to determine how best to allocate contracts, having taken into account any views expressed.

3. The Potential of Tidal Lagoons in the UK

3.1. The Government believes that there may be significant tidal lagoon potential in the UK. Tidal range power, alongside the other low carbon technologies currently considered within the CFD allocation framework, has the potential to contribute to the low carbon energy mix. More specifically, tidal lagoon technology could theoretically contribute up to 25TWh/year – the equivalent of 8% of the UK's electricity consumption in 2013 – of indigenous, predictable and low carbon electricity.

3.2. Although tidal range barrages have been in operation since the 1960s (for example at La Rance, France), the few existing tidal barrages are significantly smaller than the type of tidal lagoon projects which could eventually be deployed in the UK. Tidal lagoons present a novel application of the tidal range technology, and could have the potential to be deployed at scale around the UK. There are currently no tidal lagoons generating electricity anywhere in the world.

3.3. The development of a world-leading tidal lagoon industry could have the following significant potential benefits to the UK economy, which deserve further exploration at this stage:

- Direct economic growth and employment benefits; with many of these benefits likely to be realised in economically deprived areas;
- Increased diversity of supply and strengthened competition across low carbon technologies in the 2020s - helping to drive down future costs in the low carbon power sector;
- Enhanced energy security; tidal power is indigenous and does not rely on imported fuel;
- Cheap electricity over decades once initial high capital cost has been repaid; the civil infrastructure (which forms a significant part of the capital cost) has a life expectancy of over a hundred years, significantly more than most other forms of low carbon generation;
- Provide greater certainty that the UK can meet its decarbonisation objectives by introducing another low carbon technology with the capability to be deployed at scale into the mix. This technology could provide a significant contribution towards meeting national carbon emission reduction targets;

- Improved system balancing with highly predictable generation; while back up generation would be needed there is certainty as to when that back up capacity would be needed;
- An incremental approach to harnessing the Severn Estuary's tidal range resource which may have the potential to provide a lower-risk, lower-impact option than developing a large barrage scheme upfront; and
- Potential for flood protection and coastal erosion protection depending on the location of any projects.

3.4. TLP's proposal for a tidal lagoon at Swansea Bay could provide evidence that this technology has the capability to be deployed at scale at an acceptable cost for consumers and could unlock the potential of this new industry in a similar manner to the approach taken with the CCS demonstration programme. We are therefore giving serious consideration to the possibility of entering into a bilateral negotiation with TLP regarding potential CFD support for its tidal lagoon project at Swansea Bay.

3.5. Given the lack of deployment anywhere in the world, Government recognises that more work needs to be done to understand the scale of the potential benefits relating to the deployment of tidal lagoons in the UK, as listed above. Entering into a bilateral negotiation would enable us to assess, through intense scrutiny of a live project, whether these potential benefits can be realised and to confirm whether (i) this project could be realised at an acceptable cost to consumers and (ii) that it could unlock a wider tidal lagoon industry, which could play a role in the UK's diverse energy mix alongside the existing low carbon technologies.

4. The Swansea Bay Project

4.1. In early 2013 TLP approached the Government about its proposal for a 320MW tidal lagoon project in Swansea Bay (anticipated to generate approximately 0.5 TWh/ year), indicating that it would like a CFD to support the project. A number of initial discussions subsequently took place to better understand the project as TLP continued to develop its proposal. In parallel, TLP submitted its application to the Planning Inspectorate (PINS) on 7 February 2014. These initial discussions were undertaken without prejudice to any future decision on whether or not to enter into negotiations for a CFD and to the planning decision for the project. DECC confirmed in July 2014 through independent third party validation that the TLP proposal for a tidal lagoon at Swansea Bay is technically feasible; and that extensive work on its design and associated costs has already been undertaken by the developer.

4.2. As announced in the NIP published in December 2014, the Government has now entered into closer discussions with TLP to establish whether a potential tidal lagoon project at Swansea Bay is affordable and value for money for consumers (without prejudice to the planning decision on the project).

