



SeaGeneration (Kyle Rhea) Ltd

# The Kyle Rhea Tidal Stream Array

Volume I

Non-Technical Summary





## CONTENTS

		Page
1	INTRODUCTION	1
1.1	Background	1
1.2	SeaGeneration (Kyle Rhea) Ltd	1
1.3	Project details	1
1.4	Environmental Impact Assessment	5
1.5	Need for the Project	6
1.6	Site selection	6
1.7	Project objectives	7
2	POTENTIAL IMPACTS	7
2.1	Marine physical environment and coastal processes	7
2.2	Hydrology, geology and surface water	8
2.3	Marine water quality	8
2.4	Terrestrial and intertidal ecology	8
2.5	Ornithology	8
2.6	Marine mammals and basking shark	9
2.7	Seabed (benthic) ecology	9
2.8	Fish and shellfish	10
2.9	Commercial fisheries	10
2.10	Seascape and landscape	10
2.11	Shipping and navigation	11
2.12	Traffic and transport	11
2.13	Archaeology	11
2.14	Onshore noise	12
2.15	Socioeconomics	12
2.16	Tourism and recreation	12
2.17	Military activity	12
2.18	Cumulative impacts	13
3	CONSENTING PROCESS - WHAT HAPPENS NEXT?	13

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## 1 INTRODUCTION

### 1.1 Background

This document provides a Non-Technical Summary (NTS) of the Environmental Statement (ES) produced in support of Sea Generation (Kyle Rhea) Limited's consent application for the Kyle Rhea Tidal Stream Array ('the Project'). The ES is the formal report of an Environmental Impact Assessment (EIA) undertaken by impartial environmental consultants Royal Haskoning and subcontracted specialists, to consider the potential impacts during installation, operation and eventual decommissioning of the Project.

In 2011 Sea Generation (Kyle Rhea) Ltd obtained an Agreement for Lease of the seabed within Kyle Rhea from The Crown Estate, subject to obtaining consent from Marine Scotland.

### 1.2 Sea Generation (Kyle Rhea) Ltd

Marine Current Turbines Ltd (MCT), a Siemens business, has established the company Sea Generation (Kyle Rhea) Ltd to develop the Project.

MCT has a proven track record and is at the forefront of developing power systems capable of exploiting clean energy from tidal currents. In 2003 MCT successfully installed and operated 'SeaFlow' a 300Kilowatts (kW) single rotor (with 2 rotor blades) experimental test system deployed off the North Devon coast near Lynmouth. In 2008 MCT installed a 1.2Megawatt (MW) twin rotor device, known as 'SeaGen' in Strangford Lough, Northern Ireland. SeaGen is the world's first commercial scale tidal device and has been consistently supplying electricity to the national grid since its installation.

Information on the Strangford Lough tidal device, including the final report from a 3 year Environmental Monitoring Programme (EMP) focussing on marine mammals, benthic ecology and birds can be found at <http://www.seageneration.co.uk>.

### 1.3 Project details

The tidal array development will be located in Kyle Rhea, a narrow sea strait in between the Isle of Skye and the mainland of Scotland. The array of four 2MW SeaGen devices will be located to the south of Kyle Rhea, approximately 150m north of the MV Glenachulish ferry route (see Figure 1). Site investigations have shown this area has the optimum tidal resource.

The array will have the capacity to provide 8MW, enough energy to power over 3750 homes.

The Project comprises the following elements:

- 4 twin rotor "SeaGen devices" with an output of up to 2MW per device.
- Inter-array cabling joining the devices in a daisy chain formation.
- One export cable (33 kV cable, directionally drilled underground).
- An onshore substation.

The onshore elements of the Project will be on the Isle of Skye either in the Forestry Commission (FC) land or on an area of flat grass land near Kylerhea village (see Figure 1).

The SeaGen device houses the transformer equipment required to convert the electricity generated, to a voltage that is compatible with the national grid. Therefore the onshore substation will be a switch house, containing the equipment necessary to control and manage the connection of the tidal generators to grid.

