DEBATE PACK

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Potential economic effects of Swansea Tidal Lagoon

This pack has been prepared for the debate on the Potential economic effects of Swansea Tidal Lagoon to take place in Westminster Hall on Tuesday March 2016. The subject for debate has been chosen by Simon Hart, MP for Carmarthen West and South Pembrokeshire.

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The House of Commons Library prepares a briefing in hard copy and/or online for most non-legislative debates in the Chamber and Westminster Hall other than half-hour debates. Debate Packs are produced quickly after the announcement of parliamentary business. They are intended to provide a summary or overview of the issue being debated and identify relevant briefings and useful documents, including press and parliamentary material. More detailed briefing can be prepared for Members on request to the Library.
1. Summary

On 9 June 2015 planning consent was given for what the Government described as ‘the world’s first Tidal Lagoon’ for generating energy in Swansea Bay. The application, made by Tidal Lagoon Power (TLP), was to construct a man-made, energy-generating tidal Lagoon, with a 240MW (megawatt) nominal rated capacity averaging 14 hours of generation every day.1

Construction of the Tidal Lagoon would be a major infrastructure project with overall estimated costs for the project of £1 billion. Funding has been and is being sought from private investment. The project has requested a strike price of £168/MWH for 35 years.2

Negotiations for this price are currently ongoing with the Department of Energy and Climate Change and on 10 February 2016, the Government announced an independent review into the feasibility of Tidal Lagoon energy in the UK. The review is expected to report in autumn 2016.3

Benefits expected from the Lagoon include the creation of over 2,800 construction jobs as well as up to 40 permanent roles in tourism related industries.4

1.1 Tidal Lagoon energy

Tidal energy is created by the constantly changing gravitational pull of the moon and sun. It is a reliable source of energy because tides are predictable, and never stop. Tidal stream resources are at their best when there is a good tidal range and the speed of the current is amplified by the funneling effect of the local coastline and seabed. Tidal devices work well in narrow straits and inlets, around headlands, and in channels between islands.5

Tidal stream energy technologies are still at an early stage of development with only a few megawatt scale devices currently being tested. Government funding has assisted the development of these devices but commercial scale demonstration and deployment is yet to begin. As such, marine energy is likely to only make a modest contribution to the UK’s energy mix by 2020 but it is a technology which provides an option for bulk renewable energy generation once fully operational and economically feasible.6

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1 Department of Energy and Climate Change, Swansea Bay Tidal Lagoon project gets green light on planning 9 June 2015
2 BBC News, Swansea Bay's £1bn tidal lagoon hit by delay 2 October 2015
3 Department of Energy and Climate Change, Review of Tidal Lagoons 10 February 2016
4 Centre for Business and Enterprise Research, The Economic Case for a Tidal Lagoon Industry in the UK, July 2014
5 Renewable Energy UK has a moving diagram that illustrates how tidal energy works
6 Department of Energy and Climate Change Evidence to Energy and Climate Change Committee Inquiry into Future of Marine Renewables in the UK, 19 February 2012
The Energy and Climate Change Committee inquiry into marine energy published in February 2012 provides further information on wave and tidal energy.  

1.2 Potential economic effects of Swansea Tidal Lagoon

Early proposals for the Swansea Tidal Lagoon listed the cost as £650 million, however this has been revised to a total programme cost of £1,046 billion. TLP has also requested strike price of £168/MWh for 35 years. This is significantly higher than for other renewables. A strike price is a set price that would be paid for the electricity regardless of wholesale energy prices to provide certainty for investors. Any cost differences are passed onto customers through their bills. If wholesale prices are lower there is a cost to consumers, if they are higher there would be a saving.

A 2014 report by the Centre for Economic and Business Research (CEBR), The Economic Case for a Tidal Lagoon Industry in the UK, summarised the potential economic effects of the tidal lagoon as follows:

It is estimated that the annual overall impact on Welsh GVA of the Swansea Bay tidal lagoon during operation could amount to approximately £76 million per year (2014 prices) over the 120 year design lifespan of the power station. This would result in an estimated annual boost to Welsh GVA of 0.14%. Annual operation of the tidal lagoon will also generate direct, indirect and induced jobs for the Welsh economy. This would amount to approximately 181 full-time equivalent (FTE) jobs each year.

Additionally, during the construction phase, CEBR estimates that:

Close to half of this investment will be retained within the Welsh economy with Wales-based companies heavily involved in construction of the lagoon... [Construction] would result in an estimated boost to Welsh GVA ranging from 0.02% to 0.23% over the construction period.