4.3. Development of a successful first of a kind (FOAK) tidal lagoon like the one proposed by TLP in Swansea Bay could enable an incremental approach to developing this sector. It is unlikely for example that investors would be prepared to invest the high upfront capital (from £4bn upwards) required for a larger FOAK lagoon. A smaller lagoon, such as that

proposed for Swansea Bay, although likely to be less cost-effective, would establish a scalable blueprint that could be applied to future projects.

4.4. The Government remains open to considering any well-developed proposals for harnessing tidal range in the Severn Estuary but also around the rest of our coastlines, including through barrages, lagoons and other alternatives. Any tidal range scheme needs to demonstrate evidence of (i) value for money; (ii) economic benefits; (iii) energy savings; and (iv) environmental impact mitigation before the Government could take a view on its potential. Similar evidence for any tidal range scheme would also need to be demonstrated before Government could take a view as to whether to consider offering it CFD support.

4.5. We are not currently aware of any other tidal lagoon project(s) that are sufficiently developed at this stage to enable a competitive approach to take place. The possible development of the Swansea Bay tidal lagoon proposal and the developer's aspirations for a wider tidal lagoon programme is however increasing the interest shown by other project developers in potential tidal range projects as evidenced through interest in The Crown Estate's leasing processes and recent notifications to PINS of intended future applications from interested developers.

5. Establishing a Value for Money Case

5.1. An essential part of the evaluation of the desirability for a Swansea Bay tidal lagoon will be to establish whether it could offer value for money compared with other low carbon technologies, taking into account uncertainties around low carbon technology costs and the potential costs and benefits of a wider tidal lagoon industry.

5.2. Our approach would be to consider the Swansea Bay project as a FOAK project, which could prove the concept and help unlock a cost effective programme of tidal lagoons in the 2020s and beyond. The value for money case will examine the implications of the current assumption of approximately 0.5 TWh/year of generation from a tidal lagoon at Swansea Bay contributing to the UK's 2020 Renewable Energy Directive target to deliver 15% of energy from renewable sources. It will also examine the implication of generation from Swansea Bay and a wider programme of tidal lagoons contributing to our existing longer term decarbonisation goals.

5.3. Any future decision whether or not to offer a CFD for the project would be informed by a full value for money assessment. This is likely to be based on whether the CFD would provide the developer appropriate returns in relation to the project, without over-compensating; and whether the negotiation has shown that the project could be cost-competitive on a broadly comparable basis relative to other options for delivering low carbon power or otherwise contribute to the delivery of a more socially cost effective electricity generation mix. In addition the project would also need to be affordable for electricity consumers.

5.4. We would also need to be satisfied that any support for this project via the CFD mechanism would comply with EU State aid rules, in particular the 2014 Guidelines on State aid for environmental protection and energy 2014-2020. Under these Guidelines the preferred approach for providing support is via technology neutral competition. Individual State aid approval would be required for bilaterally negotiated contracts.

6. The Environmental Case

6.1. DECC is mindful of the potential environmental and social impacts of a development of this scale. The statutory planning process, conducted by PINS[10], is assessing a number of these impacts and a decision will be published in due course, entirely separately from the policy consideration regarding a potential CFD for the project. On or before 10 March 2015, PINS will provide the Secretary of State with its report and recommendations on the application for development consent under the Planning Act 2008. The Secretary of State will then have three months to reach a final decision on the application. Any engagement process with TLP or potential negotiations for a CFD will be without prejudice to the planning decision.

6.2. Separately from the matters being examined as part of the planning process, we have asked the developer to calculate the embedded energy use and greenhouse gas emissions in relation to the proposed development. Guidance on the methodology is included within *Valuation of energy use and greenhouse gas (GHG) emissions, 2014*[11] which was published to provide guidance for analysts attempting to quantify and value energy use and emissions in response to the HM Treasury's Green Book. We will include this assessment within the value for money case being developed.