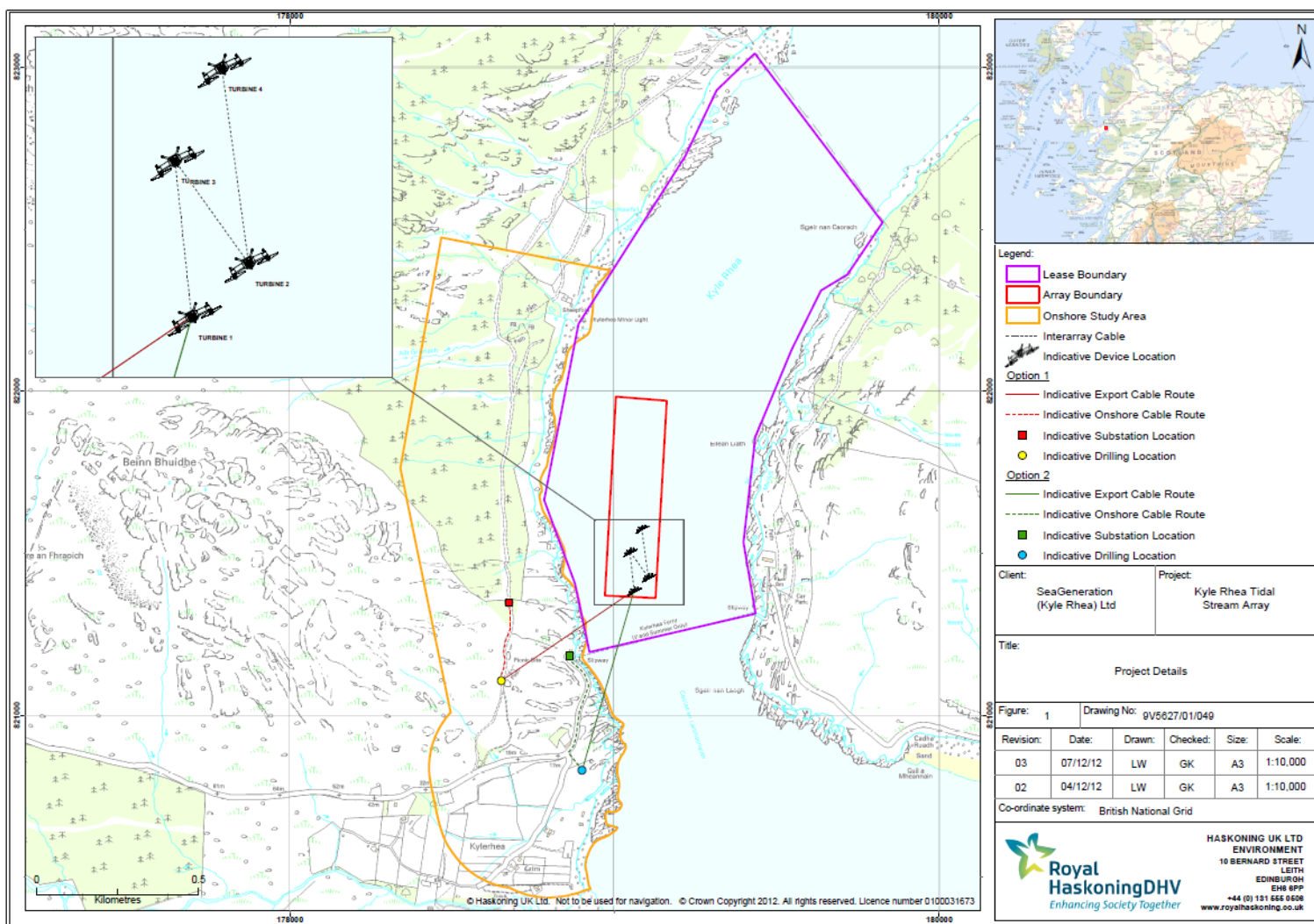


Figure 1: Project details

Each SeaGen device incorporates a tower which is visible above the surface. A cross beam is mounted on the tower with rotors at each end (i.e. two rotors per device) with three rotor blades on each rotor (see Figure 2, note the devices are most likely to be yellow). Lift legs on the tower allow the cross beam to be raised out of the water without the need to bring in large lifting vessels for all scheduled and *ad hoc* maintenance. This reduces disruption and allows work to be carried out without the delay of sourcing a lifting vessel, and allowing the array to be operational as much time as possible.