A 2013 report by Professor Max Mundy of Cardiff University, Turning Tide: the economic significance of the Tidal Lagoon Swansea Bay, noted that the Tidal Lagoon would also support tourism revenues in Swansea and surrounding infrastructure as well as a major leisure resource. The project also offers local communities a shareholding in the project.

Professor Mundy estimates that the direct impacts from the Lagoon would include:

The operational phase of the project after 2018 could support an estimated £5m in extra output for Wales, and £2.2m in GVA annually for the region. It is estimated that this level of additional

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7 Energy and Climate Change Committee Inquiry into Future of Marine Renewables in the UK, 19 February 2012
8 Tidal Lagoon Swansea Bay, FAQs [on 2 December 2013]
9 Centre for Business and Enterprise Research, The Economic Case for a Tidal Lagoon Industry in the UK July 2014
10 BBC News, Swansea Bay's £1bn tidal lagoon hit by delay 2 October 2015
11 Centre for Business and Enterprise Research, The Economic Case for a Tidal Lagoon Industry in the UK July 2014
output in terms of operating the Lagoon would support around 60 full time equivalent jobs per annum for the longer term.

In addition, that tourism figures to the redeveloped area enclosed by the lagoon would add £1.5-£2.1 million gross value and allows for 65-90 full-time equivalent jobs when the lagoon is operational.¹²

¹² Cardiff University, *Turning Tide: the economic significance of the Tidal Lagoon Swansea Bay* 5 November 2013
2. News items

The following is a small selection of recent press and media articles relevant to this debate. Please note: the Library is not responsible for the views expressed in, nor the accuracy of, external content.

Tidal lagoon energy review to give 'clarity'
BBC, 10 February 2016
http://www.bbc.co.uk/news/uk-wales-politics-35541862

Swansea Bay tidal lagoon - what does the Government's review mean for the project?
Wales Online, 10 February 2016

Swansea Tidal Lagoon project faces delays
Guardian, 2 October 2015
http://www.theguardian.com/environment/2015/oct/02/swansea-tidal-lagoon-project-faces-delays

Swansea Bay tidal energy scheme wins planning permission
Guardian, 9 June 2015

Swansea Bay Tidal lagoon developer wants community to have a stake
Wales online, 25 April 2013

Company planning to build tidal lagoon in Swansea Bay issues £10m share offer
Wales Online, 9 April 2013

Swansea Bay tidal lagoon project seeks £10m funding
Guardian, 7 April 2013
http://www.guardian.co.uk/uk/2013/apr/07/swansea-bay-tidal-lagoon-funding
3. Press Releases

**Tidal Lagoon Swansea Bay**

The Project

Accessed 17 February 2016

Our aim is to create a power plant that provides something positive for everyone who lives in the vicinity of Swansea Bay. We hope that the lagoon will be viewed and used as a core local amenity and tourist attraction. We have a strategy for it to become an art and cultural icon and major Welsh recreation and sports centre. Besides renewable energy generation our plans for the lagoon include:

**Recreation and tourism**

Cycle paths and promenade walkways.

Recreational fishing opportunities, including platforms and wall access.

Visitor Centre to cater for the estimated 70 to 100,000 visitors per year.

**Sports**

Sports training facilities for local and national use.

National and international sporting events in sailing, open water swimming, triathlon and rowing.

**Education and art**

Education programmes and resources to help young people develop their skills and knowledge around environmental themes.

An arts programme to create a forum for artists, scientists and communicators to stimulate the production of local community art.

**Job creation**

Up to 1,900 jobs will be created and sustained during the construction of the lagoon.

About 35 jobs will be created in quarrying stone for the seawall.

Approximately 31 permanent jobs will be created in operations and maintenance.

Approximately 50 permanent jobs will be created in the visitor facilities.

**Will this help the coastal regeneration plans for South Wales?**

The Project holds the potential to form a cornerstone development of the Swansea Bay City Region and to stimulate a vibrant waterfront economy. Our ambition is that the substantial lagoon investment will bring positive regeneration benefits to Swansea Bay and South Wales.

The Non-Technical Summary of the Environmental Statement provides basic information on all elements of the Environmental Impact Assessment including the issues above. Detailed information on this assessment is provided in Chapter 22 of the Environmental Statement, Economy, tourism and recreation, available [here](#).
How much will the Project cost?