7. The Approach

7.1. The Government is keen to explore further the potential of a tidal lagoon industry in the UK, which could have the potential to play a significant role in decarbonising our electricity sector, alongside existing low carbon technologies. The Government believes that the potential benefits highlighted in section 3 warrant further exploration to confirm whether these could be realised. In-depth analysis of TLP's Swansea Bay lagoon proposal, including the appropriate strike price, presents a unique opportunity to further examine the potential for this industry through a live project. This analysis would allow the Department to explore the possibility of developing the Swansea Bay proposal to unlock a wider industry. This is why we are giving serious consideration to the possibility of entering into a bilateral negotiation with TLP.

7.2. At this point in time, we do not consider a competitive process in relation to the Swansea Bay project to be feasible. As explained before, we are not aware of any other tidal lagoon project(s) that are sufficiently developed at this stage to enable a competitive approach to take place. Furthermore we consider that a bilateral approach is better suited to a FOAK lagoon, faced with significant development costs, risks and an immature supply chain.

7.3. Entering into a bilateral negotiation for a CFD with TLP would enable the Government to carry out full due diligence on the project and provide the level of detail necessary for a full value for money assessment to be undertaken. Any decision to enter into such

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[10] http://infrastructure.planningportal.gov.uk/projects/wales/tidal-lagoon-swansea-bay/?ipcsection=docs&stage=app&filter=Environmental+Statement

[11] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/360316/20141001_2014_DECC_HMT_Supplementary_Appraisal_Guidance.pdf

negotiations will be dependent on further consideration of firm costs and the complete financial model, which are being made available to DECC for review via a data room, as part of the closer discussions currently being conducted. This cost information will give DECC a further indication on whether or not Swansea Bay, as a stand-alone project, has the potential to be value for money or whether or not it has the potential, as a demonstration project, to unlock a cost effective tidal lagoon industry in the UK.

7.4. Entering into a bilateral negotiation to establish the required strike price for this project, would not necessarily mean that a CFD would be awarded to the developer. We would conduct any negotiation in such a way as to deliver a fair return to the developer while remaining affordable and value for money to the consumer. If it is not possible to negotiate a contract (including a strike price for this technology) that meets our value for money considerations *and* that is acceptable to both parties, discussions would be terminated.

7.5. DECC would conduct the bulk of any negotiation and associated works by utilising internal commercial resource. DECC may also choose to engage external consultants to provide advice regarding specific aspects of the project. Any commercial negotiation would enable both parties to move to a common understanding of what strike price and length of contract would be needed to realise the project, in a cost effective, value-for-money manner. DECC would reserve the right to interrupt or terminate these negotiations at any time. Reasons for interruption or termination of negotiations could include (but are not limited to) situations where it has become clear that the above criteria could not be met or have a low probability of being conducted within a realistic timeframe.

7.6. DECC has not placed a timeframe on any negotiation, which will depend on a number of factors, many of which would be outside the control of the Department. A decision on whether to award a contract could only be made further to the successful completion of any negotiation and once Government has fully satisfied itself, based on robust and extensive value for money analysis, i) of the desirability of a tidal lagoon industry in the UK; and ii) that the Swansea Bay lagoon project represents a good opportunity for unlocking the potential of this industry.

7.7. Furthermore and as indicated previously in this document, any potential future negotiation would be without prejudice to the planning decision. Any future decision to offer a CFD would also be subject to strict value for money considerations, the funds available within the LCF at the time of a decision and any necessary State aid approval from the EU Commission.

7.8. While the Government aims to be as transparent as possible, details of any negotiations with developers over contract terms must be kept confidential in order to allow the Government to secure the best possible deal for consumers. During any negotiation, a developer would share commercially sensitive information that is necessary in order to be able to agree a price that represents good value for money. As noted above, any CFDs signed following a Secretary of State direction to offer will be published once completed, including the strike price and the reference price, having redacted any other commercially sensitive information.