The rotors move at around 11 rotations per minute (RPM), giving a tip speed of around 12 meters per second (m/s). The rotors have a diameter of 20m and a clearance of approximately 3m above the seabed. The depth below the water surface to the tip of the rotor ranges from 9m at Highest Astronomical Tide and 3m at Lowest Astronomical Tide (3.8m below Mean Low Water Spring). This clearance allows small vessels to pass directly over the rotors safely.

A Navigational Risk Assessment (NRA) completed as part of the EIA proposes lighting and markings on and around the array to maintain a safe shipping channel through Kyle Rhea.



Figure 2: SeaGen device



## 1.4 Environmental Impact Assessment

### 1.4.1 Legislative context

The ES is submitted as part of the consent application for the Project, as required under European, UK and Scottish legislation. The EIA is designed by working closely with the Regulator, Marine Scotland and their advisor, Scottish Natural Heritage (SNH) to ensure it will provide the information needed for an informed consenting decision to be made.

The Project will require consent under the following legislation:

- Section 36 of the Electricity Act, 1989;
- A Marine Licence under Section 20 of the Marine (Scotland) Act 2010
- Planning permission under the Town and Country Planning (Scotland) Act 1997

Under the EC Directive on the conservation of natural habitats and of wild fauna and flora (also known as the 'Habitats Directive') it is necessary for a Habitats Regulation Appraisal (HRA) to be carried out for a development which has potential to impact a European designated site, including Special Areas of Conservation (SAC) or Special Protection Areas (SPA). An HRA is necessary for the Project due to its situation within the Lochs Duich Long and Alsh Reefs SAC and close proximity to the Kinloch and Kyleakin Hills SAC. The appraisal will be carried out by the lead regulator, Marine Scotland, advised by SNH. A document of supporting information has been provided to accompany the application for the Project and to inform the Habitats Regulation Appraisal (HRA) process.

### 1.4.2 EIA process

#### Consultation and scoping

The EIA for the Project began in 2009, with collation of available information to identify the likely impacts and data gaps, to define which specific surveys and other studies would be required to inform the EIA. This process is known as Scoping. A request for a Scoping Opinion was submitted to Marine Scotland in 2010 and circulated with key stakeholders to gain early feedback on the approach to EIA. In addition, consultation has been ongoing with Marine Scotland and SNH to discuss the progress of the EIA and supporting studies, ensuring that it meets their requirements.

Public consultation has also been on-going with two local public exhibitions held prior to the consent application and further exhibitions planned at key milestones throughout the progress of the Project. A public liaison group was established in November 2011 with representatives of a number of local groups meeting quarterly to discuss progress and any issues raised by the general public.

#### Data collection

In order to assess the likely impacts of the Project it is important to understand the baseline environmental conditions at the site. Sea Generation (Kyle Rhea) Ltd has invested in a wide range of surveys which have been carried out by specialists, including:

- Seabed (benthic) ecology;
- Otters;
- Intertidal ecology;
- Terrestrial ecology;
- Marine mammals;
- Ornithology;
- Shipping;
- Archaeology; and
- Landscape/ seascape.

Studies for other receptors such as socio-economics, tourism, commercial fisheries, and the military have been undertaken through desk based literature review as well as consultation with relevant experts and stakeholders.

## Impact assessment

Baseline information has been considered alongside experience gained from previous tidal energy projects, in particular the SeaGen device in Strangford Lough, as well as wider marine renewable projects and other studies. Each impact assessment follows a procedure which considers the magnitude of the impact, based on extent and longevity, as well as the sensitivity of the receptor. The impact is then given a significance rating of major, moderate, minor or negligible. Where possible, mitigation is suggested to reduce the potential impact, particularly if the impact is predicted to be of major or moderate significance. The assessment is ultimately informed by the judgement of impartial experts in each field.

## **1.5 Need for the Project**

The UK Government and devolved Scottish Government have committed to an 80% reduction in the emission of greenhouse gases by 2050. To contribute to this the Scottish Government has set an ambitious target of generating the equivalent of 100% of Scotland's electricity demand from renewable sources by 2020, compared with the UK wide target of 15%. This is in line with the European Commission's binding legislation, aimed at increasing the average renewable share across the EU to 20% by 2020. The Kyle Rhea Tidal Stream Array and similar Renewable energy projects will contribute to these targets.

Tidal power is a clean and predictable source of renewable energy that is not dependent upon finite reserves of fossil fuels. Developments of small tidal arrays are an essential stepping stone towards a large scale tidal industry.

In addition to contributing to energy targets the 2010 Marine Energy Action Plan (DECC 2010<sup>1</sup>) highlights that the development of a strong marine renewables sector in the UK will secure energy supply, create jobs and develop skills which can be utilised by a wider global market.

## **1.6 Site selection**

A number of sites were considered for the development of a small array of SeaGen devices. The Scottish Government's strong commitment to the development of renewable energy sources offers a strong incentive to developers to consider projects in Scotland.

The Kyle Rhea site offers a high energy tidal environment, with shelter from waves and allowing safe access for installation as well as operation and maintenance (O&M) activities. Kyle Rhea provides an ideal stepping stone to demonstrate and develop SeaGen technology before deploying in more challenging, exposed environments such as Pentland Firth in the north east of Scotland.

An assessment of the resource in Kyle Rhea has led to the refinement of an array area to the south of the Kyle, in which the devices will be located (see Figure 1). This is further constrained by the need to maintain a safe navigation route through Kyle Rhea.

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<sup>1</sup> DECC (2010). Marine Energy Action Plan 2010. London: HM Government.

The onshore elements of the Project are on the Isle of Skye side of the Kyle due to the need to connect to the national grid, which is most accessible on Skye. Two options for the onshore works are currently being considered. These include:

Option 1 - directional drilling of the export cable from the Forestry Commission car park.

- install a substation in a new building close to the Forestry Commission public toilets.

Option 2 - directional drilling from an area of flat grassland close to Kyle Rhea village.

- install a substation in an existing building close to the ferry slipway.

Both options have advantages and disadvantages with Option 1 being more discrete within the Forestry Commission land but requiring road transfer of materials and equipment which will be brought in by sea to the ferry slipway. Given the nature of the road from the ferry slipway this may not be feasible. Option 2 would allow all materials and equipment to be brought ashore at an area of pebble beach next to the site for directional drilling.

## 1.7 Project objectives

The key objective of the Project is the commercial generation of electricity from tidal energy. As previously discussed the Project will contribute to government targets for greenhouse gas reductions.

At the time of writing, there are no commercial tidal arrays installed anywhere in the world. This project is an important step towards the development of a large scale commercial industry, harnessing clean, predictable energy from tidal currents.

## 2 POTENTIAL IMPACTS

This section describes the potential impacts of the Project on various receptors.

### 2.1 Marine physical environment and coastal processes

The Project has the potential to impact upon three elements of the marine physical environment and coastal processes, namely:

- Hydrodynamic regime (water flow);
- Sediments and sedimentary processes; and
- Geological and geomorphological formations.

Potential changes to the hydrodynamic regime are expected to be relatively localised around the device foundations and the cables that link the devices. This has been informed by recent data obtained from Strangford Lough following the installation of the SeaGen device.

The potential for the foundations and cabling to alter sedimentary processes are restricted through the absence of mobile sediment as the seabed is mostly bedrock and cobbles.

The geological and coastal geomorphology of the study area is controlled by the exposed bedrock of the Lewisian Gneiss.

Changes to the hydrodynamic and sedimentary regimes are unlikely to affect the geological and geomorphological formations.

## 2.2 Hydrology, geology and surface water

The potential impacts on the onshore hydrology, geology and surface water relate to the removal of rock by directional drilling of the export cable, changes to surface water or groundwater flow patterns, potential releases of polluting materials, and the potential for flooding.