The Project will cost £20 million to achieve a development consent order, with an overall project cost of about £1 billion to achieve construction and connection to the national grid.

Who is funding the Project?

Private investment will be used to develop the tidal lagoon. Equity shareholders in the development phase include the local community, Tidal Lagoon Power staff members, high net worth individuals and corporations (including Prudential). Further information on the investment opportunity is available here.

How will it affect my electricity bill?

One of the Project’s objectives is to enable a low cost, locally generated, electricity tariff for residents around the Bay area. Given existing legislation this is not straightforward to achieve, but it is one of our main goals, and a precedent has been set for cheaper energy for homes within a set radius of a wind farm in Cornwall. We are exploring how we can follow this lead within current and proposed legislation.

Are you supported by a government incentive scheme?

Tidal range technologies (including tidal lagoons) are able to apply for a Contract for Difference (CfD), which is this Government’s mechanism for supporting low carbon power generation. For more information about the economics of tidal lagoons, watch a video based upon a study by consultants, Poyry, here.

Can I invest in the development?

Later this year we hope to be able to offer securities to the general public as part of the construction phase financing in line with our proven commitment to offer community ownership.

Swansea Bay Tidal Lagoon

Cardiff University

4 December 2013

The Swansea Bay Tidal Lagoon could generate a £300M spend in Wales, create 1850 jobs and support the creation of £173M of gross value added for Wales within its three year development phase.

That's according to a new report published by the University's Welsh Economy Research Unit, Cardiff Business School on the economic effects associated with the construction, development and operational stages of the Lagoon.

Key findings include:
• A capital investment of £756M of which £300M will be spent in Wales (40%);
• Potential additional output in Wales of £454M and £173M GVA in the three year development phase;
• Over £5M annual local spend during the operational phase;
• A further potential £1.5M-2.1M per annum GVA to be achieved through associated leisure opportunities;
• Approximately 5540 person years (1850 FTE) of diversely-skilled employment in Wales during the three year construction period;
• Creation of 60 long term operational jobs and up to 90 additional jobs linked to visitor spending.

Led by Professors Calvin Jones and Max Munday, the economic effects assessment is based on a model developed by the University to track the existing and potential economic impacts for Wales of different electricity generation technologies.

The proposed Swansea Bay Tidal Lagoon will be the world’s first, purpose-built, tidal energy lagoon, capable of generating predictable, renewable electricity for over 120,000 homes for over 120 years.

It also aims to create jobs, support onshore regeneration, promote tourism, and even foster art, sport and healthy living.

Professor Jones said: "We estimate that the £300M of regional spending evenly spread over a three year development period starting in March 2015 will result in a total of an additional £454M of additional output in Wales. This means for every £1M spent in the region, an estimated further £0.52M of economic activity is supported. Around half of this, almost £223M, is in the construction sector, with manufacturing and production the next largest portion at £170m. We estimate around £34M of output in financial and professional services would be supported, largely comprising project management, planning and engineering activities."

Professor Munday added: "The focus of job creation and support in manufacturing and construction sectors is important in the context of current challenges facing the Swansea Bay and Welsh economies. In the Swansea case economic inactivity rates are relatively high at 29%, and with nearly 5,000 Job Seekers Allowance claimants in September 2013. In Wales as a whole, following the recession, manufacturing employment has fallen by over 40,000 people and with around 30,000 jobs lost in the construction sector. There are connections between jobs losses in the two sectors with poor performance in terms of construction output linking through to lower demands placed on elements of the manufacturing sector. Larger strategic projects such as Tidal Lagoon Swansea Bay integrating construction demand with local manufacturing inputs and new industry will be an important means of strengthening prospects in these important parts of the regional economy."
Furthermore, it is important to note that Tidal Lagoon Swansea Bay is first of an expected network of projects and construction and manufacturing employment connected with this first build could possibly be used in future lagoon builds in Wales and elsewhere. In addition to this, Tidal Lagoon Swansea Bay will continue to have economic and employment benefits over the many decades of its operational lifespan.

Mark Shorrock, Chief Executive Officer, Tidal Lagoon Swansea Bay explains: "Swansea Bay will be the first in a series of developments in Wales and the wider UK such that supply infrastructure developed as part of this project could gain additional opportunities in the long term in serving a wider network of lagoon projects. We want to see a minimum 50% of Welsh content for our first tidal lagoon and will work with Welsh industry to ensure that the region capitalises on its first-mover advantage to serve subsequent tidal lagoon developments."

"We want to see the Swansea City region become the Supply Chain Hub for all tidal lagoons and are working up plans for a large scale assembly facility in the Swansea City Region. We want to build excellence in marine construction of turbine housings and secure all critical components for hydro turbines in the UK with the majority from Wales. We also want to build part of the generators in Wales. We have assembled a best-in-class consortium of UK and international industrial businesses to establish local production facilities and supply chains to serve Tidal Lagoon Swansea Bay and future developments. We are confident from our work so far with representatives of Welsh industry that Wales has the skills base, experience and scalability to serve a larger UK tidal lagoon industry."
4. Parliamentary Materials

The following is a small selection of recent business relevant to this debate. To search for more parliamentary business relating to this, or any other topic, please use Parliamentary Search.

Parliamentary Questions

Swansea Tidal Lagoon [HC Deb 13 Jan 2016 c 848-49]

Derek Thomas (St Ives) (Con): What steps the Government are taking to establish a tidal lagoon in Swansea? [902947]

The Secretary of State for Wales (Stephen Crabb): I recognise that the proposed Swansea tidal lagoon project has the potential to establish Wales as a major hub for tidal power, creating thousands of jobs and attracting millions of pounds of investment. Robust due diligence is, of course, essential in the interest of taxpayers, who would incur the cost of any subsidy through their energy bills.

Derek Thomas: Dean Quarry in my constituency is likely to be the source of stone for the tidal lagoon. For over a year, local residents have been concerned about that because it is an important tourist area and marine conservation zone, and we believe there are cheaper areas from which to source the stone. Does the Minister agree that the impact on the environment and the economy is too great and that other sources of stone are available? Will the Government look for places other than Dean Quarry to get the stone?

Stephen Crabb: I am aware of the issue raised by my hon. Friend, who is as ever a powerful and effective voice on behalf of his constituents. Planning applications in relation to Dean Quarry would be dealt with by the Marine Management Organisation and local authorities, which should absolutely take into account local concerns.

Christina Rees (Neath) (Lab): Local businesses across Wales are eagerly anticipating the investment that the tidal lagoon will bring. It would be a travesty if the UK Government were to pull the plug on the lagoon, so can the Minister confirm that they remain committed to the project and to agreeing a strike price for the tidal lagoon?

Stephen Crabb: The hon. Lady is right: this is a big, potentially very exciting and significant project. It is also a project that is looking for a large amount of public subsidy and intervention, and it is absolutely right—not that we would expect Opposition Members to understand this—that when we are dealing with large sums of taxpayers’ money, there needs to be due diligence.

Mr Speaker: Last but not least, I call the Chair of the Environmental Audit Committee.

Huw Irranca-Davies (Ogmore) (Lab): Swansea Bay tidal lagoon and the other potential lagoons that may result from it provide amazing opportunities for exports of intellectual property, technology and supply
chains across south Wales. Will the Secretary of State at least commit to making it happen and doing it as soon as possible?

**Stephen Crabb:** I repeat the answer I gave to the hon. Gentleman’s colleague. We recognise that this is a potentially very exciting and significant project, in delivering low-carbon renewable energy over a long period. We need to look carefully at the finances to ensure that it delivers value for taxpayers, who will be asked to put a large amount of subsidy into the project.

**Written question, Tidal Power: Swansea Bay [HL5656]**

**Asked by Baroness Featherstone, 1 February 2016**

To ask Her Majesty’s Government when they expect work to commence on the Swansea Bay Tidal Lagoon.

**Answered by Lord Bourne of Aberystwyth, 10 February 2016**

On 10 February the Government announced that it will commission an independent review to assess the strategic case for tidal lagoons and whether they could represent good value for consumers. We anticipate that the review will be completed in the autumn.

The Government is currently in the first phase of a Contract for Difference negotiation with the developer of the proposed Swansea Bay tidal lagoon project. At present there is no timeframe for how long the negotiation process may take. The timeframe depends on a number of factors, many of which would be outside the control of the Department.

The work programme and the construction timetable for the proposed lagoon are matters for the developer.
5. Further Reading

The Economic Case for a Tidal Lagoon Industry in the UK, Centre for Economics and Business Research, July 2014

Turning Tide: the economic significance of the Tidal Lagoon Swansea Bay, Prof Max Munday, Prof C Jones Welsh Economy Research Unit, Cardiff University, November 2013
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