7.9. It is important to note that whilst we think that this approach is suitable for this project and may be suitable for other similar situations, it is not intended to act as a precedent for any other projects seeking support where the strike price has not been administratively set. It may be appropriate to discharge this commitment to engage stakeholders in different ways depending on the individual technology. Views expressed in response to this

document could be used to inform any decisions in relation to similar situations in the future, where this is appropriate.

7.10. Note furthermore that whilst this approach would rely on a non-competitive, bilateral negotiation for Swansea Bay lagoon, our preference, where feasible, would be to seek to introduce a competitive process for allocation of CFDs to any subsequent tidal range projects. This is a key feature of the EMR programme, and of EU State aid rules. We anticipate that further in-depth consideration of this project alongside details on other emerging proposals for future lagoons should allow us to set in future an acceptable and appropriate strike price for tidal lagoons. The Government remains committed to moving to technology neutral competitive allocation approaches across all low carbon technologies as soon as this is practical and effective, including for future tidal lagoon projects.

8. Stakeholder views

8.1. As part of this process the Government is seeking views from interested parties on the following:

1. Do you agree that this document provides transparency on the process for applying for and negotiating a CFD outside the generic CFD allocation process for a tidal lagoon at Swansea Bay? Any CFDs signed following a Secretary of State direction to offer will be published once completed, including the strike price and the reference price, having redacted any other commercially sensitive information.
2. Are there any similarly developed tidal range projects, of sufficient scale that could be in a position to compete with the Swansea Bay Tidal Lagoon as a FOAK project for this new industry, in the near future?
3. The Government considers that there may be circumstances where competition is not possible or does not represent the most cost effective option for some low carbon technologies. Do you agree with our view that, in the case of a FOAK project, consideration of the Swansea Bay lagoon project through a bilateral negotiation process is appropriate? We would however seek to introduce, where feasible, a competitive process for allocation of CFD for subsequent lagoons, with the aim of moving to technology neutral competitive allocation approaches across all low carbon technologies as soon as is practical and effective.
4. Any potential future negotiation would be without prejudice to a future planning decision on the project. Any decision to direct the LCCC to offer a CFD would be subject to strict value for money considerations, the funds available within the LCF at the time of a decision and obtaining State aid approval from the EU Commission. In respect of value for money, do you have any views on how we might assess the considerations set out? Are there any other considerations you think we should be taking into account in deciding whether to offer a CFD?

8.2. Responses should be sent to ORED.Stakeholderengagement@decc.gsi.gov.uk by **20 February 2015**.

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Department of Energy & Climate Change
3 Whitehall Place
London SW1A 2HD
www.decc.gov.uk
15D/015

Department
of Energy &
Climate Change

Swansea Bay Tidal Lagoon: potential support for the project through the CFD mechanism

Stakeholder Engagement Document: Government Response

March 2015

URN 15D/110

Any enquiries regarding this publication should be sent to us at ORED.Stakeholderengagement@decc.gsi.gov.uk

This document is also available from our website at www.gov.uk/decc

Contents

Introduction

1. The Government is committed to achieving its low carbon energy goals through the deployment of a diverse range of technologies. Tidal range power, alongside the other low carbon technologies currently considered within the Contract for Difference (CFD) allocation framework, has the potential to contribute to the low carbon energy mix. Recent analysis[1] found that tidal lagoon technology could theoretically contribute up to 25TWh/year – the equivalent of 8% of the UK's electricity consumption in 2013[2] – of indigenous, predictable and low carbon electricity.

2. This document sets out the Government response to the Stakeholder Engagement Document on potential support for the proposed Swansea Bay Tidal Lagoon project through the CFD mechanism ('the CFD engagement document'), published on 23 January 2015[3]. In line with the Electricity Market Reform (EMR) Delivery Plan[4] and the Government response to the consultation on directions to offer CFDs[5], the CFD engagement document set out the proposed process that we would intend to follow, should we enter into a bilateral negotiation for a CFD with Tidal Lagoon (Swansea Bay) Ltd (TLSB).

3. A total of 53 responses to the CFD engagement document were received from a wide range of different organisations. This included representations from the renewable and low carbon power sectors, the supply chain, regional energy bodies, public sector organisations, community organisations, environmental groups, trade associations and financiers. A number of responses were also received from interested individuals.

4. The Government is fully committed to engaging with interested stakeholders and providing greater transparency when developing new arrangements for applying for a CFD outside of the generic process. In line with this commitment this document sets out the Government's position in response to the views offered by stakeholders in response to the CFD engagement document.

5. We would like to thank those who provided views on the process set out in the CFD engagement document. All the points raised as part of the engagement have been considered, and this document discusses what we consider to be the most significant issues raised.

6. **As set out in the CFD engagement document, considerations relating to a possible CFD are separate from and without prejudice to the determination of the consent application for the proposed project. Any decision to offer a CFD would also be subject to strict value for money considerations, the funds available within the Levy Control Framework (LCF) at the time of a decision and be subject to State aid approval.**

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[1] http://www.thecrownestate.co.uk/media/5476/uk-wave-and-tidal-key-resource-areas-project.pdf
[2] Final Electricity Consumption taken from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/337649/chapter_5.pdf
[3] https://www.gov.uk/government/publications/swansea-bay-tidal-lagoon-potential-support-for-the-project-through-the-CFD-mechanism
[4] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268221/18213_2013_EMR_Delivery_Plan_FINAL.pdf
[5] https://www.gov.uk/government/consultations/electricity-market-reform-emr-contracts-for-difference-regulations

Responses to the CFD Engagement Document

7. This section looks at the four questions raised in the CFD engagement document and discusses the key points made in relation to each question.

Transparency

Question 1
Do you agree that this document provides transparency on the process for applying for and negotiating a CFD outside the generic CFD allocation process for a tidal lagoon at Swansea Bay?

8. The majority of respondents (82%) stated that the CFD engagement document offered adequate transparency. However, a small number (8%) of respondents raised issues about the lack of public scrutiny when entering into bilateral negotiations. The remainder either did not answer the question or their response was unclear (10%).

9. Those respondents that had concerns about the process of bilateral negotiations were of the view that more information needed to be shared with regard to how value for money and affordability would be assessed, should we enter into a bilateral negotiation for a CFD with TLSB. A few respondents were of the view that the process could be strengthened by DECC providing more information on the timescales for any negotiation process.

10. Government aims to be as transparent as possible; however certain details must be kept confidential in order to allow the Government to secure the best possible deal for consumers. Having considered the points raised it is our view that in publishing the CFD engagement document we have broadly achieved the appropriate balance between the need for transparency and retaining the flexibility to secure the best deal possible. We will keep in mind the general advantage of transparency through a negotiation process and consider whether at any point it is appropriate to provide more information.

11. During a negotiation, the developer would be required to share commercially sensitive information with Government and the European Commission in order to be able to determine whether a project represents good value for money and is affordable. A commercial negotiation would enable both parties to move to a common understanding of what strike price and length of contract would be needed to realise the project, in a cost effective, value-for-money manner. Any CFD signed following a Secretary of State direction would be published once completed, including the strike price and the reference price, having redacted commercially sensitive information. It is our view that this would provide significant transparency.

12. At present there is no timeframe for how long a negotiation may take. The timeframe would depend on a number of factors, many of which would be outside the control of the

Department. An example of this would be the time needed to obtain State aid approval from Directorate-General for Competition in the European Commission. A few respondents raised questions about the length of the proposed contract. A negotiation would carefully consider all aspects of the contract, including scrutinising the proposed length of a contract and its impact on value for money and intergenerational equity.