Due to the small scale of the proposed onshore works and the planned adherence to best practice on site, these impacts are expected to be of minor or negligible significance.

## 2.3 Marine water quality

Marine water bodies within the vicinity of the Project are all considered by the Scottish Environment Protection Agency (SEPA) to be in good condition. The anticipated impact of any potential pollution arising from the installation, operation and decommissioning of the Project is considered to be of minor significance due to the limited potential for contaminants to enter the marine environment. The navigational risk assessment will outline mitigation to reduce the risk of vessel collision and reduce the risk of diesel spills. In the unlikely event that pollution enters the environment, the volume is likely to be low and the high energy site is expected to disperse and dilute contaminants rapidly.

When the installation vessels are confirmed a risk assessment will be conducted to minimise the risk of transporting marine non-native (alien) species to the site.

## 2.4 Terrestrial and intertidal ecology

The main potential impacts on terrestrial ecology relate to otters, due to their high activity within the vicinity of the Project and their high sensitivity as a European Protected Species (EPS) as well as a designated feature of the nearby Kinloch and Kyleakin Hills SAC.

Otters' resting places and holts are predominantly located along the coast. The use of directional drilling will avoid the coastal area by going underground and therefore potential impacts during the export cable installation are reduced.

The onshore elements of the Project have been located outside the Kinloch and Kyleakin SAC and Site of Special Scientific Interest (SSSI), to minimise adverse impacts to qualifying features.

Where hard standing is required for the onshore elements of the Project (e.g. a platform for directional drilling) there will be a loss of a small footprint of wet heath, acid grassland and scrub. Where possible the ground will be reinstated after installation. All other disturbance impacts will be short term and temporary during the period of installation.

## 2.5 Ornithology

Surveys conducted from shore-based positions on Skye, with good visibility of Kyle Rhea were used gather information on what bird species use the area. The surveys were conducted from July 2011 to July 2012 and recorded both birds that are on the sea surface and those flying through the Kyle Rhea study area. The collection of this data is on-going and is planned to continue until July 2013 when two full years of data will have been collected to inform site characterisation.

21 species of sea or water bird were found to use the survey area regularly between July 2011 and July 2012 and a number of other, less common species use the area at irregular intervals. Most of the birds were recorded flying through the site and during the breeding season the site does not appear to be important to any species in terms of finding food. The

site is however important for cormorant, shag and gossander who find food there during the non-breeding season (autumn and winter).

A male white tailed sea eagle regularly uses the area to hunt. He was observed taking fish thrown out by fishing vessels and does not appear to be disturbed by human activity.

The ornithological impacts caused by the Project are not predicted to be significant due to only short term potential disturbance during the installation phase and the small scale of the operational array, in the context of the bird populations and wider available foraging area.

## **2.6 Marine mammals and basking shark**

A variety of sources were used to characterise the existing environment in relation to marine mammals and basking shark.

Available data from the detailed SeaGen EMP in Strangford Lough as well as other project examples were used to carry out the impact assessment. Kyle Rhea has similarities with Strangford Lough, with harbour and grey seals both present, although harbour seals are present in the greatest numbers.

Kyle Rhea is mostly used by seals, with cetaceans (dolphin, porpoise and whales) occasionally transiting through. The number of basking sharks recorded in Kyle Rhea is relatively low compared to other sites in the Inner Hebrides. Kyle Rhea is not believed to be an important breeding area for marine mammals and is not designated for conservation importance in relation to marine mammals.

The key potential impact is collision with the devices during operation as well as potential collision/interaction with construction vessels, particularly for seals if vessels are using ducted propellers. Data from the Strangford EMP suggests seals exhibit small scale behavioural changes in the presence of the turbine which indicates potential to avoid the device. Underwater noise modelling for an array in Kyle Rhea indicates that marine mammals may avoid an area around the array but are unlikely to avoid Kyle Rhea as a whole. The Project site has a high level of background noise due to; tidal flow, the local ferry and other vessels using the strait, which marine mammals using this site are accustomed to. