BRIMS TIDAL ARRAY

openhydro a DCNS company

SSE Renewables

Pre Application Consultation Report

1 INTRODUCTION

BTAL recognises the importance of early consultation that continues throughout the Project in order to integrate public and stakeholder concerns and opinions into the Project decision making process. Consequently, BTAL has been actively consulting a wide range of stakeholders including statutory stakeholders, non-statutory stakeholders and members of the public since the award of the AfL in 2010. Further information on the consultation carried out for the BTAL Project is provided in ES Chapter 6 Consultation Process.

A key element of the BTAL consultation strategy has been the public consultation events which provide BTAL with the opportunity to share information on the Project and the EIA process and to collect feedback from the local community before details area finalised.

BTAL held public exhibitions in Orkney in September 2013, and more recently in July 2015. This report provides information on the format of the exhibition days, the attendees, material presented, and comments received at both events. The focus is particularly on the more recent July 2015 exhibitions, as they fall within the required one year of Marine Scotland Licensing and Operations Team (MS-LOT) receiving the marine licence application.

2 LEGISLATIVE FRAMEWORK AND POLICY CONTEXT

Deposit and construction activity in the Scottish Inshore Region is regulated by the Marine (Scotland) Act 2010. Sections 22, 23 and 24 of the Marine (Scotland) Act 2010 provide that Scottish Ministers may prescribe, by regulations, that certain classes or descriptions of licensable marine activity are subject to the pre-application consultation procedure and, together with the Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013, set out what that process entails.

The Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013 ('the Regulations') were laid before the Scottish Parliament on 10 October 2013. They prescribe the marine licensable activities that are subject to pre-application consultation and, in combination with the Marine (Scotland) Act 2010, set out the nature of the pre-application process. The legislation came into force on 1st January 2014 and applies to all relevant marine licence applications submitted to MS-LOT on or after 6 April 2014.

Applications affected will include those activities with the potential to have significant impacts upon the environment, local communities and other legitimate uses of the sea. The purpose of these new requirements is to allow local communities, environmental groups and other interested parties to comment upon proposed marine developments at an early stage - before an application is submitted to the Marine Scotland Licensing Operations Team.

3 PRE-APPLICATION CONSULTATION (PAC) REQUIREMENTS

Public pre-application consultation consists of at least one public event where local communities, environmental groups, NGOs, regulators and other interested parties are given the opportunity to consider and comment upon a prospective application for those marine licensable activities that are prescribed in the Regulations. The prospective applicant must notify the following statutory consultees that an application for a marine licence for a prescribed activity is to be submitted to MS-LOT:

- The Commissioners of Northern Lighthouses;
- The Maritime and Coastguard Agency;

- The Scottish Environment Protection Agency;
- Scottish Natural Heritage;
- Any delegate for the relevant marine region or regions, when such delegates have been established under Section 12(1) of the Marine (Scotland) Act 2010.

The notification should include basic information relating to the application and include the time and location of the consultation event. The notification must be made at least 6 weeks in advance of the event.

No less than 6 weeks in advance of the public pre-application consultation event, the prospective applicant must also publish in a local newspaper a notice containing:

- A description, including location, of the marine licensable activity.
- Details as to where further details concerning the activity may be obtained;
- The date and place of the pre-application consultation event;
- A statement explaining how persons wishing to provide comments may do so and the date by which this must be don
- A statement clarifying that comments are made to the prospective applicant and not to MS-LOT and that there will be an opportunity for representations to be made to MS-LOT on the application.

The consultation event must be held in a suitably accessible venue.

The venue must be suitably accessible both in terms of allowing physical access by persons of impaired mobility, and being local to the proposed marine licensable activity. This is to allow the provision of information to, and attendance by, persons who are most likely to have an active interest in the proposed activity. The venues in which these events are held is likely to vary in size and nature, dependent largely upon the availability of public buildings in those parts of Scotland close to where the proposed marine licensable activities are to take place. It is expected by MS-LOT that the typical venue which will be used will be a local town hall or hotel.

4 PROPOSED LICENSABLE MARINE ACTIVITY

The Project is an offshore tidal array which will comprise of up to 200 fully submerged tidal turbines with a maximum total installed capacity of 200MW. Electricity generated by the turbines will be transmitted to shore via a series of inter-array and export cables. An overview of the Project Agreement for Lease (AfL) and cable corridors can be seen in Figure 1. The marine cables will be joined to terrestrial cables in a buried transition pit in order for the Project to be connected to the electricity network.

The Project is comprised of the following offshore components:

- All offshore aspects of the Project including tidal turbines and turbine support structures;
- Electrical infrastructure - inter-array and export cables, and subsea cable connection hubs; and
- Landfall for export cables (up to Mean High Water Springs (MHWS)).

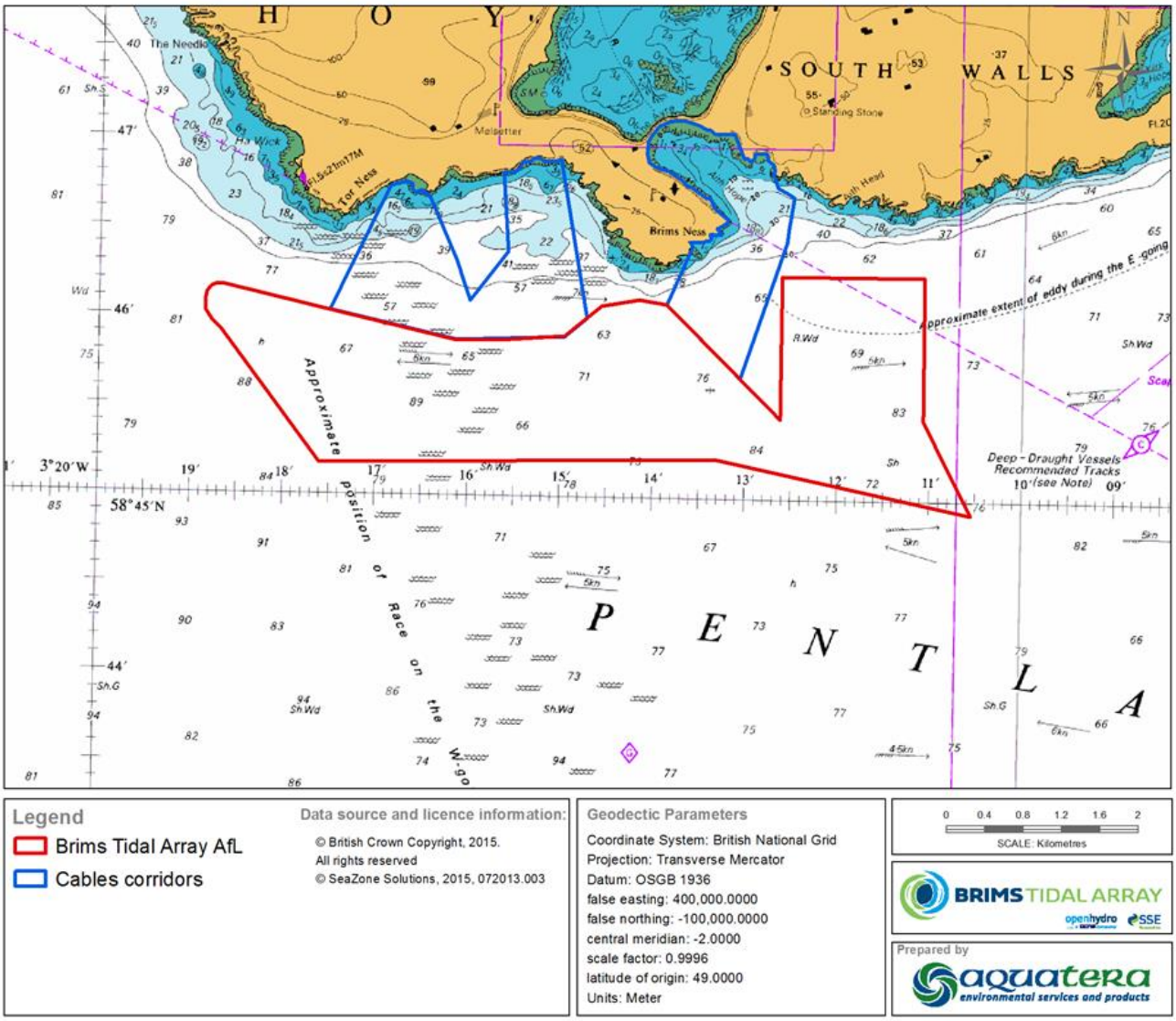

Figure 1: Brims Tidal Array Agreement for Lease (AfL) and cable corridor areas

5 APPLICANT DETAILS

Trading Title: Brims Tidal Array Ltd **Address:** 1 George Square Glasgow G2 1AL **Name of Contact:** Mr Robert East **Position within Company:** UK Development Manager	**Telephone No:** + 44 (0) 7917 061977 **Company Registration No:** SC373159 **Email:** robert.east@openhydro.com

6 PROPOSED LICENSEE DETAILS

The prospective applicant specified in Section 5 is the proposed licensee.

7 2013 PUBLIC CONSULTATION EVENTS SUMMARY

Two public exhibition events were held in September 2013. Being prior to the Regulations coming into force, these events were not held with these requirements in mind.

The first event was held in the Community Room of North Walls Community School on the island of Hoy, on 4th September 2013. This is the most local venue to the proposed project, therefore individuals and groups with local interest are provided the opportunity to interact with the project team. Attendance at the event was not recorded, however it is estimated 53 individuals attended during the day. Comments were received from 6 individuals or groups. All feedback received was positive, with comments around the employment benefits featuring strongly.

The second event was held in Stromness Community Centre on mainland Orkney on 5th September 2013. Approximately 20 individuals attended this event. Comments were received from 5 individuals. Again, all were positive and in a similar vein to the event of the previous day.

A report providing further detail on these events, including copies of the boards displayed and the completed feedback forms are included in Appendix 1.

8 2015 PUBLIC CONSULTATION EVENTS

In line with the PAC requirements and industry good practice, a further two public consultation events were held in 2015. The events provided BTAL with the opportunity to update the local community and relevant stakeholders on the project and the key findings from the EIA process, and to collect feedback from the local community, environmental groups and other interested parties before finalising the proposal.

ADVERTISING

Advertisements for the 2015 consultations were placed in the on the Orcadian Orkney news website on 4th June 2015, and in the print edition of the Orcadian on 11th June 2015. The advertisement was agreed in advance with MS-LOT to comply with PAC requirements, and is included in Appendix 2.

Statutory consultees and other stakeholders were initially notified about the events by e-mail on 08th June 2015, and a reminder e-mail was sent on 21st July 2015. A list of all the stakeholders notified is included in Appendix 3.

VENUES

As in 2013, two exhibition events were held. The first was held on 22nd July 2015 in Kirkwall Town Hall, from 1600 – 2000. Given that Kirkwall is the largest town and the capital of the Orkney Islands, this venue was chosen in order to provide an opportunity for as much of the population as possible to find out about the project.

The second event was held in the Community Room of North Walls Community School, Hoy on 23rd July 2015, from 1300 – 2000. Hoy was selected as it is the most local venue to the project.

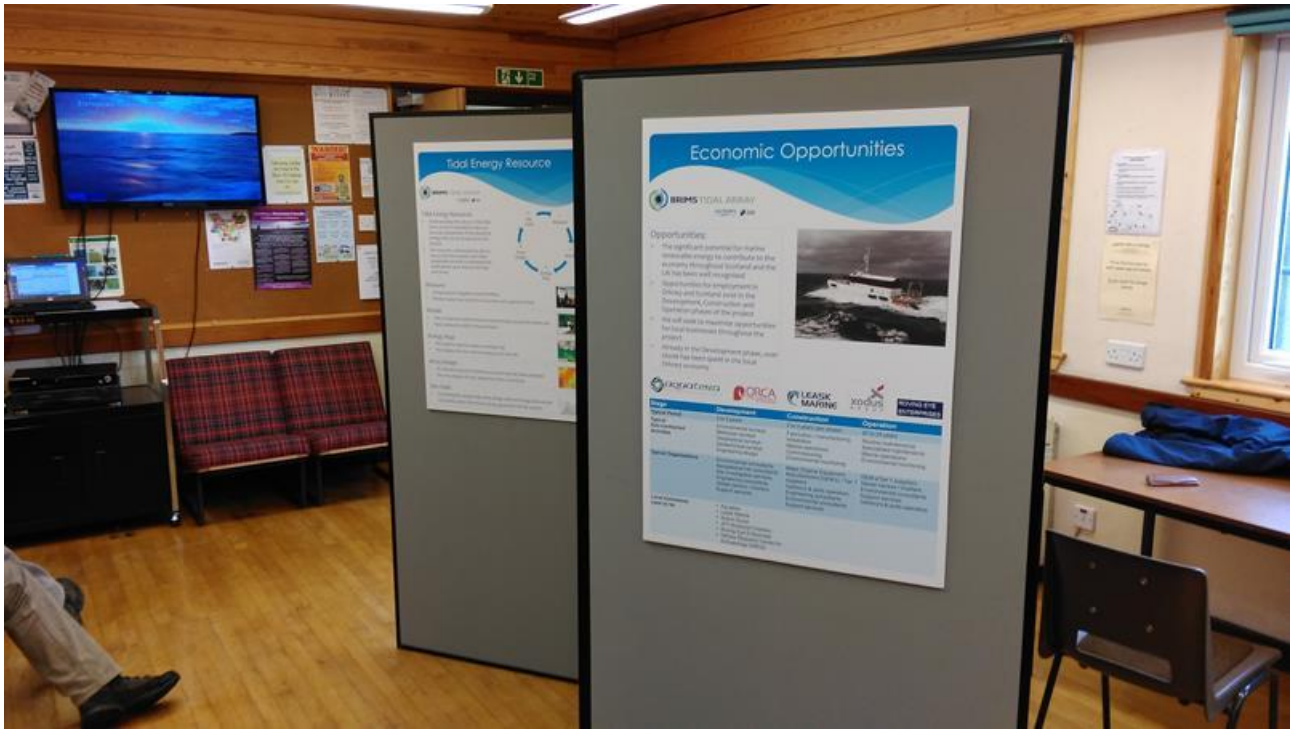

Figure 2 - Public Exhibition, North Walls Community School

Figure 3 - Public Exhibition, North Walls Community School

Both venues were considered to be suitably accessible in terms of physical access by persons of impaired mobility and local to the proposed marine licensable activity.

INFORMATION PRESENTED

Project information was presented on display boards set up around the venues. These included information on BTAL, the technologies being proposed, the project location, background and the surveys carried out. Attendees were welcome to browse the information at their own leisure, and members of the project team were on hand to respond to queries or to provide more in depth information about the project. Copies of the boards are included in Appendix 4.

ATTENDANCE

A record of attendance was maintained at both events. At the first event in Kirkwall, a total of seven individuals attended. The majority of these attendees represented stakeholder organisations, and were familiar with the project.

The event on Hoy was attended by a mix of local individuals, and representatives of stakeholder groups. A total of fourteen individuals attended this event.

COMMENTS AND FEEDBACK

Feedback from all attendees was positive. Primarily attendees at the Kirkwall event, being from statutory organisations, discussed the progress of the project and relevant initiatives to develop the industry, both locally and nationally. No feedback forms were received at this event.

On Hoy, it was clear that there was concern about lack of employment opportunities on the island. There was strong support for the project which is viewed as having the potential to bring further employment to the island.

Attendees at the Kirkwall event did not complete feedback forms. Feedback forms were received from three individuals at the Hoy event and are included Appendix 5.

Comments received at the event were passed on to the consultant carrying out the socio-economic impact assessment to ensure that cognisance was taken of the concerns raised.

One individual who attended suggested that BTAL engage with community organisations such as the Hoy Development Trust. Consultation was already ongoing between the Hoy Development Trust and the socio-economic consultant. This has been reinforced by further engagement between Hoy Development Trust and BTAL. BTAL welcome the offer by Hoy Development Trust to facilitate formal meetings between BTAL and local community organisations as the project develops.

No comments were made in relation to amendments to the proposed development.

9 CONCLUSIONS

Public exhibitions were held in accordance with the Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013 on 22nd and 23rd July 2015 in Kirkwall Town Hall and North Walls Community School. Although attendance at the 2015 events was lower than for 2013, the feedback received on the project remained positive, with individuals expressing an interest in how the project might bring much needed employment to the community.

Appendix 1 2013 Public Consultation Report

BRIMS TIDAL ARRAY

Public Consultation Events Report

September 2013

openhydro

SSE Renewables

- **Introduction**

The Brims Tidal Array project is currently being developed by SSE Renewables (SSER) in partnership with OpenHydro (OH), a leading marine technology developer based in the Republic of Ireland.

The project, located in the Pentland Firth off the southern edge of the Orkney island of Hoy, has a potential maximum installed capacity of 200MW and forms part of the world's first commercial leasing programme for wave and tidal energy generation projects undertaken by the Crown Estate.

Previously known as the Cantick Head Tidal Array project, development has been ongoing for a number of years during which time permission was sought to move the originally consented boundary to the west after it was established that the energy resource at the original location was less than expected. The move west brought the boundary to lie off Brims Ness, and so the name of the project was changed to better reflect the revised position.

A scoping report was submitted in early September. The Scoping Report provides details of the project and identifies the topics that are proposed to be covered within the Environmental Impact Assessment (EIA).

We held two public exhibitions in September 2013 on Hoy and in Stromness in order to bring members of the public and other interested parties up to date on the project.

At the events we used exhibition boards to present the most up to date project information supported by members of the project team (from both SSER and OH) who were available to engage with visitors, answer questions and encourage feedback and comments which would be considered during the remainder of the development process.

This report is a summary of the events and the feedback that was received both during and after the events.

- **The event team:**

John Thouless	Head of Marine Development, SSE Renewables
Jennifer Geraghty	Brims Tidal Array Project Manager, SSE Renewables
Michael Lewis	Senior Project Engineer, OpenHydro (Weds 4 Sep)
Sue Barr	Environmental and External Affairs Manager, OpenHydro (Thu 5 Sep)
Noel Cummins	Major Projects Liaison Manager, SSE

- **Summary of the events:**

The two public events were held on Wednesday 4 on the island of Hoy and on Thursday 5 September in Stromness on the Orkney Mainland. The table below shows the dates, opening times, location and approximate number of visitors at each.

	Time	Location	Visitors*
Wed 4	3.00pm – 8.00pm	North Walls Communuity School, Hoy	53
Thu 5	5.00pm to 8.00pm	Community Centre, Stromness	20

** Approximate due to staff being with visitors at certain times and unable to record attendee numbers with absolute certainty.*

By holding the two events we were confident that as many people as possible would have the opportunity to visit our events.