13. Any potential future decisions as to whether to award a CFD to the project would be informed by a full value for money and affordability assessment and be subject to robust internal scrutiny, and approval by HM Treasury. This is likely to be based on whether the CFD would provide the developer appropriate returns in relation to the project, without over-compensating them; and whether the negotiation has shown that the project could be cost-competitive on a broadly comparable basis relative to other options for delivering low carbon power or otherwise contribute to the delivery of a more socially cost effective electricity generation mix. Any decision to offer a CFD would also be subject to the funds that are available within the LCF at the time of a decision. In addition the project would also need to be affordable for electricity consumers, and would need to achieve State aid approval from the European Commission.

14. A few respondents questioned the use of CFD as a way to support a first of a kind (FOAK) technology. However, at the outset of its EMR Programme, the Government considered a variety of options for securing investment in low carbon electricity infrastructure. These included a range of revenue support options including premium payments, fixed payments and CFD, and also indirect revenue support through carbon pricing. The Department maintains that the CFD mechanism could be an appropriate way to support a Swansea Bay Tidal Lagoon project and any proposals for future lagoons. However, if any other form of support were available for the project outside the CFD, perhaps from non-UK Government sources, we would consider how this might be compatible with any CFD under negotiation and the wider delivery strategy of the Swansea Bay project.

Other tidal range projects

Question 2
Are there any similarly developed tidal range projects, of sufficient scale that could be in a position to compete with the Swansea Bay Tidal Lagoon as a FOAK project for this new industry, in the near future?

15. The majority of respondents either stated that they did not know of any comparable projects to the Swansea Bay Tidal Lagoon (70%) or did not address the question (23%). While three alternative tidal range projects were referenced by three separate organisations (7% of those that responded), none suggested or demonstrated that they were in a position to compete at this stage. One developer advised that their project may be in a position to be developed to a similar status as the proposed Swansea Bay Tidal Lagoon project within the next 3 years, once the necessary planning consents for the project had been obtained. No alternative project was mentioned by more than one respondent.

16. Following further assessment the Department does not consider that any of the other three tidal range projects mentioned by respondents have been sufficiently developed at this stage to provide alternatives which could viably compete with Swansea Bay Tidal Lagoon for a CFD now or realistically in the near future.

17. If a viable well-developed project does come to light at a stage where it could be used as a competitor, or benchmark, to a Swansea Bay Tidal Lagoon project negotiation then the Government would consider whether it could be included in the process, or what the other appropriate next steps might be. As set out in the CFD engagement document our preference, where feasible, would be to seek to introduce a competitive process for allocation of CFDs to any subsequent tidal range projects.

Appropriateness of a bilateral negotiation

Question 3
Do you agree with our view that, in the case of a FOAK project, consideration of the Swansea Bay lagoon project through a bilateral negotiation process is appropriate?

19. A large majority of respondents (85%) accepted the Government's position that the most appropriate process to establish whether this technology has the capability to be deployed at scale at an acceptable cost for consumers and to ascertain whether the potential benefits to the UK economy of a tidal lagoon industry in the UK can be realised is through a bilateral negotiation. Those in agreement stated that this approach for considering a FOAK project was acceptable as long as value for money for consumers was a key principle. We remain of the view that entering into a bilateral negotiation on the proposed Swansea Bay Tidal Lagoon project would offer Government a unique opportunity to scrutinise the potential of this technology to contribute to a diverse UK generation mix.

20. The majority of respondents were of the view that competition is not the only way to achieve value for money and that at present a competitive process in relation to the proposed Swansea Bay project was not feasible as other tidal range projects were not sufficiently well-developed.

21. A small proportion of respondents did not support the bilateral approach stating that it would not yield the best result for consumers. One respondent pointed out that the Competition and the Markets Authority in their recently published *"Energy market investigation - updated issues statement"* referenced the non-competitive approach to allocating CFDs, suggesting that there are risks that such contracts will unduly raise prices for consumers[6].

22. The Government clearly recognises the value of competition. This was highlighted by the first CFD allocation round. This demonstrated the value of competition in driving down costs to consumers. The majority of larger scale projects awarded CFDs in the first allocation round achieved a saving on the administratively set strike price of approximately 17%[7]. As highlighted in the CFD engagement document, the Government continues to remain committed to using 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 do however remain of the view that, at present, it is not appropriate to subject the proposed Swansea Bay Tidal Lagoon

[6] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/404867/Updated_Issues_Statement.pdf
[7] https://www.gov.uk/government/publications/annual-energy-statement-2014

project to a competitive process given the FOAK nature of the project and the lack of well-developed alternative tidal lagoon projects. However as set out in the CFD engagement document our preference, where feasible, would be to seek to use a competitive process for allocation of CFDs to any subsequent tidal range projects. This could be against other low carbon technologies.

23. One respondent noted that the price being quoted by the developer exceeds every technology that has a strike price (except tidal stream and wave) and this would not in their view offer value for money. Entering into a bilateral negotiation to establish the required strike price for this project, would not necessarily mean that a CFD would be awarded to the developer. We would conduct a negotiation in such a way as to deliver an appropriate return to the developer while ensuring it remains affordable and value for money to the consumer. As set out in the CFD engagement document, if it is not possible to negotiate a contract (including a strike price for this development) that meets our value for money considerations and that is acceptable to both parties, discussions would be terminated. A bilateral negotiation would enable us to determine the true cost of the project to inform an assessment of the wider lagoon programme. It would enable a fuller assessment of the value for money and affordability cases and ensure that Government has the best information available on the costs and the benefits before any decision on whether to award a CFD is made.

24. A small number of respondents suggested their projects might be suitable for a bilaterally negotiated CFD either because they do not currently have a strike price or they consider their project to be larger or more unusual than other projects. It is important to note that whilst we think that the approach highlighted in the CFD engagement document is suitable for the Swansea Bay Tidal Lagoon project it is not intended to act as a precedent for any other projects seeking support where the strike price has not been administratively set. Government will consider such projects individually to determine what action might be appropriate although our preference is for direct competition between low carbon technologies. Two respondents were of the view that their larger or more unusual projects should qualify for a bilaterally negotiated CFD even though strike prices for such technologies were included in the EMR Delivery Plan. It is our firm view that the existing CFD allocation arrangements for established and less established technologies, for which administrative strike prices have been set, remain wholly appropriate.

25. A few respondents were concerned that other cheaper low carbon technologies with strike prices would not have access to the same level of support if Government entered into a bilateral process with TLSB. It is important to note that we support a broad range of different technologies to achieve the diverse mix needed to ensure the UK continues to enjoy safe and reliable access to electricity. Increased diversity of supply and strengthened competition will help to drive down costs in the low carbon power sector in the future. Any bilateral negotiation would offer an opportunity to explore how tidal lagoon technology compares with other low carbon technologies.

26. Some responses were concerned that the prospect of agreeing a CFD for the Swansea Bay project would impact on the funds available within the Levy Control Framework (LCF) for other projects. While this would be the case if a CFD were awarded, entering into a bilateral negotiation would not commit LCF funding for the project. Government is committed to providing all developers with the funding information required for their investment plans. This will be set out in CFD Budget Notices, which are published before

each allocation round[8]. To date, we have not released the entire potential budget for future CFDs. On our medium scenario there could be further funds available for allocation for CFDs for renewables and Carbon Capture and Storage rising to around £1billion in 2020/21. The Department considers it appropriate to retain sufficient money in order to help drive competition and ensure later projects also have a potential route to funding.

27. One respondent commented that in their view, tidal lagoon technology is mature. At this stage, it is the Department's view that tidal lagoons present a novel application of existing technologies, which should mean that while the supply chain for this sector is immature it is well placed to diversify and respond to demand as necessary. While there are tidal barrages operating elsewhere in the world there are currently no tidal lagoons generating electricity. We anticipate that further in-depth consideration of this project alongside details on other emerging proposals for future lagoons could allow us to set an acceptable and appropriate strike price for tidal lagoons in the future. The Government remains committed to adopting competitive allocation approaches for any future tidal lagoon projects as soon as this is can be achieved as well as moving to technology neutral competitive allocation approaches across all low carbon technologies as soon as this is practical and effective.

Assessing value for money; other considerations

Question 4
In respect of value for money, do you have any views on how we might assess the considerations set out? Are there any other considerations you think we should be taking into account in deciding whether to offer a CFD?

28. A majority of the respondents (82%) offered views as to how value for money should be assessed and what other considerations should be taken into account. Most respondents suggested that socio-economic factors, such as employment and local regeneration, should be included.

29. Development of the value for money case assessment will look to draw from existing guidance on undertaking policy appraisal (including The HM Treasury Green Book[9]), and consider the wide variety of potential impacts derived from this project (as well as potential future lagoons) where possible. If it is not possible to monetise particular impacts we will look to explore such issues on a qualitative basis.

30. One respondent suggested that the need for an EMR supply chain plan should be considered as part of any bilaterally negotiated CFD. Entering into a bilateral negotiation on the proposed Swansea Bay Tidal Lagoon project would offer Government the opportunity to explore the development of a supply chain with TLSB, and would form a key part of a negotiation. A supply chain plan would provide information about the impact of the project on competition, innovation and skills development in the industrial supply chain supporting the relevant low carbon electricity sector.

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[8] 'Information will also be made available in other publications as appropriate. For example, spending projections for all low carbon electricity schemes in the LCF were published in the Annual Energy Statement 2014: https://www.gov.uk/government/publications/annual-energy-statement-2014

[9] https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent

31. Two respondents suggested including a Community Benefit Fund as part of any CFD negotiation for this project. Community Benefit Funds do however sit outside of the CFD process.

32. It is noted that a number of respondents were concerned about the potential re-opening of the Dean Quarry to provide raw materials to the project and the subsequent impact on the surrounding area of St Keverne. Several of those that responded in this regard made reference to considering the environmental impacts of re-opening the Quarry in the value for money case. Such broad considerations relating to environmental aspects of the supply chain are a matter for the relevant consenting processes applicable in this instance.

Next steps

33. The value for money and affordability cases will be updated as further information is made available on the proposed Swansea Bay Tidal Lagoon project and wider lagoon programme.

34. If a viable well-developed project does come to light at a stage where it could be used as a competitor, or benchmark, to a Swansea Bay Tidal Lagoon project negotiation then the Government would consider whether it could be included in the process, or what the other appropriate next steps might be. As set out in the CFD engagement document our preference, where feasible, would be to seek to introduce a competitive process for allocation of CFDs to any subsequent tidal range projects.

35. Considerations relating to a possible CFD are separate from and without prejudice to the planning decision on the project.

36. Any decision to offer a CFD would also be subject to strict value for money considerations, the funds available within the LCF at the time of a decision and be subject to State aid approval.

Annex A: List of Respondents

Afan Valley Angling Club
Allerdale Borough Council
Andrew George MP
Atkins
Balfour Beatty
Britain's Energy Coast
British Hydropower Association
Citizens Advice Bureau
Community Against Dean Super Quarry
EDF
EON
Federation of Small Businesses
Good Energy Ltd
Goodwin International Ltd
Harland & Wolff
Horizon Nuclear Power
Individuals (9)
InfraRed Capital Partners Limited
Landsvirkjun
Ledwood Mechanical Engineering Ltd
Marine Energy Pembroke
Mumbles Active Supporters Group
NSA Afan
Pembroke Port
Pontardawe and Swansea Angling Society
Port of Workington
Regen SW
Renewable UK
Rock Tidal Range Partners
RSPB
Samphire Amps
Scottish Power
Sheffield Forgemasters International
SSE
Statkraft
Swansea Active Supporters Group
Tidal Electric
Tidal Lagoon Industry Advisory Group
Tidal Lagoon, Neath Port Talbot Active Supporters group (ASG)
Tidal Lagoon Power
Tidal Lagoon Swansea Bay Plc
TLSB Active Supporters Group for Gower, Wales and UK
Wind Electric

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