In addition to the main events, some of the project team remained in Orkney to support the annual Science Festival which was held that weekend.

- **Local benefit:**

We were keen to maximise 'local spend' by booking accommodation and food on Hoy as well as in Stromness. The table below shows how many 'bed nights' and meals were booked/taken by the team supporting both the main events and the Science Exhibition.

	Bed nights	Meals
Stromness	**12**	**10**
Hoy	**4**	**4**

There was also additional local spend for food, drink and fuel during our time in Orkney as well as the charges for hiring venues and advertising in local newspapers and magazines.

The exhibition at North Walls Community School

- **Advertising:**

Advertising was an important factor during the lead up to the events to ensure we would have maximum attendance. The table below details the advertising undertaken.

	Detail
The Orcadian	Advert placed in the Orcadian the week prior to the events. The colour advert was placed in the main body of the newspaper ensuring it was more likely to be seen. A number of people commented that they had seen the advert.
Local magazines & local distribution	There is an island magazine on Hoy which, due to copy deadlines, we were too late to include an advert in. To ensure we reached the widest audience we sent a letter to each of the households on Hoy directly inviting residents to the events.
Radio Orkney	We approached Radio Orkney to ask if they could help promote the events which they kindly did by way of broadcast. A short interview was also given for broadcast by John Thouless. Our events also featured in their daily diary which was sent out via Facebook/Twitter.
Project Website	http://sse.com/whatwedo/ourprojectsandassets/renewables/Brims/) The project website was updated to promote the events to visitors to the website.
Email	Emails were sent to various organisations, stakeholders, Councillors, MSPs, MPs and Community Councils informing them of the events.

We felt that the advertising was successful with no comments received about people 'not knowing' about the events before, during or after.

- **The events:**

At each location the basic event format was:

- Exhibition boards providing detailed up to date information about the project.
- A model OpenHydro device enabling visitors to get a real 'feel' for the type of technology that is being considered.
- A short video from OpenHydro showing their technology and helping illustrate the basic principles of tidal energy generation.
- Staff on hand engaging with visitors in as much detail as required.
- Comments forms available for visitors to provide feedback on.
- Larger scale maps available for people to look over or use as part of discussions.
- Copies of the recently submitted Scoping Report.

- **Comments / Feedback Forms:**

We found that all of the visitors to the events took the time to speak to the staff members about the project and asked many varied questions. In almost all cases they were satisfied with the answers and the vast majority were found to be supportive of our plans.

Where we were unable to give firm answers (due to the early stage of the development process) visitors seemed satisfied with the reasons why we could not answer and that any possibilities discussed were provisional and subject to change for a variety of reasons.

We had 'Comments and feedback' forms available at each event. During the events we had 11 forms completed as follows:

Hoy	**6**	**Stromness**	**5**

The forms were designed to be quick to complete and to encourage visitor feedback. Our experience of other public exhibitions shows that if a project is deemed 'contentious' there are generally more comments forms completed.

In this case it is reasonable to assume that our proposals (in their current early stage form) are not deemed contentious, which is also supported by the positive comments on the forms that were completed.

In recognition of the fact that there would be people who were unable to visit the events, we uploaded copies of the exhibition boards to the project website for people to view at their leisure and copies of the 'Comments and feedback' forms for people to send to us post events.

We have since sent copies of the Scoping Report to the Community Council on Hoy for those who would prefer to read a hard copy and a copy set of exhibition boards to an elderly resident who was unable to attend the events herself.

The closing date for receipt of the 'Comments and feedback' forms was 4 October 2014. No additional comments forms have been received.

- **Comments and feedback' data:**

The following tables are a collation of the comments received. A score of 1 shows strong agreement with the question or statement, while a score of 5 shows strong disagreement wit the question or statement.

'I support renewable energy.'					
Using a 'X' please rate the statement above between **1 (strongly agree)** and 5 **(strongly disagree)**	**1**	**2**	**3**	**4**	**5**
	9	2	0	0	0

What are your views on renewable energy, including its importance to Orkney?

These are the comments provided on completed forms:

'Wish to see employment and benefits for the community'

'VERY IMPORTANT NATURAL RESOURCE FOR ISOLATED SMALL ISLANDS – TURNING DISADVANTAGE TO OUR BENEFIT'

'THE ONLY WAY FORWARD TO MEET THE GROWING ELECTRICITY DEMAND'

'THIS IS THE MOST IMPORTANT FORM OF ENERGY. IT IS IMPORTANT FOR ORKNEY AND BRITAIN AS A WHOLE. IT IS ALSO UNOBTRUSIVE'

'ANY ENERGY PRODUCED BY ENVIRONMENTAL TERMS IS TO BE ENCOURAGED'

'It's a very important future source of energy. Please minimise the impact (visual) on the island of Hoy'

'Very important. Future jobs in a rural location'

'I strongly support its development as fossil fuels must have a finite life! Also it's the alternative to continuing rise in atmospheric pollution/climate change. With regards to Orkney, we've had more than 3 decades of benefits through our oil base but this is declining, so here's the possibility of many more decades of employment/income etc'

'I support the Brims Tidal Array proposals,'					
Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree).**	**1**	**2**	**3**	**4**	**5**
	9	2	0	0	0

What do you think about our proposed project?

These are the comments provided on completed forms:

'Great to get so good communication and information'

'QUITE AMBITIOUS – HOPE IT WORKS WELL THOUGH'

'WOULD BE INTERESTED IN BEING KEPT INFORMED AS TIDAL ARRAY PROGRESSES'

'I THINK IT IS AN EXCELLENT IDEA. I WISH YOU EVERY SUCCESS'

'GOOD FOR ISLAND – CHANCE OF JOBS ETC'

'The tide is always with us – until the earth stops rotating! Wind and wave are good generators when the weather is cooperating, but can't be other than weather dependent'

'Good'

'I think it's a good project. Especially as it has now moved west. Please can you make sure that the devices/obstructions are marked with AIS signals.'

This Exhibition					
Using an 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**	1	2	3	4	5
	9	1	0	0	0

This exhibition was very informative and I understand what is being proposed.

These are the comments provided on completed forms:

'Good to have plenty of people to speak to'

'EXCELLENT COMMUNICATIONS AND ADVERTISING. DISPLAYS & INFO VERY CLEAR AND WELL EXPLAINED'

'WELL INFORMED – VERY INTERESTING AND WELL PRESENTED'

'EVERYONE I SPOKE TO ANSWERED MY QUESTIONS VERY WELL. I NOW KNOW MORE ABOUT IT THAN I DID BEFORE'

'I am much better informed now than before'

'Thanks for the informative session. V. Helpful staff'

- **In summary:**

We felt that the exhibitions were well received and that turnout for the events was in line with expectations with an overall positive response from all attendees. Of note were the positive comments from Hoy residents about the direct mailing they received.

Members of the public and staff at the event on Hoy

Public Advertisement

BRIMS TIDAL ARRAY

PUBLIC EXHIBITIONS

SSE Renewables and OpenHydro are jointly developing the Brims Tidal Array located off the south coast of the Orkney island of Hoy.

The project, formerly known as Cantick Head, will be developed in two phases and will have a potential maximum installed generation capacity of 200MW.

Following the recent issue of our Scoping Report, we are holding two public exhibitions in September and would very much like members of the public and other interested parties to come along and find out more about our proposals and discuss them with members of the project team who will be on hand at each event.

It is anticipated that the planning consent and marine licence applications for the first phase of the project will be submitted by the end of 2014. Comments received at these public exhibitions will help inform the development process prior to this.

The public exhibitions will take place on:

Date	Time	Location
Wed 4 Sept 2013	12:00pm – 8:00pm	North Walls Community School, Hoy
Thu 5 Sept 2013	5:00pm – 8:00pm	Stromness Community Centre, Church Road, Stromness

Further information relating to the proposals can be found by visiting the project website which is at www.sse.com/brims. Alternatively, please contact:

Jennifer Geraghty, Project Manager, Marine Development, SSE Renewables, Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ, UK or via email at jennifer.geraghty@sserenewables.com.

If you wish to comment on our proposals you can do so at the above events and/or in writing to Jennifer Geraghty at the address above.

Comments from these exhibitions should be sent to the address above and received by Friday 4 October 2013.

There will be an opportunity for members of the public to make formal representations to Marine Scotland and the Council in the future once formal planning applications have been made.

openhydro a DCNS company

SSE Renewables

Public Exhibition Boards

BRIMS TIDAL ARRAY

Project history

In November 2008, The Crown Estate opened up the Pentland Firth and Orkney Waters Leasing Round (PFOW) to marine energy developers by inviting bids for exclusive site development rights.

On the 16th March 2010, The Crown Estate awarded an Agreement for Lease (AfL) for a tidal energy array up to 200MW in capacity, located off the south coast of South Walls, to Cantick Head Tidal Development Ltd (CHTDL), a joint venture between OpenHydro and SSER.

In 2013, following feedback from site surveys and stakeholder consultation, a revision was made to the boundary of the AfL area whereby 80% of the original AfL area was moved to the west, with the remaining 20% overlapping with the original site.

As a result of the boundary move and to ensure a name relevant to the site location, the project name has been changed from Cantick Head Tidal Development to Brims Tidal Array.

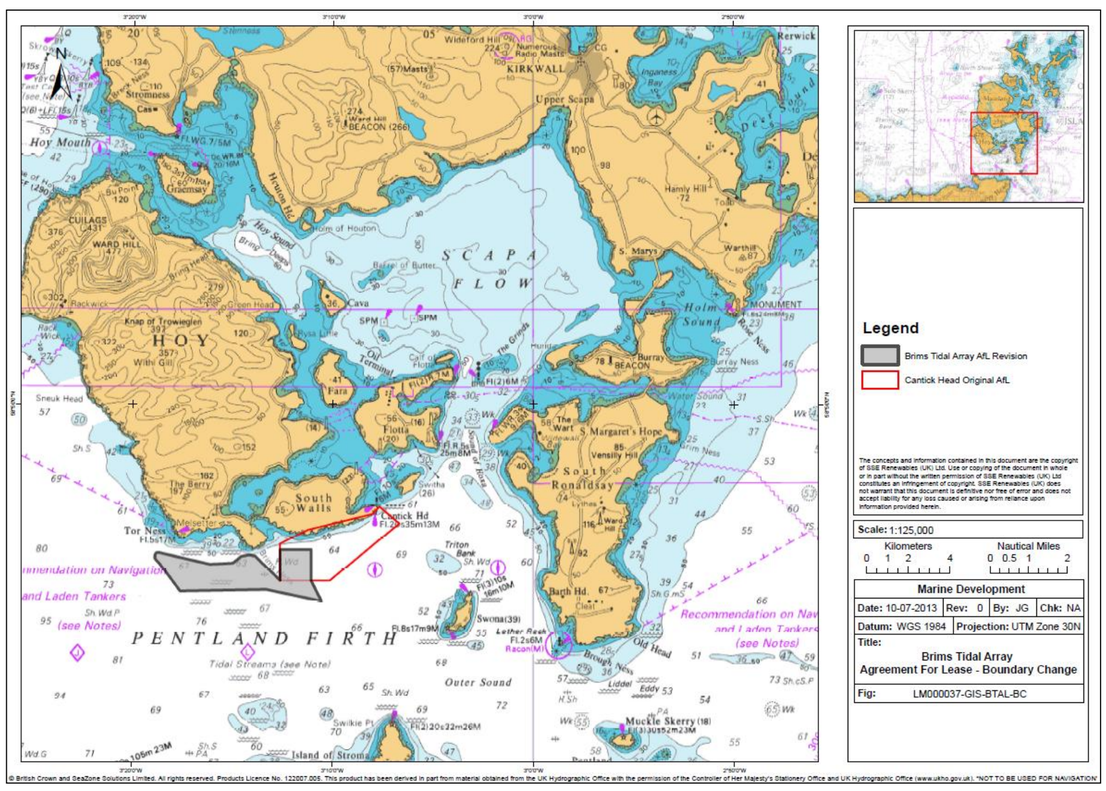

Chart of Brims Tidal Array showing AfL boundary change

Aerial view of the proposed development site

The developers

OpenHydro, a DCNS company, is a technology business that designs, manufactures and installs tidal energy systems. It has global experience in developing tidal projects, with the intention of providing a cost-effective source of renewable energy that is in harmony with the environment.

OpenHydro has over a decade of experience in developing and testing the Open-Centre Turbine in marine conditions. This includes their work at the European Marine Energy Centre (EMEC), Orkney's marine energy test site, the 2009 deployment in the Bay of Fundy (Canada) and the 2011 deployment at Paimpol–Bréhat in France.

In 2006, OpenHydro became the first company to install a tidal turbine at the EMEC facility

SSE Renewables (SSER) is the renewable energy development division of SSE plc. We are responsible for the development of SSE's marine energy projects as well as the development of hydro, offshore wind and onshore wind.

SSE, headquartered in Perth, is involved in the generation, transmission, distribution and supply of electricity and the production, storage, distribution and supply of gas.

SSE currently has over 13 gigawatts (GW) of generation capacity in the UK and Ireland including almost 3.2 GW of renewable energy generation capacity. We supply energy and services to around 10 million customers.

SSER is one of the UK's leading offshore renewable energy developers, responsible for 6.6 GW of development projects including an interest in 800 MW of wave and tidal energy projects in the Pentland Firth and Orkney Waters (PFOW).

'Our core purpose is to provide the energy people need in a reliable and sustainable way.'

BRIMS TIDAL ARRAY

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SSE Renewables

Project overview

The area being investigated for the proposed development lies to the south of the island of Hoy, off the Brims Ness headland. Based on present knowledge it is anticipated that a tidal array of up to 200 megawatts (MW) capacity could be installed on the site, generated by up to 200 tidal energy devices.

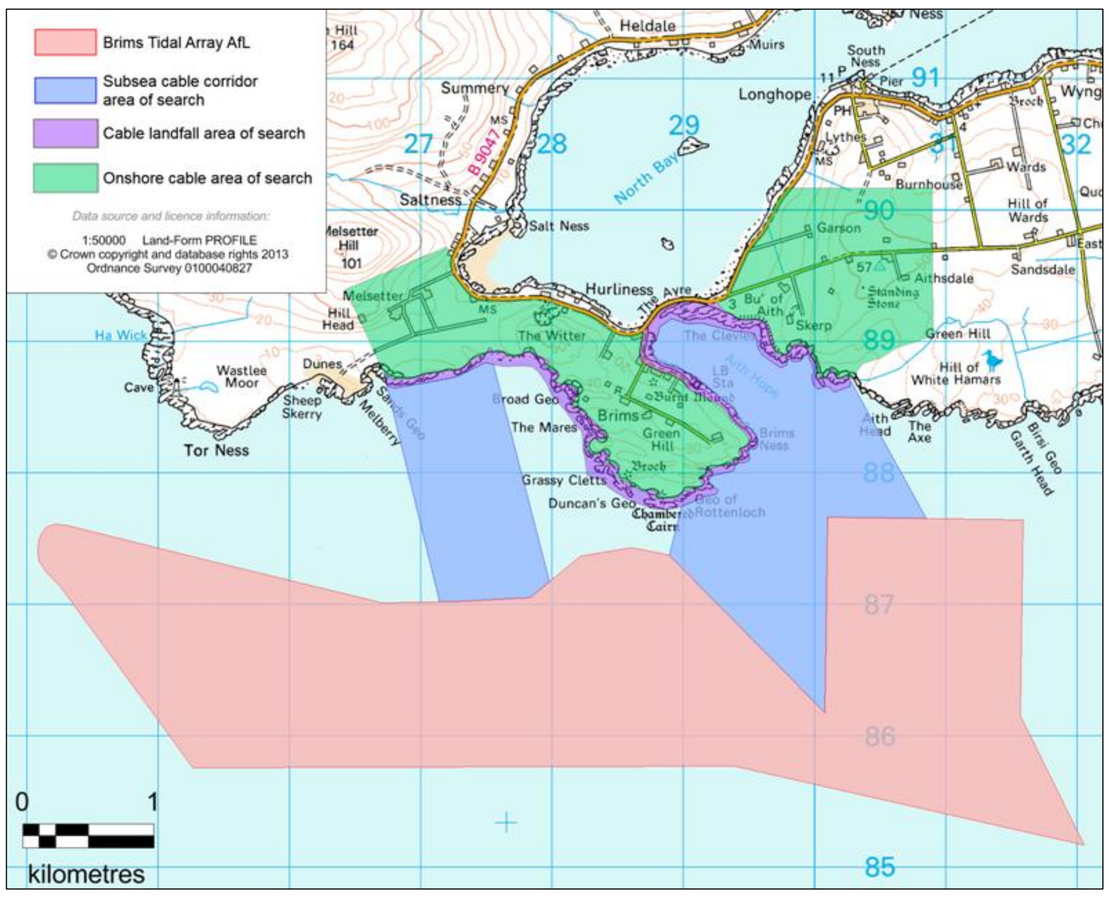
Associated with this is a grid connection cable corridor running from the site to a proposed landfall point near the Brims Ness headland from where a connection is proposed into the national electricity grid.

We are required to undertake an Environmental Impact Assessment (EIA), including a Navigational Risk Assessment (NRA), and are currently engaged in site investigation and project development planning activities.

The preferred technology for the site is the OpenHydro Open-Centre Turbine. At this stage it is proposed to specify an 'envelope' of design for the EIA and planning process to allow consideration of alternative turbine technologies.

OpenHydro's extensive experience will provide essential information regarding the technical performance of the turbine, its interactions with the receiving environment, and the operational implications associated with the proposed Brims Tidal Array development.

A phased approach



Map of the Brims Tidal Array site and area of investigation for grid connection corridor areas of interest

We are working towards identifying a development zone (or zones), within the Agreement for Lease (AfL) area, suitable for a commercial scale tidal project which would be built in two distinct phases.

It is proposed that Phase 1 will be up to 60 MW with Phase 2 potentially bringing the total installed capacity up to 200MW. The development of Phase 2 would be informed by the experience gained in Phase 1 and wider industry learning.

The proposed installed capacity of Phase 1 has increased since issuing a Project Briefing Document in 2012 for both technical and economic reasons.

The location, footprint and layout of devices and infrastructure will be determined through detailed planning and will be informed by the EIA, NRA and stakeholder consultation processes which includes public engagement events.

Approximate project timescales – Phase 1 only

2011 – 2014
- Site Investigation and EIA Surveys

2014
- Planning and Marine Licence Applications submitted

2015
- Planning approval?

2019
- Construction

2020
- Completion of Phase 1

Taking the power ashore

Once power has been generated it needs to be taken from the tidal energy devices to shore via high voltage cables and then on to the wider electricity network.

We have done some work in the Brims Ness area to identify possible 'landfall' sites (where the cables come ashore) and grid connection points, including identifying an area of search for a potential new substation.

The electricity network on Orkney and beyond is not currently able to accommodate projects of this scale.

Development of new grid connection infrastructure including the onshore substation is being undertaken by the grid owner Scottish Hydro Electric Transmission plc (SHE-T).

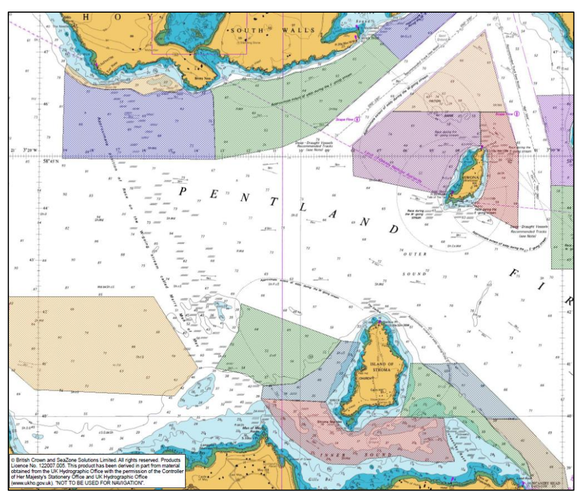
BRIMS TIDAL ARRAY

Development process

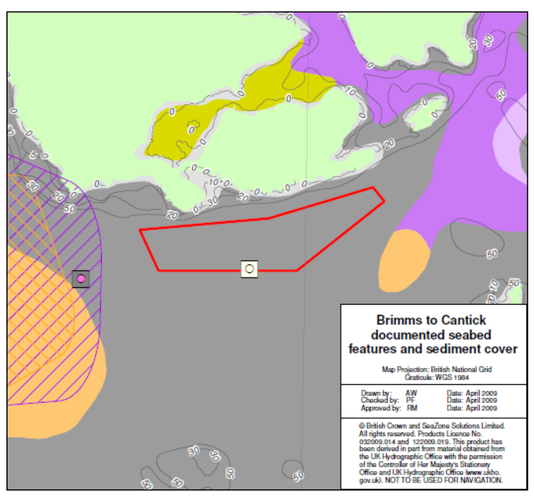
The site selection process, from which Brims Tidal Array was identified, began in the autumn of 2008 when regional assessments were carried out and a number of potential locations around Orkney were identified. Following assessment of shortlisted locations, a site off South Walls was selected, referred to as Cantick Head.

A more detailed assessment of the area led to the site boundary being moved to the west and now referred to as Brims Tidal Array.

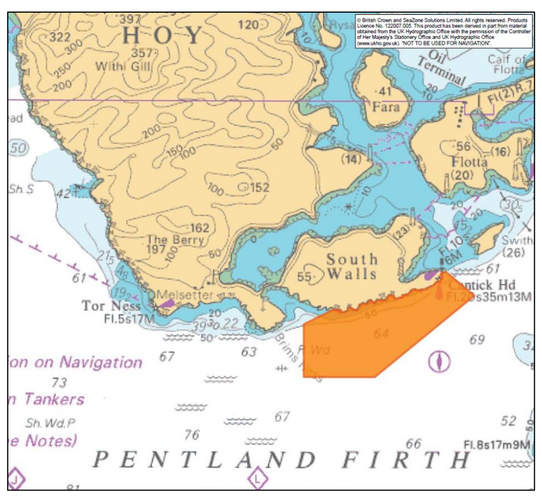
We are currently undertaking site investigation and project development activities which include Navigational Risk Assessment (NRA) and Environmental Impact Assessment (EIA) processes. These are required to inform the final site design which will be submitted for planning consent consideration.



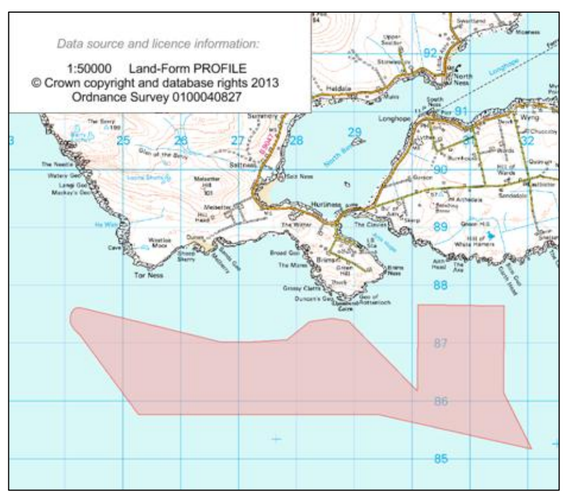
2008 - Regional Assessment



2009 - Site assessment



2010 - Agreement for Lease (AfL) area



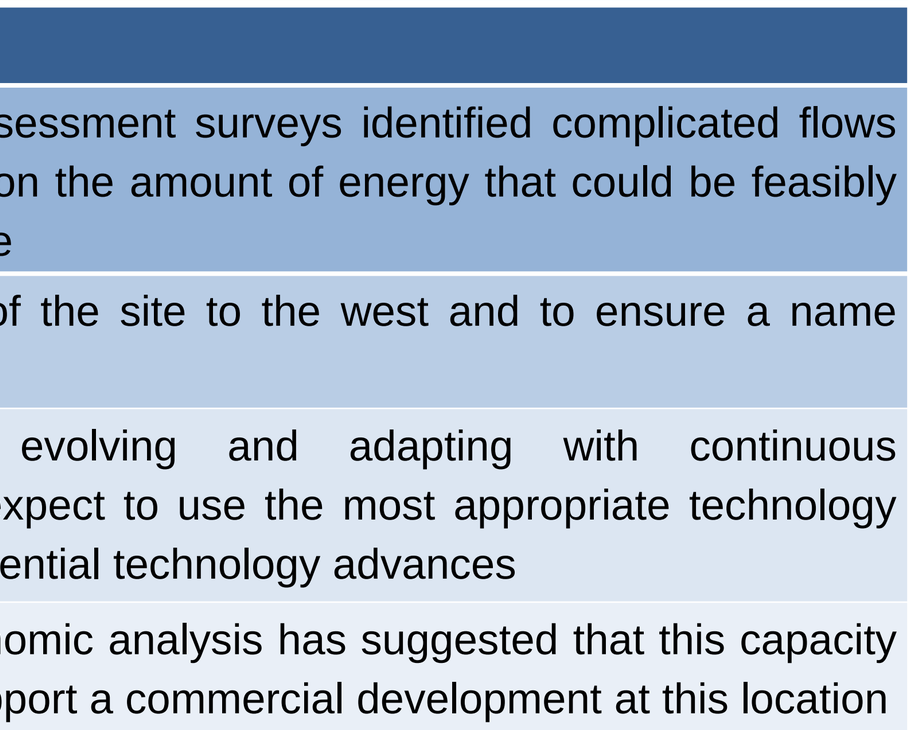
2013 – Revised Brims AfL area

Key decisions made since 2010

Topic	Rationale
Site boundary moved to the west	Detailed tidal resource assessment surveys identified complicated flows and eddies that impacted on the amount of energy that could be feasibly extracted at the original site
Name change, from Cantick Head Tidal Development to Brims Tidal Array	As a result of the move of the site to the west and to ensure a name relevant to the site location
Alternative technologies considered in addition to the preferred OpenHydro Open-Centre Turbine	Turbine technology is evolving and adapting with continuous improvement. We would expect to use the most appropriate technology on the site, allowing for potential technology advances
Likely proposed Phase 1 capacity increased to 60 MW (was 30 MW)	Further technical and economic analysis has suggested that this capacity increase is required to support a commercial development at this location

Key consents required

Consent	Scope
Section 36 (Electricity Act)	Applicable for projects over 1MW in the marine environment (sub-tidal to Mean High Water Springs (MHWS)
Terrestrial planning permission (Town and Country Planning (Scotland) Act)	Planning permission is required for any onshore element of the development . The planning application will cover project components in the terrestrial and intertidal zones, down to Mean Low Water Springs (MLWS) with associated overlap with the Marine Licence
Marine Licence (Marine (Scotland) Act)	All deposits on seabed such as placement of turbine array(s) or export cables



Next Steps 2013-14: Ongoing studies, assessments and stakeholder consultation to inform site design. Further public events will be held prior to finalisation of the development proposal which will be submitted for planning consideration.

BRIMS TIDAL ARRAY

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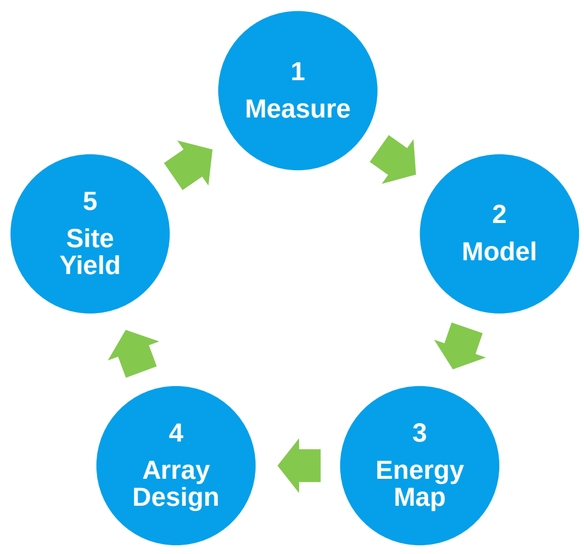
Tidal energy resource

Understanding the nature of the tidal energy on the site is very important when calculating the amount of electrical energy (MegaWatt-hours) that can potentially be produced by the project.

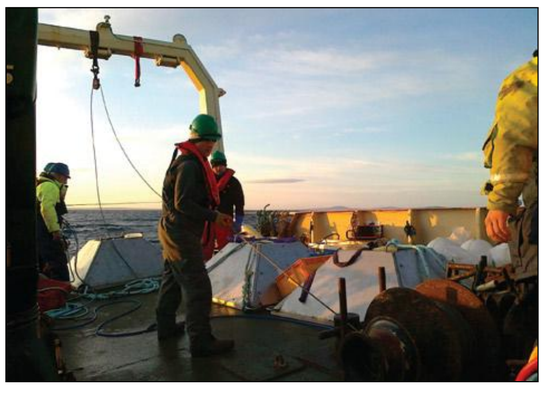
It is also an important factor when designing the devices ensuring they are built to withstand the various loads on them during operation and including extreme events.



We have five distinct steps in assessing the tidal resource:

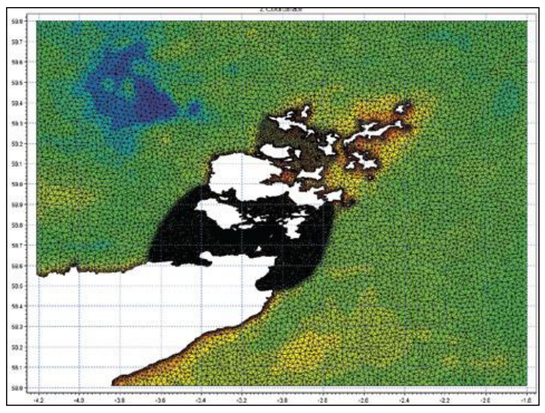
Step 1 – Measure

Taking tidal measurements on site: To date eight Acoustic Doppler Current Profilers (ADCPs) have been placed on the seabed at locations in and around Brims Tidal Array site. They measure current speed and direction throughout the water column at predefined intervals. They are typically deployed for a minimum period of 28 days in order to acquire data over a full tidal cycle. Some ADCPs have also measured wave heights.



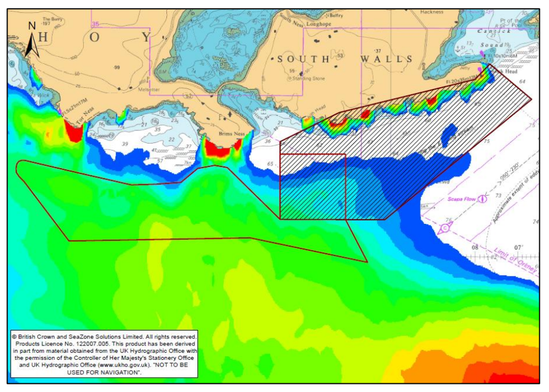
Step 2 – Model

Preparing a computer model to predict 'whole site' tidal characteristics: We use proprietary modelling software, known as MIKE21, developed by the Danish Hydrographical Institute (DHI). This has been used to build a 2-dimensional flow model across the whole site. The data from the ADCPs has been used to validate the flow model.



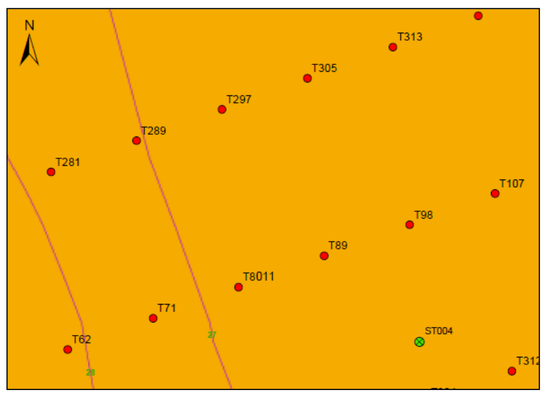
Step 3 – Energy map

From the model, creating an 'Energy Map' by estimating the amount of raw marine energy across the whole site: The raw kinetic energy in the water has been calculated across the whole site to identify the areas of greatest resource interest. This kinetic energy is directly proportional to the cube of the flow (velocity) which explains why high velocity sites have significantly more energy than low velocity sites.



Step 4 – Array design

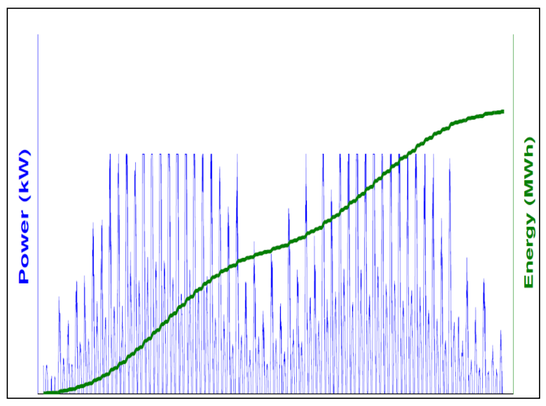
Preparing a layout of tidal energy devices across the site – an array design: The level of knowledge on designs of tidal arrays is still evolving, and the experience gained from initial demonstrator projects will provide important learning points which will help inform the layout of Brims Tidal Array. In addition to tidal resource a number of potential constraints need to be considered.



Step 5 – Site yield

Calculating energy production by combining energy map, array design and technology data: Once an energy map has been produced and an initial array design selected, the information will be used with tidal device performance data to calculate the amount of electrical energy produced by each device on an annual basis.

The energy output for each of the devices is then aggregated to arrive at a total annual energy production for the site.



Initial results

Analysis of resource data is ongoing but work done to date confirms that the tidal resource over a large part of the Brims Tidal Array Agreement for Lease area would support a viable tidal energy project, subject to other economic and wider development factors.

BRIMS TIDAL ARRAY

OpenHydro Open-Centre Turbine

The OpenHydro Open-Centre Turbine (OCT) is a bi-directional shrouded horizontal axis turbine. It is a simple device comprised of four key components: a direct-drive permanent magnet generator, a hydrodynamic duct, a horizontal axis rotor, and a subsea gravity base type support structure.

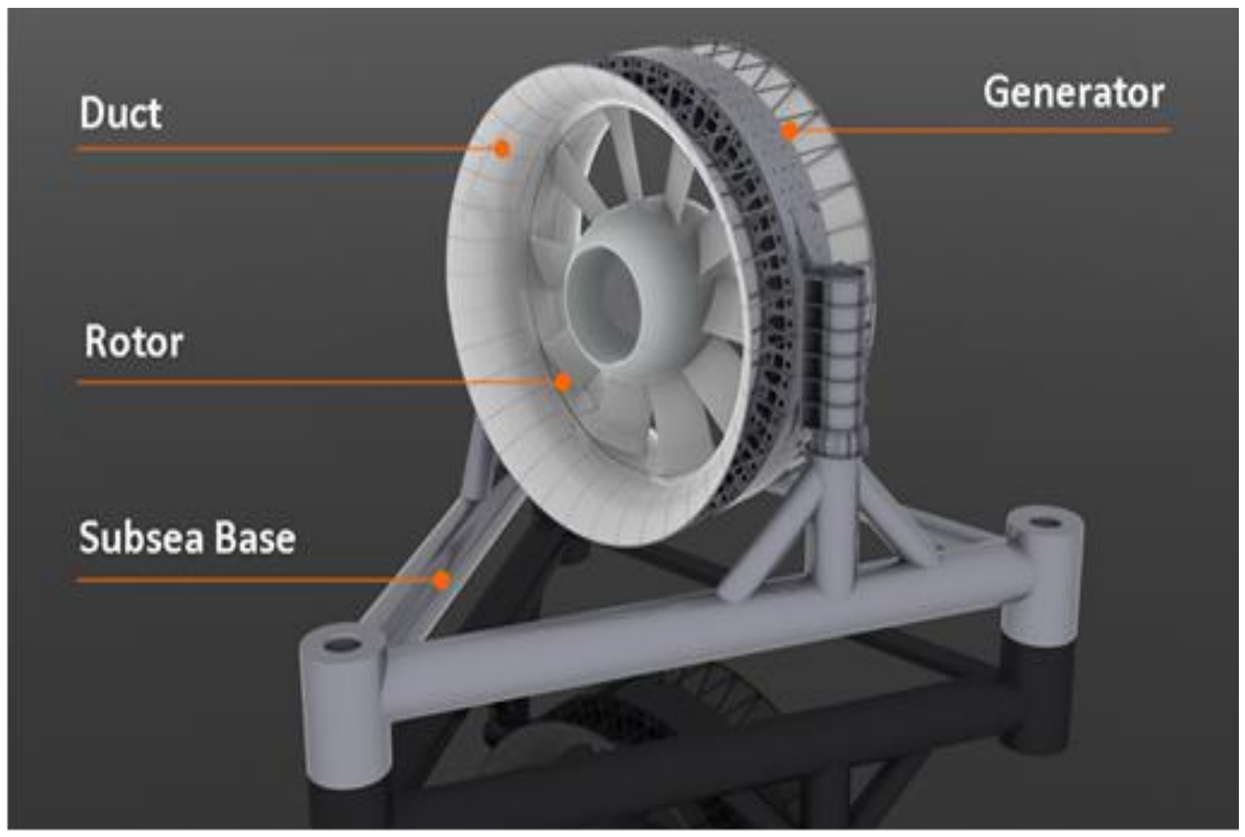
The turbines designed for the Brims Tidal Array site would have an outer diameter of up to 20m, resulting in a turbine height of up to 27m above the seabed. Each device will be capable of generating at least 1 MW, but actual output will depend on the specific site conditions.

Permanent magnet generator

The Permanent Magnet Generator is a very simple device, and it allows the OpenHydro Open-Centre Turbine to operate without a gearbox or associated lubricants.

Hydrodynamic duct & rotor

The Hydrodynamic Duct allows the OpenHydro Open-Centre Turbine to extract the maximum energy from the water. It also means that the device performs well even if the flow is not coming straight at the device. Complex mechanisms to rotate the device into the tidal flow are therefore not required. The rotor is the one moving part of the Open-Centre Turbine



Subsea base

The Subsea Base facilitates a simple installation technique for the devices. The gravity base means that no seabed preparation is required, and that the Open-Centre Turbine and Subsea Base are simply lowered as an assembly onto the seabed. OpenHydro have developed a technique which allows this operation to be carried out to a very high degree of accuracy.

Installation experience

- **EMEC – Orkney:** OpenHydro were one of the first berth-holders at the EMEC tidal test site. OpenHydro operate a test platform at EMEC for 6 m scale devices. The seventh generation of Open-Centre Turbine has recently been fitted to the test platform.

- **EMEC – Orkney:** OpenHydro carried out their first deployment operation at the EMEC tidal test site. A Subsea Base fitted with a blank turbine was deployed using the ‘OpenHydro Installer’, the first installation barge designed and built specifically for this purpose.

- **Bay of Fundy – Canada:** In 2009, OpenHydro used their ‘OpenHydro Installer’ barge to install a 10 m device in the Bay of Fundy, Canada. This area is recognised as having the strongest tidal flows in the world. The device was successfully recovered from the site during 2010.

- **Paimpol-Bréhat – France:** In 2011, OpenHydro deployed their first 16 m scale Open-Centre Turbine at the Paimpol-Bréhat site off the coast of Brittany in France. The device was successfully recovered from the site during 2012. Deployment and recovery were carried out using a new installation barge, the ‘OpenHydro Triskell’.

BRIMS TIDAL ARRAY

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Consideration of alternative tidal technologies

We would expect to use the most appropriate technology on the site, allowing for potential technology advances, and are therefore considering alternative technology solutions, in addition to the preferred technology, the OpenHydro Open-Centre Turbine (OCT).

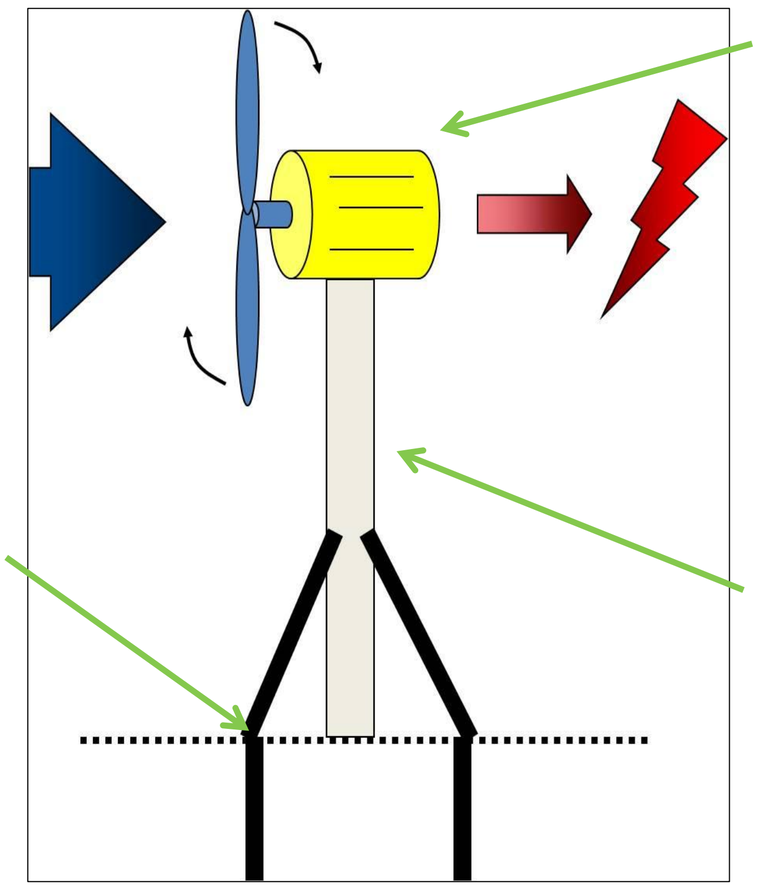
It is expected that the consent application will therefore describe a range of different designs including the OpenHydro OCT and other configurations based on the features illustrated below.

The alternatives are conceptually similar to the OCT, with water flowing over hydrofoil sections (blades) to create 'lift' like an aeroplane wing. The blades then rotate driving an electrical generator.

Main components of alternative tidal technologies

The Fixings/Base holds the Structure in the required location so that it can counteract the forces of the sea and Turbine acting on it. The fixings for Brims Tidal Array may use a gravity base with sufficient mass to counteract the overturning force on the Turbine/ Structure.

Alternatively drilling into the seabed, either one large hole for a monopile or multiple smaller holes for pin-piles may be considered.



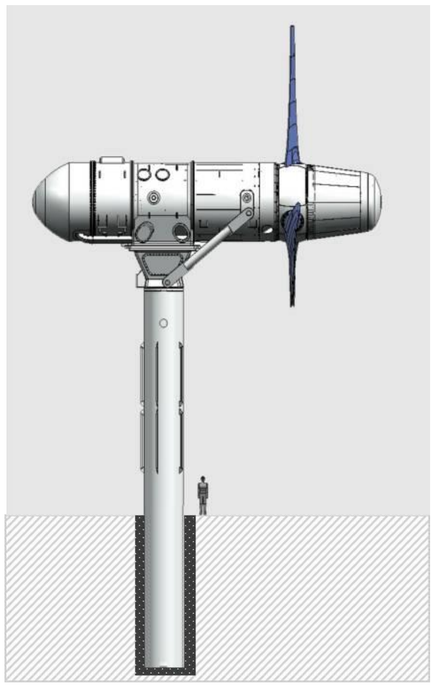
The **Turbine** converts the kinetic energy in the flowing water to electricity. Alternatives under consideration for the Brims Tidal Array site include a 3-bladed open rotor design. The blades drive an electrical generator either directly or using a gearbox to increase the speed of generator rotation to make it more suitable for electricity generation. The rotor is expected to be around 16m to 20m diameter, rotating around once every six seconds.

The **Structure** supports one or more Turbines. Monopile or tripod configurations are being considered for the Brims Tidal Array site. Depending on the site resource conditions and expected variability in tidal flow, such structures may allow the Turbine to rotate and align with the tidal flow for efficient operation.

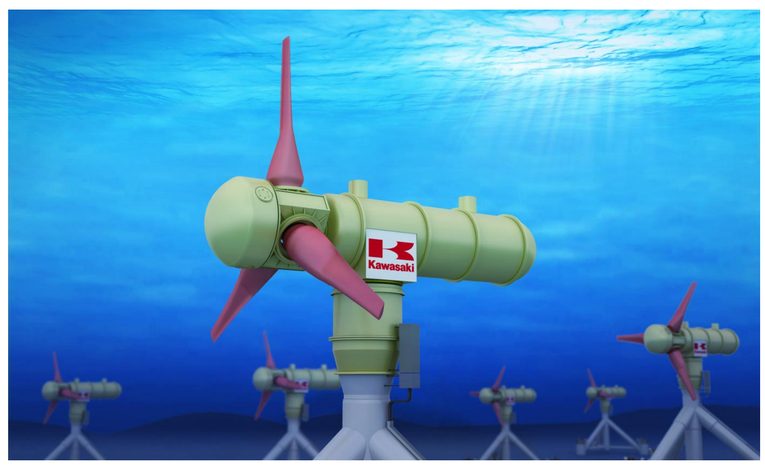
Examples of alternative tidal technologies

The following images show some of the above features on devices being developed by some of the other leading industrials in the sector:

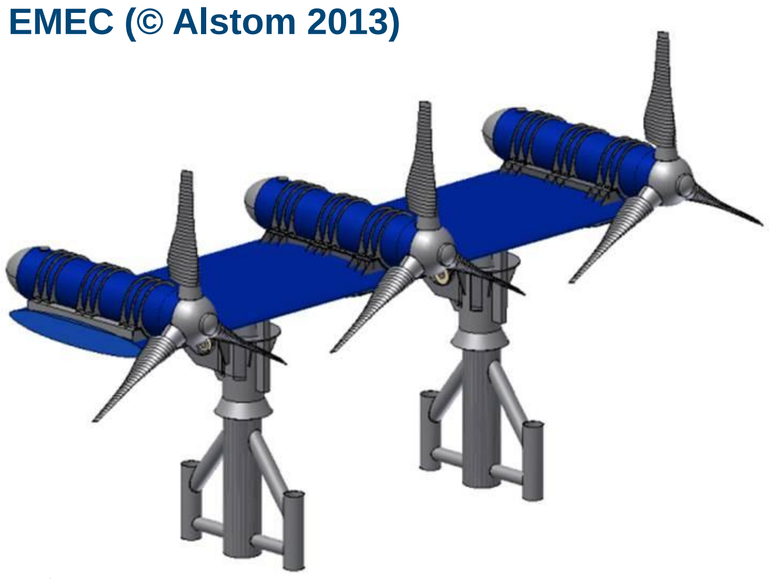
↑ **Alstom 3 bladed TEC on quayside at Hatston, Orkney, prior to testing at EMEC (© Alstom 2013)**



↑ **Illustration of single TEC on a monopile structure drilled into the seabed (© Voith Hydro Ocean Current Technologies 2013)**

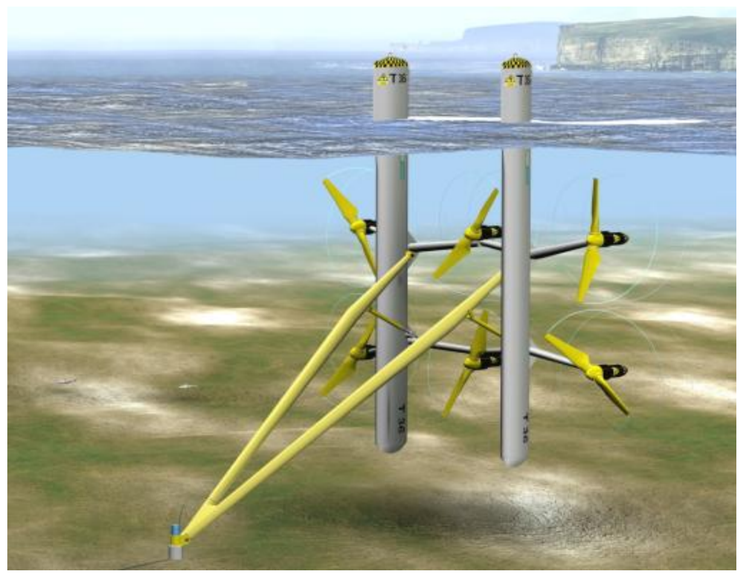


↑ **3 bladed TEC being developed by Kawasaki, Japan, possibly mounted on a gravity base and due to be tested at EMEC (© Kawasaki 2013)**



↑ **Illustration of 3 TEC's on single structure using monopiles and pin-piles (© Siemens 2013)**

The TidalStream Triton 6 semi-submersible support system (© TidalStream 2013) →



BRIMS TIDAL ARRAY

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Site investigation

Prior to any development being undertaken, it is important to gather baseline data about the site.

The data will be used to inform the design of the proposed development from an environmental, technical, economic and wider stakeholder perspective.

The baseline data collected will also be used when assessing the development proposal against planning approval criteria.

The EIA documents submitted in support of the consent application will contain much of this data.

Tidal resource measurement

One of the most important aspects of the development, this is discussed in detail on a separate board.

Geophysical surveys

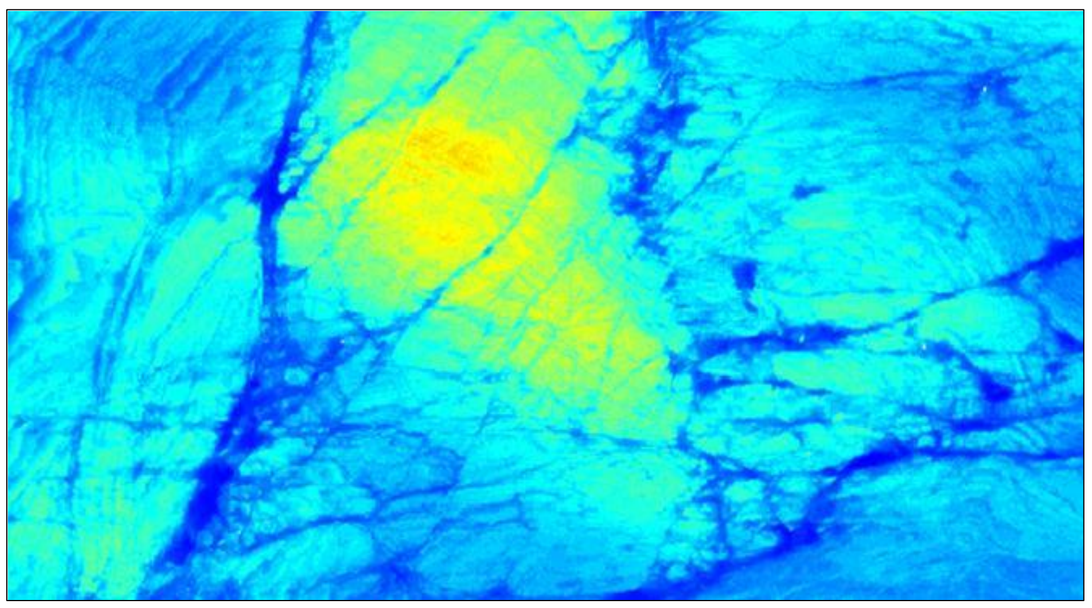
Surveys are carried out to assess the nature of the seabed in the proposed development area. These surveys include:

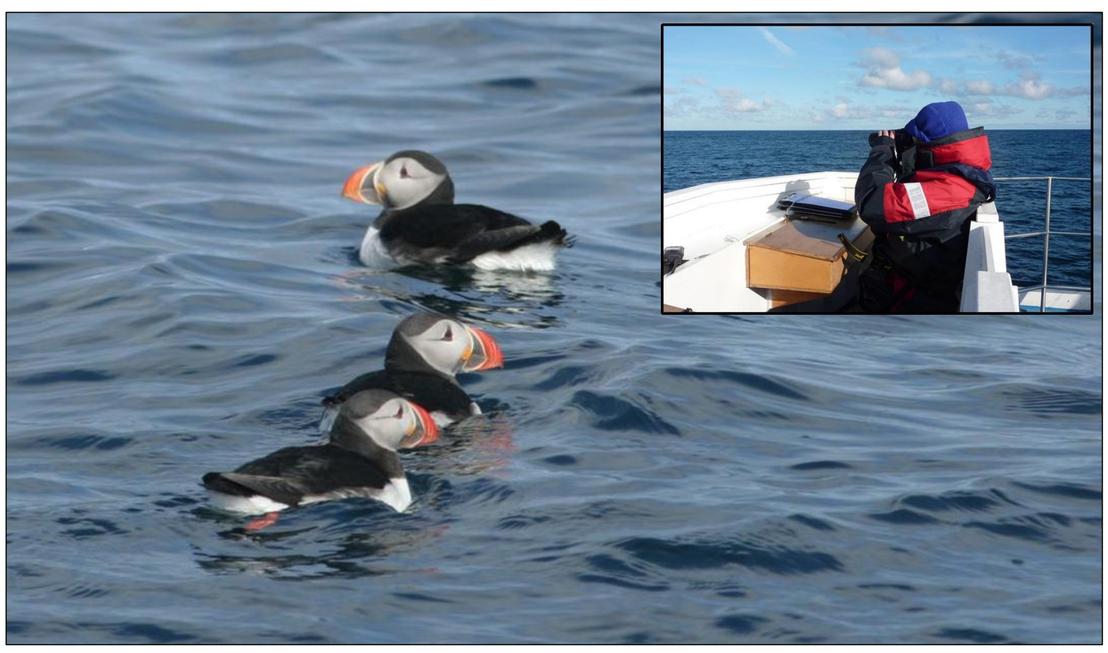
Side-scan sonar: Used to identify seabed features.

Magnetometer: Identifies metallic objects on the seabed.

Sub-bottom profile: Data is gathered on sediment depth, and is particularly important for the design of the cable route and of the support structure.

Bathymetry: Multi-Beam Echo Sounders are used to provide detailed information about the water depth throughout the site. Information about slope, features, and habitat type can be taken from this data.





Birds and marine mammals

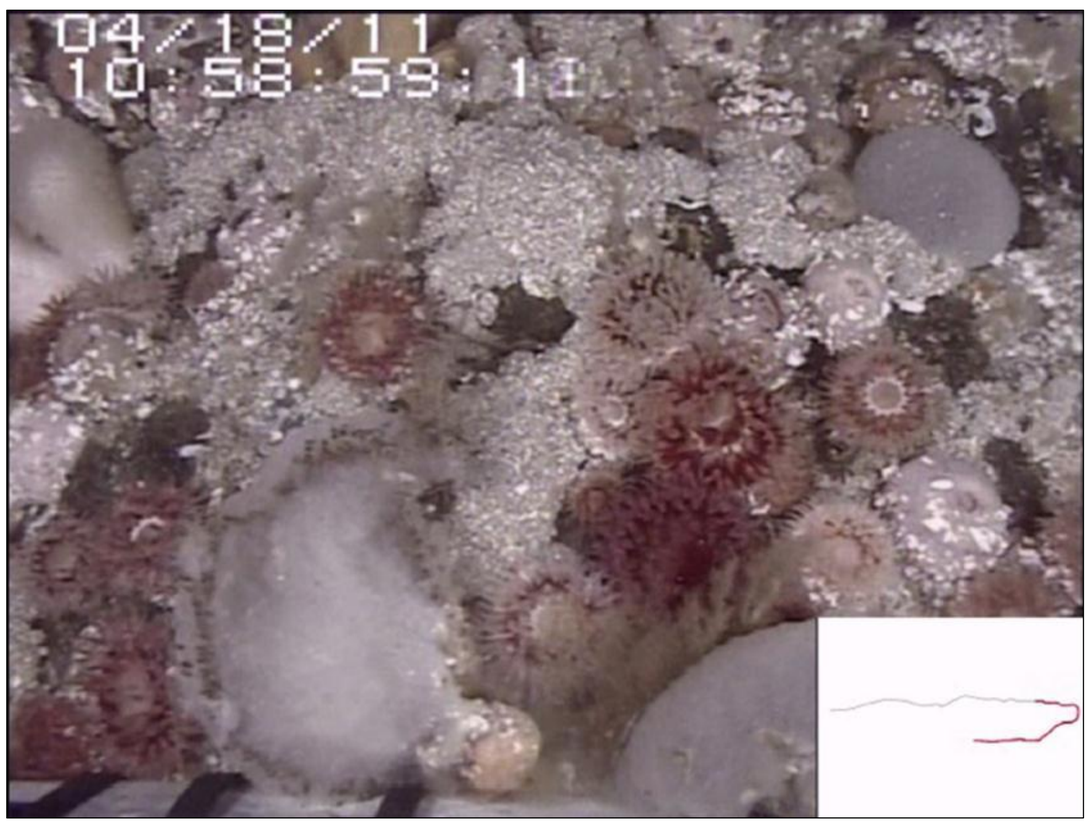
Visual surveys are carried out to assess the type and abundance of birds and marine mammals in the surrounding area shown to the left. Surveys have been carried out on and around the site on a monthly basis (depending on weather) since March 2012.

As well as visual sightings, the survey work for porpoise and dolphins is supported by hydro-acoustic data collected simultaneously using towed hydrophone equipment set up to detect the distinctive clicking noises made by these species.

Benthic (seabed) ecology

It is essential to accurately assess the ecology of the seabed in advance of any development. The geophysical surveys previously mentioned provide a good deal of data for this purpose. However, in order to confirm this information it is necessary to gather images of the seabed using cameras mounted on a Remote Operated Vehicle.

Grab samples of sediment may also be gathered during this survey.



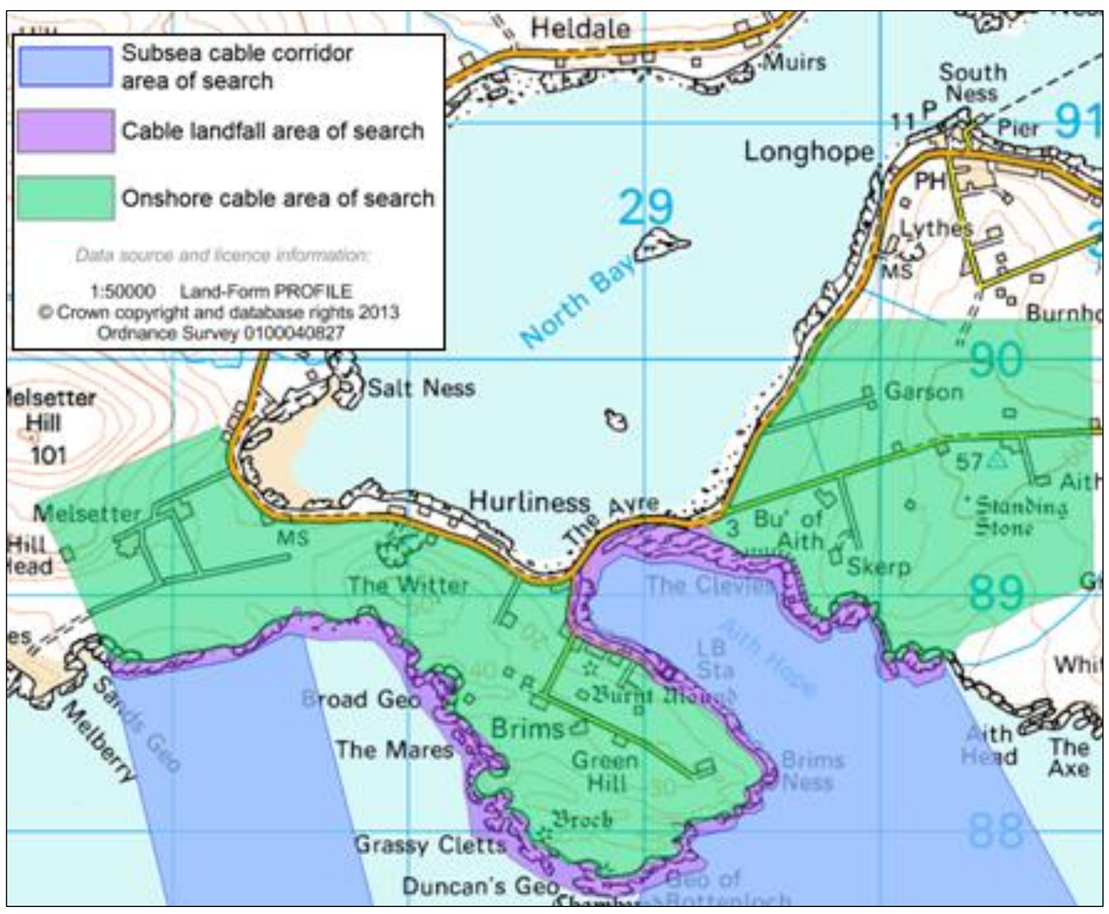
BRIMS TIDAL ARRAY

Onshore works

We have requested that the transmission system operator, National Grid Electricity Transmission (NGET), provide a new grid connection point for the Brims Tidal Array project in the Brims Headland area or to the west side of South Walls.

The onshore works required for Brims Tidal array, which we would have responsibility for, cover the subsea cable landfall and the onward route to the grid connection point.

Landfall and onshore works area of search



The plan illustrates the area of search for onshore works which we have identified. Selection of this area for further study has followed on from onshore, intertidal and offshore surveys undertaken in 2012 and 2013.

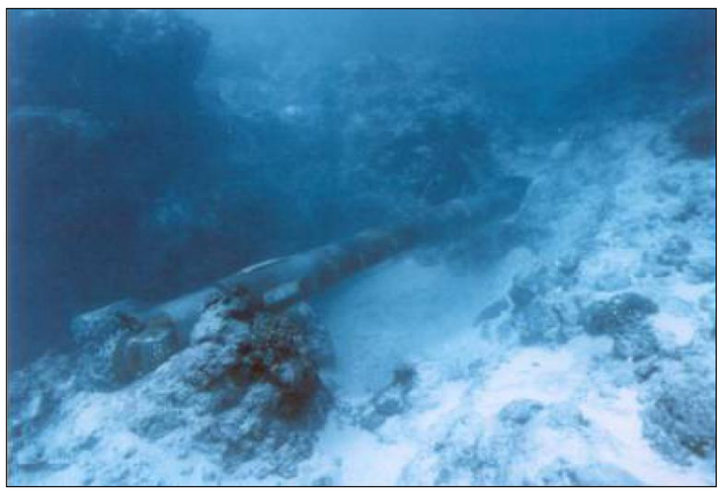
This is the area within which we have requested a point of connection to the grid, which would most likely require the transmission system owner Scottish Hydro Electric Transmission plc (SHE-T) to develop a new substation.

Between the subsea cable landfall point and a substation in this area it is most likely that the cables would be buried. The design and consenting of grid connection infrastructure including the substation and wider works would be carried out by the transmission system owner.

Area of search for onshore works

The subsea cable carrying power from the offshore site can come ashore in two main ways – by trenching where there is sufficient sediment cover, or via a horizontally directionally drilled (HDD) conduit.

The coastline in the area of search for cable landfall has very little sediment cover and it is assumed that HDD techniques would be required. HDD can typically cover distances of 1km which would allow cables to exit onto the seabed well below low water and outwith the surf zone. Access tracks would be required to bring the HDD drilling rig to the drill site.



Drilling head exit

Typical HDD rig for power cables

Power cables installed at the Greater Gabbard offshore wind farm by HDD

Substation

Example of 132/33kV indoor substation building

Although design and consenting of the substation would be carried out by SHE-T the schematic shown here provides an indication of the footprint of development which would be required to serve solely the Brims Tidal Array grid requirements.

A compound roughly 70m x 50m would be needed with building heights subject to detailed design work. Based on a 132kV substation building proposed by SHE-T for the Bay of Skaill a typical building height is around 11m.

In addition to the substation compound there would be a requirement for an access road.

BRIMS TIDAL ARRAY

Economic opportunities and challenges

The delivery of commercial scale tidal energy projects brings both economic opportunities and challenges.

Developments of this type are in their infancy and represent a step change from the single prototypes installed to date. The industry needs to mature to a level reached at present by offshore wind and projects such as Brims Tidal Array are an important stage in this process.

Prototype deployments in Orkney have shown the range of challenges which exist but have also demonstrated the economic opportunities which these can bring.

Delivering a commercial scale tidal array project

The guide below, based on our experience of other on-shore and off-shore major projects, shows some of the activities that are likely to be undertaken during the development, construction and operational stages of a commercial scale tidal energy project such as Brims Tidal Array.

The figures indicate the scale of financial spend, together with the types of organisations that might be involved in a project of up to 200MW. We seek to maximise the opportunities for local businesses either through direct contract placement or as sub-contractors to contractors from outside the local area.

Stage	Development	Construction	Operation
Typical Period	3 to 5 years	2 to 3 years (per phase)	20 to 25 years
Typical Sub-Contracted Activities	Environmental surveys Metocean surveys Geophysical surveys Geotechnical surveys Engineering design	Fabrication / manufacturing Installation Marine operations Commissioning Environmental monitoring	Routine maintenance Specialised maintenance Marine operations Environmental monitoring
Potential Total Spend	£3M – £5M	£500M – £900M	£300M – £600M
Typical Contract Values	£1k – £300k	£500k – £400M	£500k – £10M
Typical Organisations	Environmental consultants Navigational risk consultants Site investigation services Engineering consultants Vessel owners / charters Support services	Major Original Equipment Manufacturers (OEM's) / Tier 1 suppliers Harbours & ports operators Engineering consultants Environmental consultants Support services	OEM's/Tier 1 suppliers Vessel owners / charters Environmental consultants Support services Harbours & ports operators
Local businesses used so far	• Aquatera • Leask Marine • Xodus Group • JPT Workboat Charters • Roving Eye Enterprises		

Other project considerations

Technology	Grid	Ports and Harbours
Brims Tidal Array will not be built out with prototype technologies. We anticipate that by 2019 a number of leading tidal developers will have proven their devices as full scale prototypes and, in some cases, may have already installed tidal arrays at other locations. In conjunction with economies of scale, cost reduction with respect to prototypes will strongly influence the economic viability of the project.	Technology development and grid connection issues are amongst the most significant factors influencing marine project development. Whilst grid connection technology is proven and available, the cost to bring new infrastructure to Orkney and ongoing costs to use this are high and place projects in the region at a disadvantage compared with similar power generation projects in other parts of the UK.	Infrastructure developments, such as expanded ports and onshore support bases, are key links in developing a wider supply chain. Whilst manufacture of devices in Orkney for Brims Tidal Array is unlikely, the facilities associated with construction support and long term maintenance are anticipated to be local to the site. Recent investment in such facilities in Orkney by OIC, HIE and other funding partners has demonstrated a proactive approach to this challenge.

A number of economic factors will influence key investment decisions relating to the Brims Tidal Array site, not least among these will be UK government policy with regard to renewable electricity generation.

BRIMS TIDAL ARRAY

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Frequently Asked Questions

Why is the project now called Brims Tidal Array?

The area being investigated for the project has been redefined following consultation with a wide range of local stakeholders.

The site boundary has changed to include an area to the west and it was felt that the name Cantick Head did not reflect the revised boundary – and could lead to confusion.

The name was therefore changed to the Brims Tidal Array which is more relevant to the revised site boundary.

Why has the area being investigated changed?

Following the award of the original Agreement for Lease area we began a programme of offshore surveys to assess the potential of the site for development.

These surveys showed that the potential energy that could be extracted from the original area was relatively low and highly turbulent.

Further surveys were undertaken which showed that the area to the west, off Brims Ness, contained better resource.

What stage in the process is the project at?

We are currently in the process of preparing for a consent application, which is planned to be submitted late in 2014.

Surveys of marine life on the site are underway with further surveys and studies planned for 2014. These studies will provide the baseline characteristics of the site so that the potential impacts of our proposals can be assessed, mitigated and monitored post-construction.

Our Scoping document sets out how we are determining the potential effects of the project and we are seeking a wide range of opinions on the project.

When will turbines first be installed on the site?

The Brims Tidal project is currently seeking all of the necessary permissions to install turbines at the site, the process for which will take a number of years.

The project is subject to approval by the appropriate Ministers, following extensive public and stakeholder consultation.

If all of the permissions are granted, the first turbines are likely to be installed in 2019.

Will the turbines definitely be made by OpenHydro?

No, this will not necessarily be the case. The OpenHydro Open-Centre Turbine remains the preferred technology, but we are going to apply for consent to cover an envelope of turbines.

This allows us to ensure that the turbines that are finally installed are those best suited to the particular site.

This may even mean that there are a number of different turbine types across the site.

A clear envelope of what will be allowed will be set out, and we welcome comment on the OpenHydro turbine, and on other turbine types.

How do I comment on your proposals?

We want to make sure that everybody has the opportunity to view and comment on our proposals which is why we think events like these are so important.

We welcome comments on the Scoping document from all parties, and are committed to continuing engagement with local organisations and individuals.

Comments made at this early stage will help inform the development and we will hold exhibitions again before we submit our consent applications.

You will also have the opportunity to comment on the applications themselves during the statutory consultation period.

Where can I get more information?

There is more information on the project website which can be found at **www.sse.com/brims**.

The Scoping Document can be downloaded from the project website or we can send you a copy on request.

Alternatively, you can contact the Project Manager, Jennifer Geraghty

(T) 00353 1 655 6583
(E) jennifer.geraghty@sserenewables.com.

Feedback Forms - Hoy

BRIMS TIDAL ARRAY

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Comments and feedback

We hope the information provided at this exhibition has helped inform you about our proposals for the Brims Tidal Array project.

To help us record your comments about our proposals, please take a few minutes to complete this short form. Your comments will help inform the development of the project.

"I support renewable energy."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**

1	2	3	4	5

What are your views on renewable energy, including its importance to Orkney?

Please print your comments below:

Wish to see employment and benefits from the community.

"I support the Brims Tidal Array proposals."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5

What do you think about our proposed project?

Please print your comments below:

Great to get so much good communication and information.

This exhibition.

Using a 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5
X				

This exhibition was very informative and I understand what is being proposed.

Please print any comments below:

Good to have plenty of people to speak too.

Please leave your completed form with a member of the project team or post it to the address below:

Jennifer Geraghty, Project Manager, Marine Development, SSE Renewables, Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ, UK or email it to: jennifer.geraghty@sserenewables.com

By completing this form you consent to us using the information provided for the purpose of informing the development of the Brims Tidal Array project. To ensure your views can be used to inform the development of the project at this early stage in the process, we would appreciate it if comments reach us by Friday 4 October 2013. If you would like to discuss any aspect of the project further, please tick the box below and complete your contact details and a member of the project team will be in touch. Your contact details will **not** be used for marketing purposes.

About you.

Name:

Address:

Postcode:

Tel:

Email:

Please tick here if you would like a member of the project team to contact you to discuss the project further.	

Thank you for taking time to complete this form.

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BRIMS TIDAL ARRAY

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"I support renewable energy."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**

1	2	3	4	5
X				

What are your views on renewable energy, including its importance to Orkney?

Please print your comments below:

VERY IMPORTANT NATURAL RESOURCE FOR ISOLATED SMALL ISLANDS - TURNING DISADVANTAGE TO OUR BENEFIT

"I support the Brims Tidal Array proposals."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5
X				

What do you think about our proposed project?

Please print your comments below:

QUITE AMBITIOUS - HOPE IT WORKS WELL THOUGH

This exhibition.

Using a 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**	1	2	3	4	5
This exhibition was very informative and I understand what is being proposed.					

Please print any comments below:

EXCELLENT COMMUNICATIONS & ADVERTISING

DISPLAYS & INFO VERY CLEAR & WELL EXPLAINED

Please leave your completed form with a member of the project team or post it to the address below:

Jennifer Geraghty, Project Manager, Marine Development, SSE Renewables, Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ, UK or email it to: jennifer.geraghty@sserenewables.com

By completing this form you consent to us using the information provided for the purpose of informing the development of the Brims Tidal Array project. To ensure your views can be used to inform the development of the project at this early stage in the process, we would appreciate it if comments reach us by Friday 4 October 2013. If you would like to discuss any aspect of the project further, please tick the box below and complete your contact details and a member of the project team will be in touch. Your contact details will **not** be used for marketing purposes.

About you.

Name: [redacted]

Address: NORTH WALLS CENTRE

LYNESS

Postcode: KW16 3NX

Tel: [redacted]

Email: [redacted]

Please tick here if you would like a member of the project team to contact you to discuss the project further. ☐

Thank you for taking time to complete this form.

openhydro a DCNS company

SSE Renewables

BRIMS TIDAL ARRAY

openhydro a DCNS company

SSE Renewables

Comments and feedback

We hope the information provided at this exhibition has helped inform you about our proposals for the Brims Tidal Array project.

To help us record your comments about our proposals, please take a few minutes to complete this short form. Your comments will help inform the development of the project.

"I support renewable energy."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**

1	2	3	4	5
X				

What are your views on renewable energy, including its importance to Orkney?

Please print your comments below:

THE ONLY WAY FORWARD TO MEET THE GROWING ELECTRICITY DEMANDS

"I support the Brims Tidal Array proposals."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5
X				

What do you think about our proposed project?

Please print your comments below:

WOULD BE INTERESTED IN BEING KEPT INFORMED AS TIDAL ARRAY PROGRESSES.

This exhibition.

Using a 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**	1	2	3	4	5
This exhibition was very informative and I understand what is being proposed.	X				

Please print any comments below:

WELL INFORMED & VERY INTERESTING AND WELL PRESENTED

Please leave your completed form with a member of the project team or post it to the address below:

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About you.

Name: [redacted]

Address: [redacted]

STROMNESS
ORKNEY.

Postcode: KW16 3NZ.

Tel: [redacted]

Email: [redacted]

Please tick here if you would like a member of the project team to contact you to discuss the project further. ☐

Thank you for taking time to complete this form.

openhydro — a DCNS company

SSE Renewables

BRIMS TIDAL ARRAY

openhydro a DCNS company SSE Renewables

Comments and feedback

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To help us record your comments about our proposals, please take a few minutes to complete this short form. Your comments will help inform the development of the project.

"I support renewable energy."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**

1	2	3	4	5
X				

What are your views on renewable energy, including its importance to Orkney?

Please print your comments below:

THIS IS THE MOST IMPORTANT FORM OF ENERGY.
IT IS IMPORTANT FOR ORKNEY & BRITAIN AS A WHOLE.
IT IS ALSO NONINTRUSIVE.

"I support the Brims Tidal Array proposals."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5
X				

What do you think about our proposed project?

Please print your comments below:

I THINK IT IS AN EXCELLENT IDEA I WISH YOU EVERY SUCCESS.

This exhibition.

Using a 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5
X				

This exhibition was very informative and I understand what is being proposed.

Please print any comments below:

EVERYONE I SPOKE TO ANSWERED MY QUESTIONS VERY WELL. I NOW KNOW MORE ABOUT IT THAN I DID BEFORE.

Please leave your completed form with a member of the project team or post it to the address below:

Jennifer Geraghty, Project Manager, Marine Development, SSE Renewables, Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ, UK or email it to: jennifer.geraghty@sserenewables.com

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About you.

Name:

Address:

Postcode:

Tel:

Email:

Please tick here if you would like a member of the project team to contact you to discuss the project further. ☐

Thank you for taking time to complete this form.

openhydro a DCNS company

SSE Renewables

BRIMS TIDAL ARRAY

openhydro a DCNS company

SSE Renewables

Comments and feedback

We hope the information provided at this exhibition has helped inform you about our proposals for the Brims Tidal Array project.

To help us record your comments about our proposals, please take a few minutes to complete this short form. Your comments will help inform the development of the project.

"I support renewable energy."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**

1	2	3	4	5

What are your views on renewable energy, including its importance to Orkney?

Please print your comments below:

"I support the Brims Tidal Array proposals."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5

What do you think about our proposed project?

Please print your comments below:

This exhibition.

Using a 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**	1	2	3	4	5
This exhibition was very informative and I understand what is being proposed.					

Please print any comments below:

Please leave your completed form with a member of the project team or post it to the address below:

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About you.

Name: [redacted]

Address: [redacted]

Postcode: KW16 3NZ

Tel: [redacted]

Email: [redacted]

Please tick here if you would like a member of the project team to contact you to discuss the project further. ☐

Thank you for taking time to complete this form.

openhydro — a DCNS company

SSE Renewables

BRIMS TIDAL ARRAY

openhydro — a DCNS company

SSE Renewables

Comments and feedback

We hope the information provided at this exhibition has helped inform you about our proposals for the Brims Tidal Array project.

To help us record your comments about our proposals, please take a few minutes to complete this short form. Your comments will help inform the development of the project.

"I support renewable energy."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**

1	2	3	4	5
X				

What are your views on renewable energy, including its importance to Orkney?

Please print your comments below:

ANY ENERGY PRODUCED BY ENVIROMENTAL TERMS IS TO BE ENCOURAGED.

"I support the Brims Tidal Array proposals."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5
	X			

What do you think about our proposed project?

Please print your comments below:

GOOD FOR ISLAND - CHANCE OF JOBS ETC

This exhibition.

Using a 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**	1	2	3	4	5
This exhibition was very informative and I understand what is being proposed.		X			

Please print any comments below:

Please leave your completed form with a member of the project team or post it to the address below:

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About you.

Name: [redacted]

Address: The House
Longlope

Postcode: KW16 3PQ

Tel: [redacted]

Email: [redacted]

Please tick here if you would like a member of the project team to contact you to discuss the project further. ☐

Thank you for taking time to complete this form.

openhydro — a DCNS company

SSE Renewables

Feedback Forms - Stromness

BRIMS TIDAL ARRAY

openhydro a DCNS company

SSE Renewables

Comments and feedback

We hope the information provided at this exhibition has helped inform you about our proposals for the Brims Tidal Array project.

To help us record your comments about our proposals, please take a few minutes to complete this short form. Your comments will help inform the development of the project.

"I support renewable energy."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**

1	2	3	4	5
	X			

What are your views on renewable energy, including its importance to Orkney?

Please print your comments below:

"I support the Brims Tidal Array proposals."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5
X				

What do you think about our proposed project?

Please print your comments below:

This exhibition.

Using a 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**	1	2	3	4	5
This exhibition was very informative and I understand what is being proposed.	X				

Please print any comments below:

Please leave your completed form with a member of the project team or post it to the address below:

Jennifer Geraghty, Project Manager, Marine Development, SSE Renewables, Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ, UK or email it to: jennifer.geraghty@sserenewables.com

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About you.

Name: [redacted]

Address: [redacted]

Stromness

Postcode: KW16 3BA

Tel:

Email:

Please tick here if you would like a member of the project team to contact you to discuss the project further. ☐

Thank you for taking time to complete this form.

openhydro a DCNS company

SSE Renewables

BRIMS TIDAL ARRAY

openhydro a DCNS company SSE Renewables

Comments and feedback

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To help us record your comments about our proposals, please take a few minutes to complete this short form. Your comments will help inform the development of the project.

"I support renewable energy."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**

1	2	3	4	5
X				

What are your views on renewable energy, including its importance to Orkney?

Please print your comments below:

It's a very important future source of energy. Please minimise the impact (visual) on the island of Hoy.

"I support the Brims Tidal Array proposals."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5
X				

What do you think about our proposed project?

Please print your comments below:

I think it's a great project. Especially as it has now moved west. Please can you make sure that the devices / obstructions are marked with AIS signals.

This exhibition.

Using a 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**	1	2	3	4	5
This exhibition was very informative and I understand what is being proposed.	X				

Please print any comments below:

Thanks for the informative session.
V. helpful staff.

Please leave your completed form with a member of the project team or post it to the address below:

Jennifer Geraghty, Project Manager, Marine Development, SSE Renewables, Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ, UK or email it to: jennifer.geraghty@sserenewables.com

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About you.

Name: [redacted]

Address: [redacted]

STROMNESS

Postcode: KW16 3BA

Tel: [redacted]

Email:

Please tick here if you would like a member of the project team to contact you to discuss the project further.	

Thank you for taking time to complete this form.

openhydro — a DCNS company

SSE Renewables

BRIMS TIDAL ARRAY

openhydro a DCNS company

SSE Renewables

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"I support renewable energy."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**

1	2	3	4	5
X				

What are your views on renewable energy, including its importance to Orkney?

Please print your comments below:

Very Important
Future Jobs in a rural location

"I support the Brims Tidal Array proposals."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5
X				

What do you think about our proposed project?

Please print your comments below:

Good.

This exhibition.

Using a 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5
X				

This exhibition was very informative and I understand what is being proposed.

Please print any comments below:

I am much better informed now than before

Please leave your completed form with a member of the project team or post it to the address below:

Jennifer Geraghty, Project Manager, Marine Development, SSE Renewables, Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ, UK or email it to: jennifer.geraghty@sserenewables.com

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About you.

Name: [redacted]

Address: [redacted]

KIRKWALL

Postcode: KW15 1SZ

Tel:

Email:

Please tick here if you would like a member of the project team to contact you to discuss the project further. ☐

Thank you for taking time to complete this form.

openhydro a DCNS company

SSE Renewables

BRIMS TIDAL ARRAY

openhydro — a DCNS company

SSE Renewables

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"I support renewable energy."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**

				
X 1	2	3	4	5

What are your views on renewable energy, including its importance to Orkney?

Please print your comments below:

"I support the Brims Tidal Array proposals."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree).**

				
X 1	2	3	4	5

What do you think about our proposed project?

Please print your comments below:

This exhibition.

Using a 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5
X				

This exhibition was very informative and I understand what is being proposed.

Please print any comments below:

Please leave your completed form with a member of the project team or post it to the address below:

Jennifer Geraghty, Project Manager, Marine Development, SSE Renewables, Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ, UK or email it to: jennifer.geraghty@sserenewables.com

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About you.

Name: [redacted]

Address: [redacted]

Basingstoke

Postcode: RG22 4DT

Tel: [redacted]

Email:

Please tick here if you would like a member of the project team to contact you to discuss the project further. ☐

Thank you for taking time to complete this form.

openhydro — a DCNS company

SSE Renewables

BRIMS TIDAL ARRAY

openhydro — a DCNS company

SSE Renewables

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"I support renewable energy."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**

1	2	3	4	5
X				

What are your views on renewable energy, including its importance to Orkney?

Please print your comments below:

I strongly support its development as fossil fuels must have a finite life.
Also its the alternative to continuing rise in atmospheric pollution/climate change.
With regard to Orkney, we've had more than 3 decades of benefits through our oil base, but this is declining, so here's the possibility of many more decades of employment/income etc

"I support the Brims Tidal Array proposals."

Using a 'X' please rate the statement above between **1 (strongly agree)** and **5 (strongly disagree)**.

1	2	3	4	5
X				

What do you think about our proposed project?

Please print your comments below:

The tide is always with us – until the earth stops rotating! Wind and wave are good generators when the weather is cooperating, but can't be other than weather dependent.

This exhibition.

Using a 'X' please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5

This exhibition was very informative and I understand what is being proposed.

Please print any comments below:

Please leave your completed form with a member of the project team or post it to the address below:

Jennifer Geraghty, Project Manager, Marine Development, SSE Renewables, Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ, UK or email it to: jennifer.geraghty@sserenewables.com

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About you.

Name:

Address:

Postcode:

Tel:

Email:

Please tick here if you would like a member of the project team to contact you to discuss the project further. ☐

Thank you for taking time to complete this form.

openhydro a DCNS company

SSE Renewables

Appendix 2 Public Advertisement

BRIMS
TIDAL ARRAY

MARINE (SCOTLAND) ACT 2010

THE MARINE LICENSING (PRE-APPLICATION CONSULTATION) (SCOTLAND) REGULATIONS 2013

Notice is hereby given that Brims Tidal Array Ltd (joint venture between OpenHydro and SSE Renewables, SC373159, registered office 1 George Square, Glasgow, G2 1AL) plans to hold a pre-application consultation event regarding the Brims Tidal Array project located off the south coast of the Orkney island of Hoy (58º45.612'N, 003º14.43'W).

The project, formerly known as Cantick Head, will be developed in a number of phases over approximately four years and will have a total potential electricity generation capacity of 200MW.

We are planning to submit a planning consent application for the project this year. We are inviting members of the public and other interested parties to a drop-in information session about the project so we can provide further information and understand their views on the project. Members of the project team will be on hand at the events to answer questions.

Date	Time	Location
22 July 2015	1600-2000	Kirkwall Town Hall
23 July 2015	1300-2000	North Walls Community School, Hoy

Further information relating to the proposals can be found by visiting **www.openhydro.com/brims**

Persons wishing to provide comments on the proposed Brims Tidal Array can do so no later than 7 days after the event by writing to the prospective applicant at: Michael Lewis, Project Manager, OpenHydro, 1 Custom House Plaza, Harbourmaster Place, IFSC, Dublin 1, or via email at **michael.lewis@openhydro.com**

Comments should be dated and should clearly state the name (in block capitals) and full return email or postal address of those making comment. Comments made to the prospective applicant are not representations to the Scottish Ministers. If Brims Tidal Array Ltd submits an application for a marine license to Scottish Ministers, an opportunity will be given for representations to be made to the Scottish Ministers on the application.

openhydro™
a DCNS company

sse

Appendix 3 Stakeholder List

Organisation	Contact
Marine Scotland - Licensing Operations Team (MS-LOT)	Adrian Tait
Marine Scotland - Licensing Operations Team (MS-LOT)	Alan Keir
UK Department of Energy and Climate Change (DECC)	John Swift
Orkney Island Council	Margaret Gillon
Scottish Natural Heritage (SNH)	Erica Knott
Scottish Natural Heritage (SNH)	Chris Eastham
Marine Coastguard Agency (MCA)	Nick Salter
Northern Lighthouse Board (NLB)	Steven Driver
Scottish Environment Protection Agency (SEPA)	Chris Mathews
Marine Scotland - Science	Ian Davies
OIC Marine Services	General
The Crown Estate (TCE)	Mark McKean
Scottish Water	Sandy McConnachie
Health and Safety Executive (HSE)	General
Royal Yachting Association (RYA)	General
MOD	Clifford Guy
Orkney Fisheries Association	Fiona Matheson
Scottish Fishermens Federation (SFF)	General
RSPB	Sarah Sanky
Historic Scotland	William Kidd
Historic Scotland	Alan Rutherford
Scottish Salmon Producers Organisation	General
Association of Scottish Shellfish Growers	Walter Speirs
British Trout Association	General
Fishermans Association Ltd	Roddy McColl
Marine Conservation Society	Melissa Moore
Marine Safety Forum	Secretary
Scottish Renewables Forum	Lindsay Roberts
Scottish Canoe Association	General
BT (Network Radio Protection)	Dale Aitkenhead
Chamber of Shipping	Richard Nevinson
Civil Aviation Authority	Mark Smailes
Inshore Fisheries Groups	Bill Ellis
Joint Nature Conservation Committee (JNCC)	Victoria Appleyard
Joint Radio Company	General
National Air Traffic Services (NATS)	General
National Trust for Scotland	General
UK Marine Management Organisation	General

County Archaeologist	Julie Gibson
Resident - Kenny Budge	Kenny Budge
Fisherman - Sandy Livesy	Sandy Livsey
Fisherman - Magnus Norquay	Magnus Norquay
Fisherman - John Dreever	John Dreever
Hoy Development Trust	Tom Champagne
Hoy Development Trust	Jayne Traynor
Hoy Development Trust	General
North District Fisheries Board	Roddy McColl
Orkney Archaeological Trust/ Orkney Archaeology Society	General
Orkney Business Ring	Erik Firth
Orkney Creel Fishermen's Assoc	Robert Smith
Orkney Dive Boat Operators Association	Andy Cuthbertson
Orkney Fisherman's Society Ltd	Stewart Crichton
Orkney Islands Sea Angling Association	Gerry Wilson
Orkney Renewable Energy Forum (OREF)	Peter Tipler
Orkney Sailing Club	General
Orkney Sea Kayaking Club	Antge Haut
Orkney Shellfish	General
Orkney Tourism Group	Samantha Hill
Orkney Trout Fishing Association	Malcolm Russell
OrkneyZeroWaste	Sue Struthers
Ramblers Association	General
Sail Orkney	Brian Kynoch
Scottish Pelagic Fishermen's Association	Ian Gatt
Scottish Salmon Producers Association	General
Scottish Sea Angling Conservation Network	Ian Burrett
Scottish White Fish Producers Association	Archie Miller
Whale & Dolphin Conservation Society	Sarah Dolman
European Marine Energy Centre (EMEC)	General
Explorer Fast Sea Charters	Steve Vile
Flotta Community Council	Diana Fraser
Friends of the Earth (Scotland)	General
Graemsay, Hoy & Walls Community Council	General
Highlands and Islands Airport Ltd	General
Highlands and Islands Enterprise (HIE)	Ken Grant
MP	Alistair Carmichael
MSP	Liam McArthur
Councillor - ward stromness and south isles	John Eccles

Councillor - ward stromness and south isles	Rob Crichton
Councillor - ward stromness and south isles	James Stockan
Councillor - ward stromness and south isles	Maurice Davidson
Northlink Orkney and Shetland Ferries Ltd	General
Orcadian Wildlife	Steve Sankey
Orkney Island Holidays	Paul Hollinrake
Orkney Marinas	General
Orkney Research Centre for Archaeology (ORCA)	Nick Card
Orkney Seal Rescue	Ross Flett
RNLI	Paul Daly
Sport Scotland	General
Sula Diving	Bobby Forbes
UK Cable Protection Committee	General
UK Oil and Gas	General
Visit Orkney	Barbara Foulkes
Visit Scotland	Riddell Graham
Wildabout Orkney Tours	Michael Hartley
World Wildlife Fund (Scotland)	Sam Gardener

Appendix 4 Exhibition Display Boards

Project Developers

BRIMS TIDAL ARRAY

openhydro a DCNS company sse

sse

SSE is one of the UK's leading offshore renewable energy developers. Their core purpose is to provide the energy that people need in a reliable and sustainable way

* 13 GW of generation capacity in the UK
* 3.2 GW of renewable energy generation capacity
* 6.6 GW of renewable development projects
* Developing marine energy, hydro, offshore wind, onshore wind

openhydro™ a DCNS company

OpenHydro designs, manufactures and installs tidal energy systems. They have global experience in developing tidal projects

* First to deploy a turbine in the European Marine Energy Centre (EMEC), Orkney, 2006
* First to export to the grid from EMEC, 2008
* First to deploy (1MW) in Bay of Fundy, Canada, 2009
* First to deploy at commercial scale (2MW), France, 2011
* Two commercial tidal arrays to be installed in France and Canada during 2015

Project History

BRIMS TIDAL ARRAY

openhydro a DCNS company

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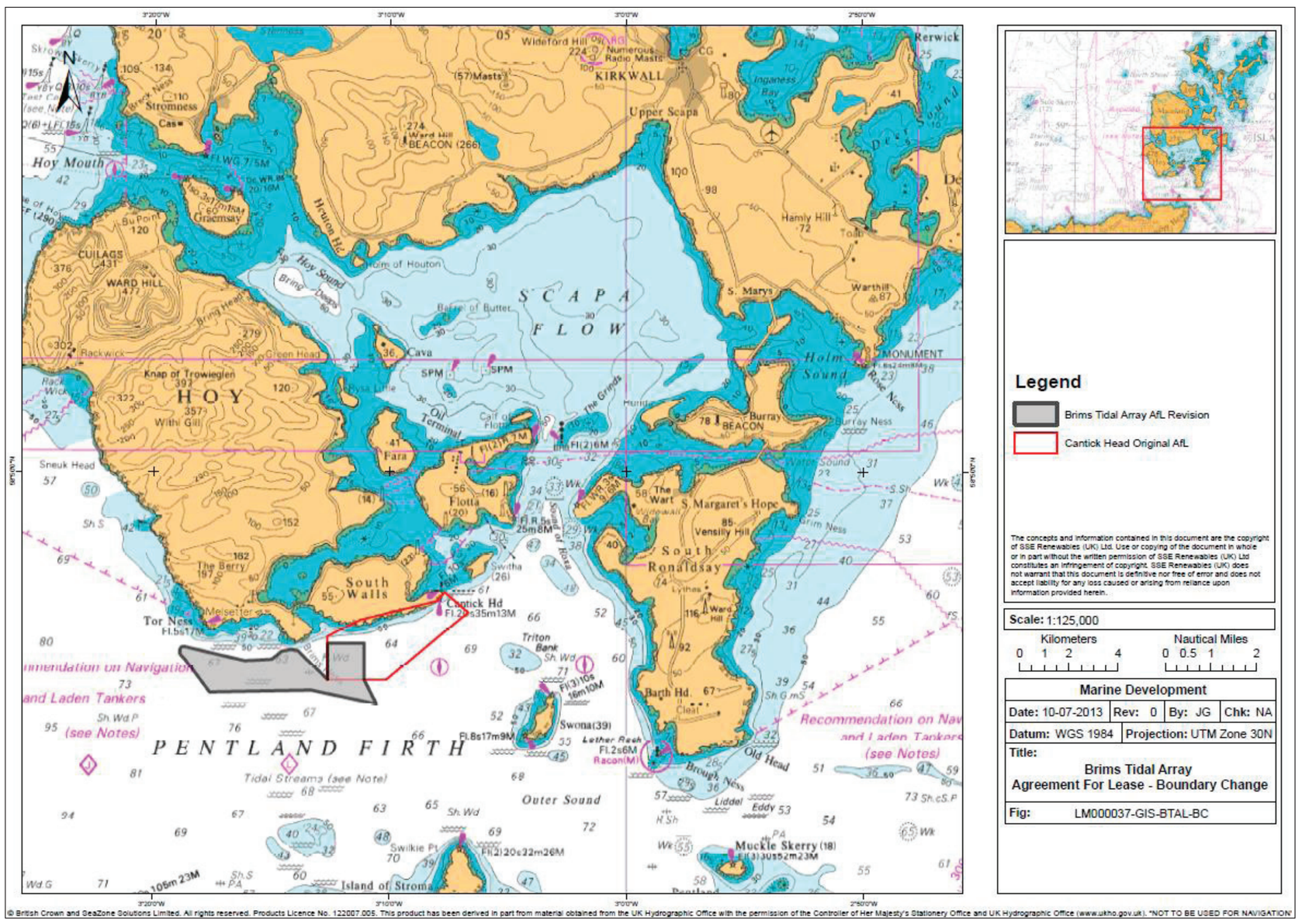
2008: Crown Estate open Pentland Firth and Orkney Waters leasing round

2010: Agreement for Lease awarded to Cantick Head Tidal Development Ltd for 200 MW tidal energy array off south coast of South Walls

2013: Project renamed Brims Tidal Array following feedback from site surveys and stakeholder consultation. Location of AFL moved further to the west

2015: Following an extensive Environmental Impact Assessment process, an application for consent to build the Brims Tidal Array project will be submitted later in 2015



Project Overview

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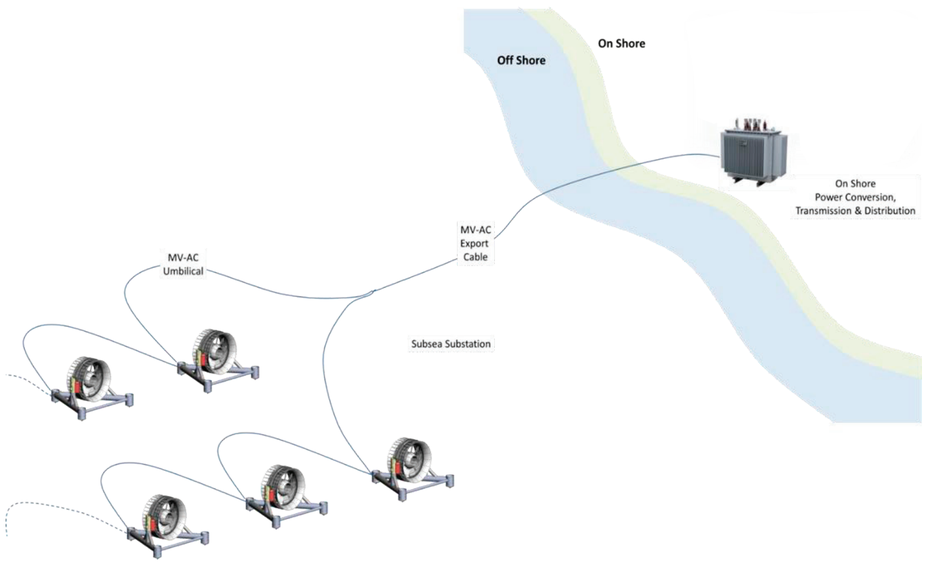
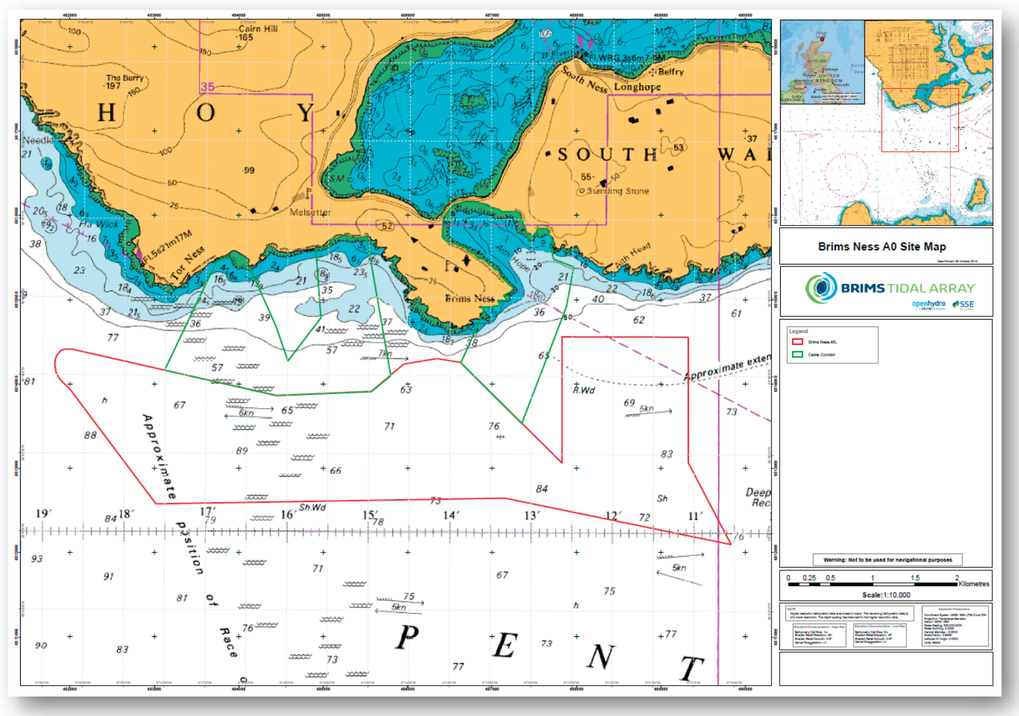
Project Components:



* Offshore components include the tidal turbine array, sub-sea inter array and export cables and cable landfall
* The onshore cable route, onshore substation, and onward connection to the National Grid will be subject to a separate onshore planning application

Project Location:



* The project is located to the south of the island of Hoy
* It is anticipated that an array of up to 200 MW, consisting of up to 200 tidal turbines, could be installed

Phase 1 Timelines:

2011-2014
- Site investigation and environmental surveys

2014 - 2015
- Environmental impact assessment

2015
- Planning and marine licence applications submitted

2019
- Construction commences

2020
- Operation

Power Export:

* 3 possible cable landfall sites identified
* New onshore grid infrastructure being designed & developed by the grid owner, SHE-T

Development Process

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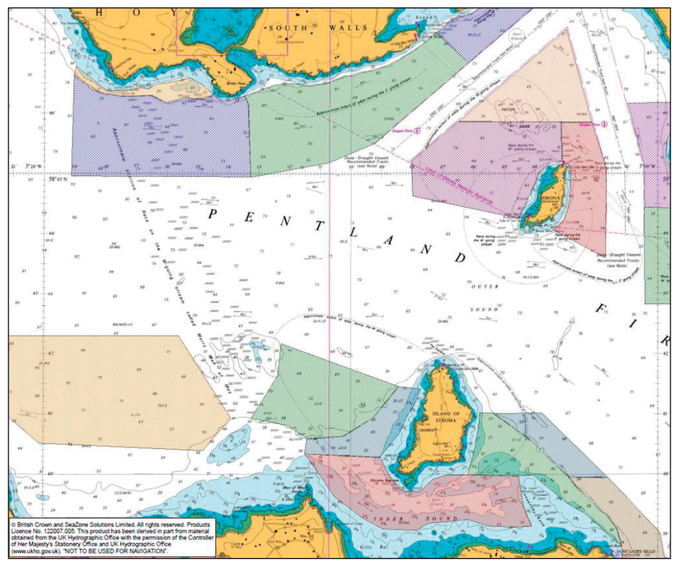
Site Selection:

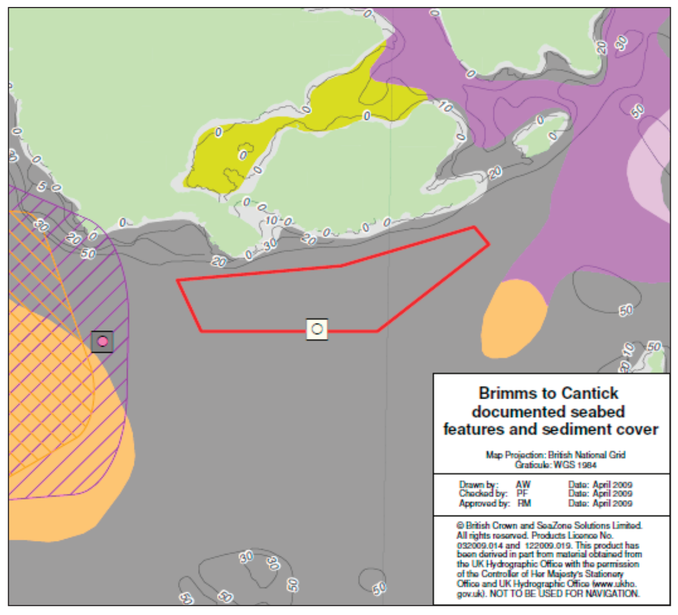
* Regional assessment in 2008
* Cantick Head site, off South Walls, selected
* More detailed assessment carried out, resulting in a shift of the site boundary to the west



2008 – Regional Assessment

Site Investigations:

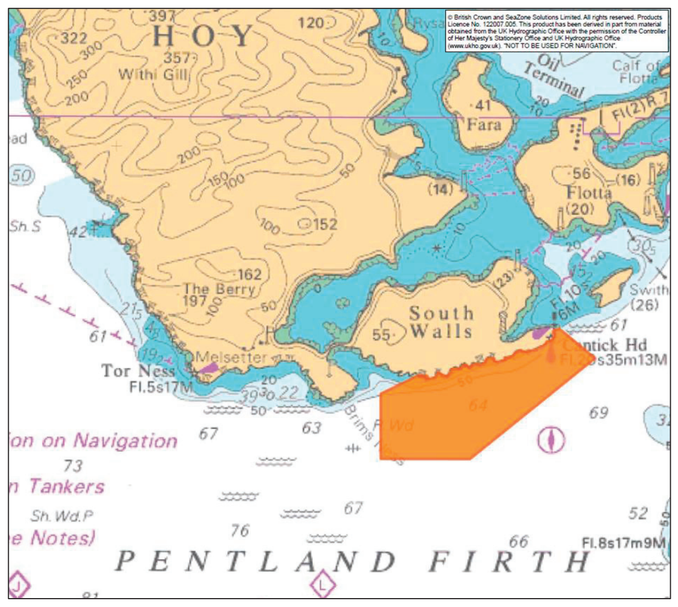
* Surveys to measure currents across the site were carried out through 2010 – 2013
* A survey mapping out the seabed across the site was carried out during 2012 and 2013
* Navigational surveys were carried out during 2013 and 2014 to assess the marine traffic transiting the site
* Environmental surveys were carried out to support the Environmental Impact Assessment (EIA) process



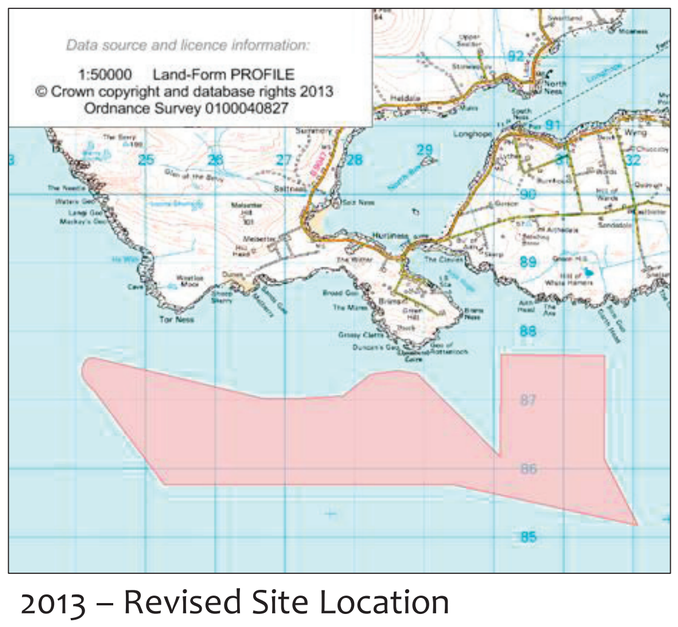
2009 – Site Assessment

Project Consent Application:

* With all environmental survey work now complete, an Environmental Statement is being prepared to support the relevant applications for consent
* An application for offshore elements of the project will be submitted to Marine Scotland later in 2015
* Stakeholders will have the opportunity to make formal representations to Marine Scotland about the project during the determination period



2010 – Original Site Location



2013 – Revised Site Location

Turbine Technology

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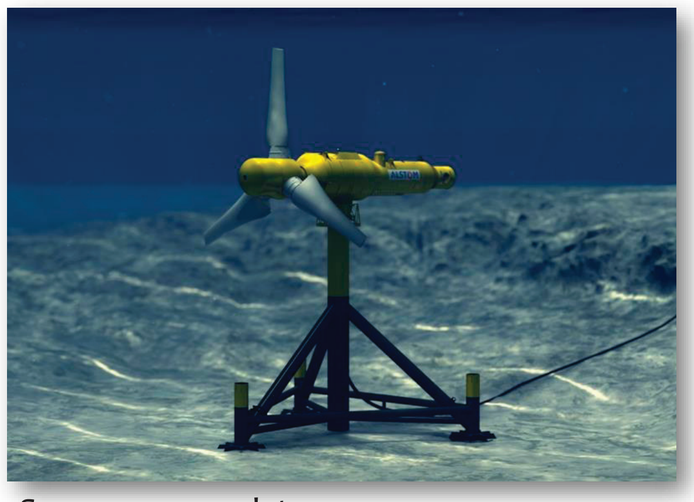
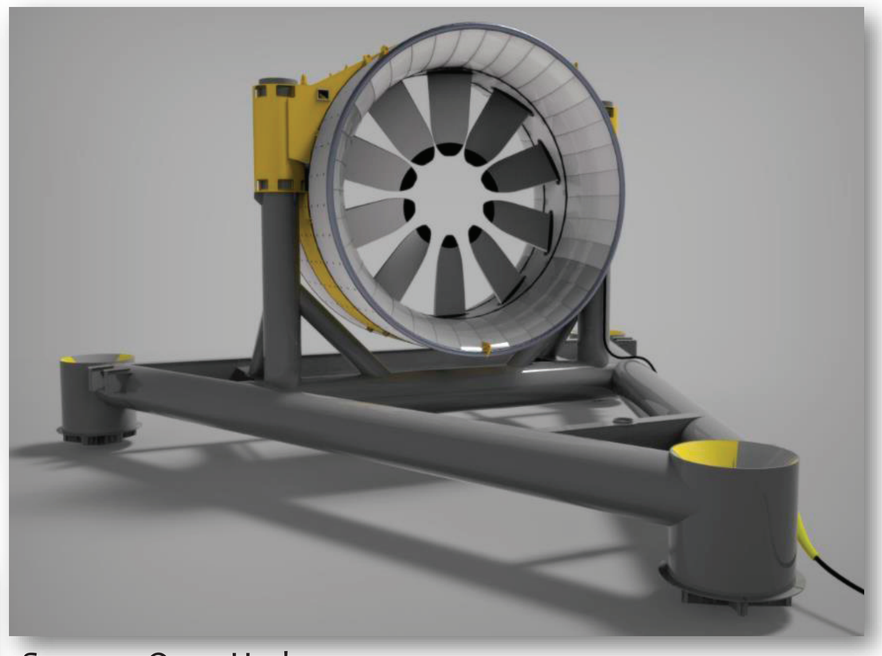
Turbine Design:

* Turbines can broadly be classed as shrouded or unshrouded
* Unshrouded turbines are similar to wind turbines – but blades can be much shorter due to the higher density of water vs air
* Shrouded turbines retain the blades within a duct for improved efficiency

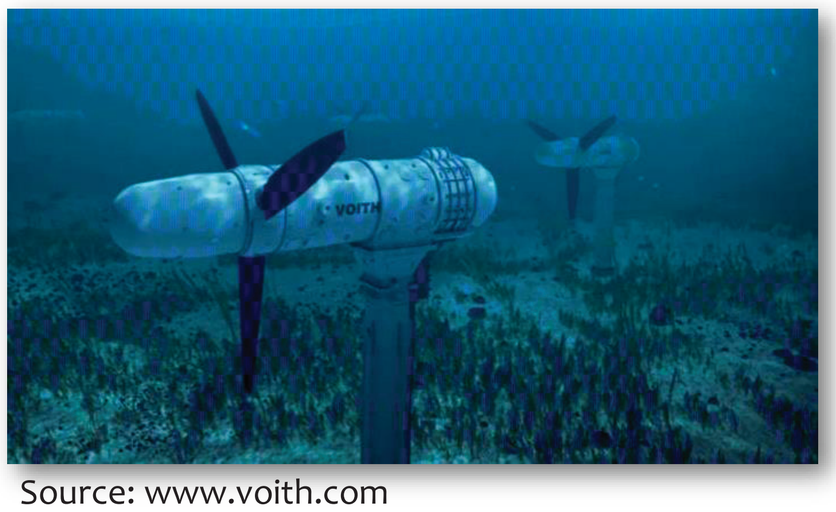
Source: www.atlantisresourcesltd.com



Source: www.alstom.com



Source: OpenHydro



Source: www.voith.com

Technology Envelope:

* The preferred technology for the site is the OpenHydro Open-Centre Turbine
* The environmental and planning process allows for consideration of alternative technologies
* All turbines under consideration are seabed-mounted, with a minimum clearance to the surface of 20 metres
* Foundation types vary, and include gravity bases, pinned structures, and monopiles

Technology Development:

* A number of technology companies have tested devices in EMEC and in other locations
* OpenHydro plan to install the world's first arrays of two grid connected commercial-scale turbines later this year in Canada and France
* Turbine capacity is up to 2 MW

Site Surveys

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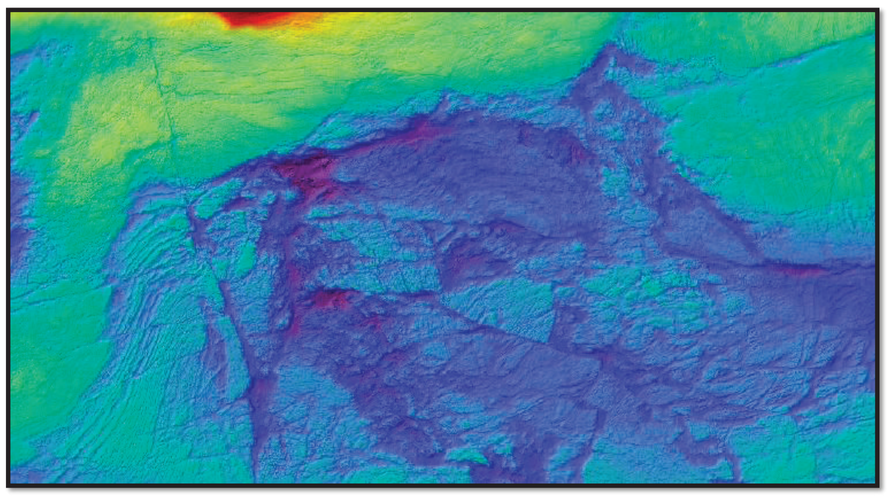
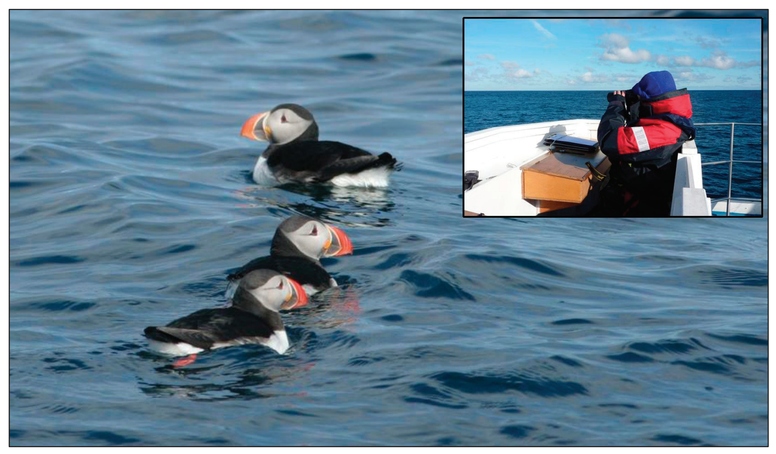
Geophysical surveys:

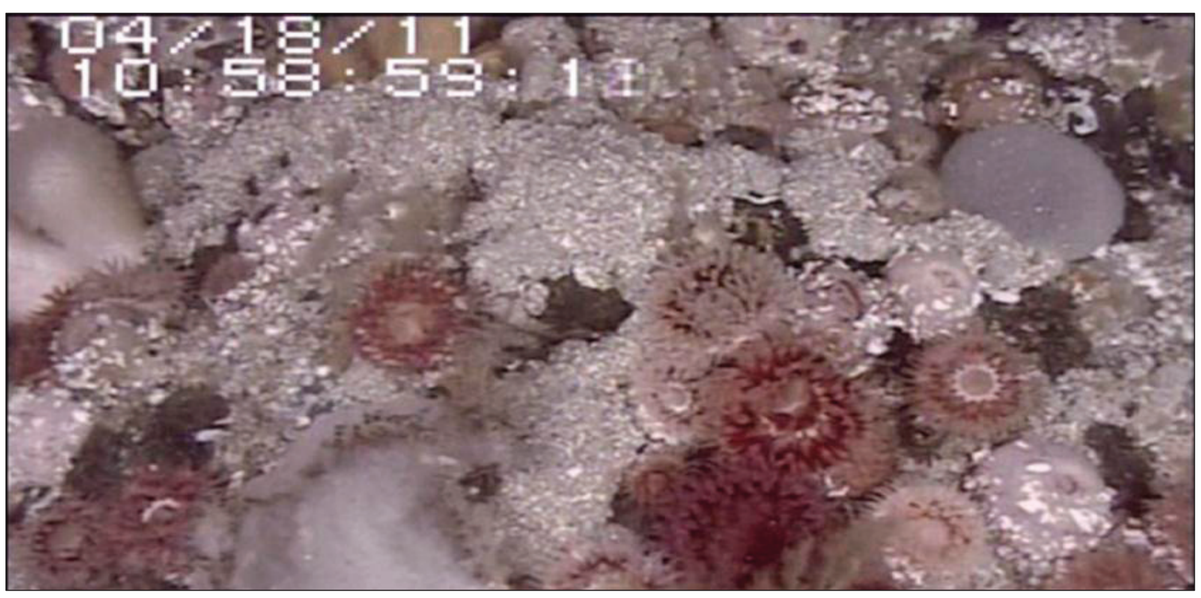


* Surveys carried out to assess the nature of the seabed
* Side-scan sonar used to identify seabed features
* Magnetometer used to identify metallic objects on the seabed
* Multi-beam echo sounders used to provide detailed information about the water depth across the site

Birds & marine mammals:



* Monthly visual surveys were carried out for two years from March 2012 (weather permitting)
* Type, number, and behaviour (loafing, feeding etc.) assessed visually
* Dolphin and porpoise surveys supported by hydro-acoustic data – assessed using towed hydrophones
* Common guillemot most observed species during survey – minor / negligible impact predicted



Benthic (seabed) ecology:

* Seabed images and grab samples gathered using a Remote Operated Vehicle (ROV)
* Accurate assessment of seabed ecology
* Supported by results from geophysical survey

Tidal Energy Resource

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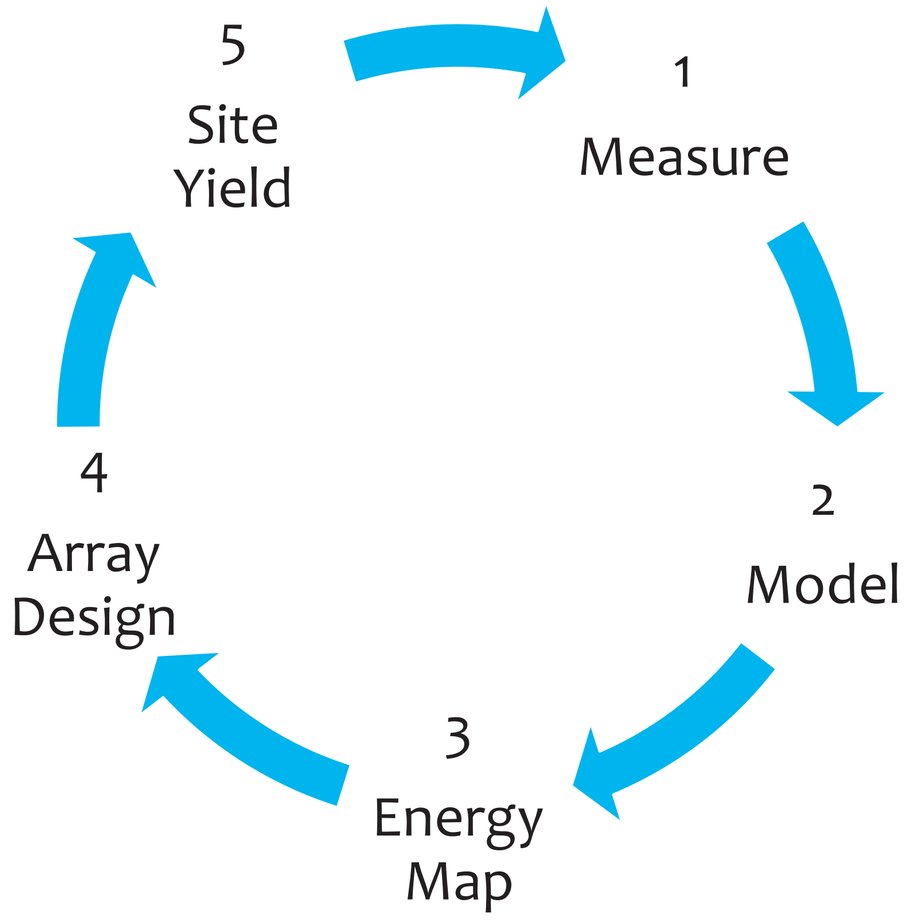
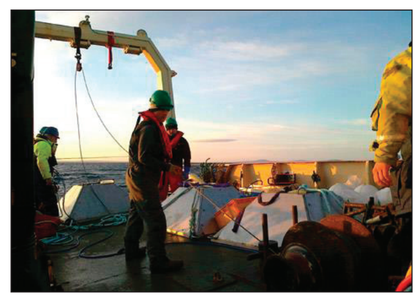
Tidal Energy Resource:

* Understanding the nature of the tidal flows on site is essential to allow an accurate assessment of the electrical energy that can be produced by the project
* We must also understand the site to ensure that the turbines and other equipment are built to withstand the loads placed upon them by the tide and waves



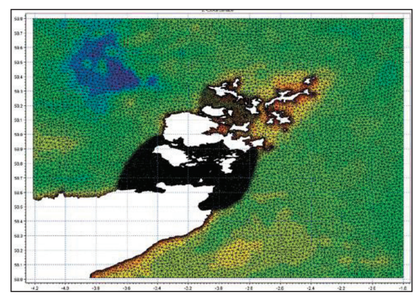
Measure:

* Using Acoustic Doppler Current Profilers
* Measure speed and direction of current over a period of time



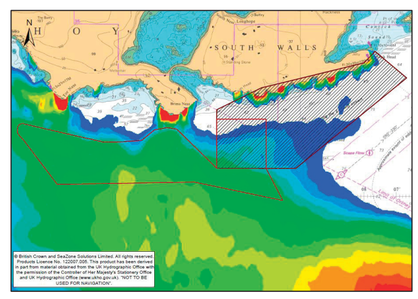
Model:

* Use a computer model to look at characteristics across the whole site
* Data validated by ADCP measurements



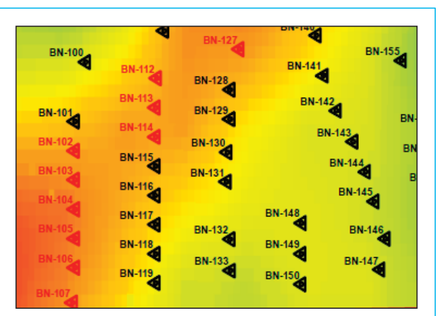
Energy Map:

* The model is used to create an energy map
* This displays the raw marine energy across the site



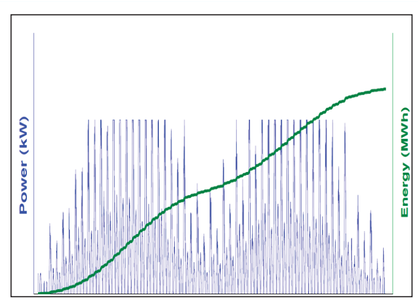
Array Design:

* An indicative layout of turbines across the site has been prepared
* The array design will also depend on other constraints



Site Yield:

* Combining the energy map, array design, and technology data we can accurately predict the annual energy generation for the project



Onshore Works

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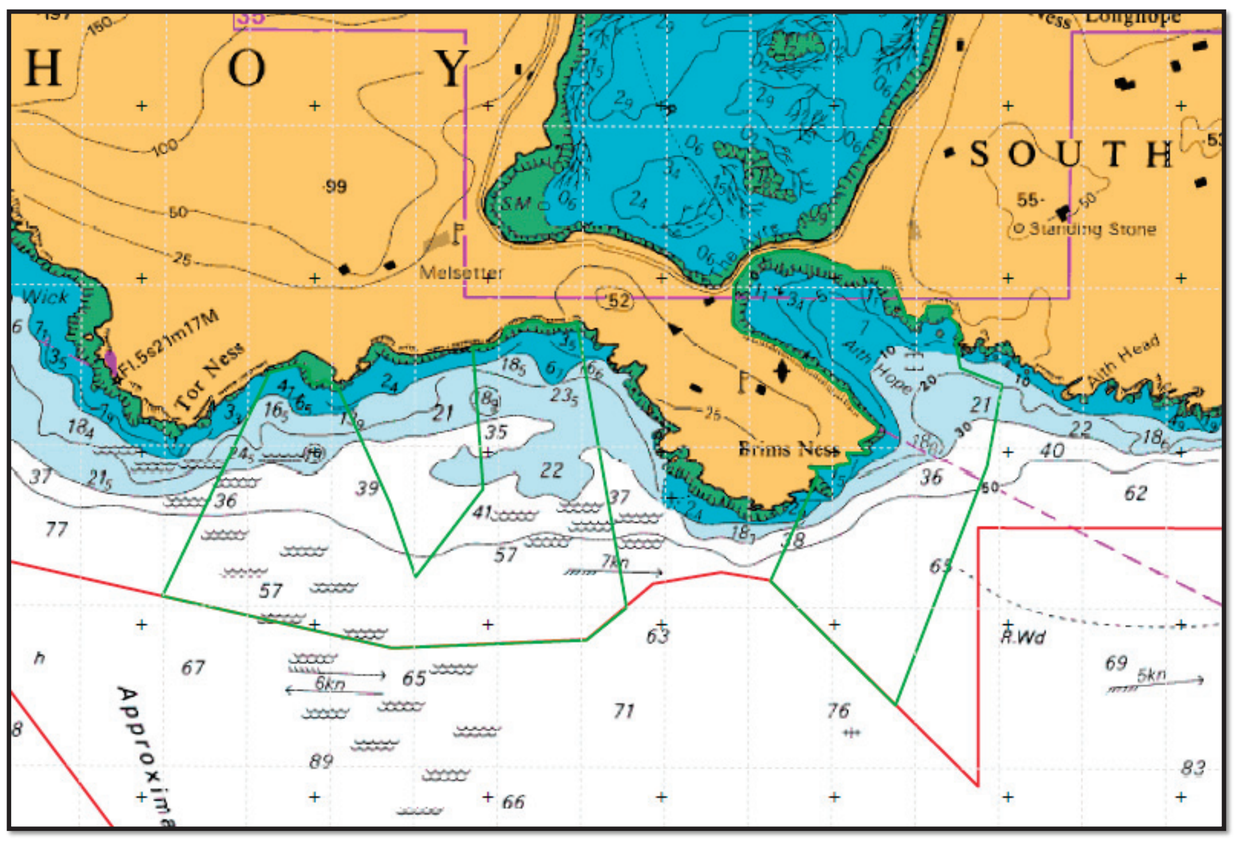
Planning Application:

* The onshore part of the project will be subject to a separate planning application
* Information will be provided in the offshore planning application for context
* The planning application will follow once the onshore design is confirmed



Typical HDD rig used for the installation of underground power cables

Cable Landfall:

* The location for the cable landfall will depend on where the grid owner (SHE-T) chooses to place the grid connection point
* The cable will be buried at the landfall location, either by trenching (where sediment exists) or via a horizontally directionally drilled (HDD) conduit

Other Infrastructure:

* A cable from the landfall to the onshore substation will be required – this cable will be buried along the route
* The onshore substation will be provided by SHE-T, and will be subject to a separate consenting process
* Laydown areas may be required during the construction phase of the substation; these areas will be returned to their original state following construction
* Temporary access roads may have to be built or road improvements made to support the transport of equipment

Economic Opportunities

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Opportunities:

* The significant potential for marine renewable energy to contribute to the economy throughout Scotland and the UK has been well recognised
* Opportunities for employment in Orkney and Scotland exist in the Development, Construction and Operation phases of the project
* We will seek to maximise opportunities for local businesses throughout the project
* Already in the Development phase, over £600k has been spent in the local Orkney economy

aquatera environmental services and products

ORCA Orkney Research Centre for Archaeology

LEASK MARINE

xodus GROUP

ROVING EYE ENTERPRISES

Stage	Development	Construction	Operation
Typical Period	3 to 5 years	2 to 3 years (per phase)	20 to 25 years
Typical Sub-Contracted Activities	Environmental surveys Metocean surveys Geophysical surveys Geotechnical surveys Engineering design	Fabrication / manufacturing Installation Marine operations Commissioning Environmental monitoring	Routine maintenance Specialised maintenance Marine operations Environmental monitoring
Typical Organisations	Environmental consultants Navigational risk consultants Site investigation services Engineering consultants Vessel owners / charters Support services	Major Original Equipment Manufacturers (OEM's) / Tier 1 suppliers Harbours & ports operators Engineering consultants Environmental consultants Support services	OEM's/Tier 1 suppliers Vessel owners / charters Environmental consultants Support services Harbours & ports operators
Local businesses used so far	• Aquatera • Leask Marine • Xodus Group • JPT Workboat Charters • Roving Eye Enterprises • Orkney Research Centre for Archaeology (ORCA)		

Appendix 5 Feedback Forms - Hoy

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YOUR COMMENTS

We hope that the information provided at this exhibition has helped inform you about our proposals for the Brims Tidal Array project.

To help us record your comments about our proposals, please take a few minutes to complete this short questionnaire. Your comments will help inform the development of the project.

Renewable Energy

Please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5

I want to see the development of renewable energy on Orkney

Please print any comments below:

KEITH DOBNEY → Support hold formal meetings / presentations with community organisations (Development Trust etc.)

The Brims Tidal Array Proposals

Please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**

1	2	3	4	5

I want to see the Brims Tidal Array project go ahead

Please print any comments below:

This exhibition

Please rate the statement below between **1 (strongly agree)** and **5 (strongly disagree).**	1	2	3	4	5
This exhibition was very informative and I now understand what is being proposed.					

Please print any comments below:

Please leave your completed form with a member of staff or post it to the address below, to arrive no later than 14th August 2015.

Michael Lewis, Project Manager, OpenHydro, 1 Custom House Plaza, Harbourmaster Place, IFSC, Dublin 2, Ireland or e-mail your completed form or comments to: michael.lewis@openhydro.com

By completing this form you consent to us using the information provided for the purpose of informing the development of the Brims Tidal Array project. If you would like to discuss any aspect of the project further, please tick the box below and complete your contact details and a member of the project team will be in touch. Your contact details will **not** be used for marketing purposes.

About you

Name:

Address:

Postcode:

Tel:

Email:

Please tick here if you would like a member of the project team to contact you to discuss the project further. ☐

Thank you for taking the time to complete this form.

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BRIMS TIDAL ARRAY

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			✓	

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				✓

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About you

Name: [redacted]

Address: [redacted]

Hoy

Orkney

Postcode: KW16 3NJ

Tel:

Email: [redacted]

Please tick here if you would like a member of the project team to contact you to discuss the project further. ☐

Thank you for taking the time to complete this form.

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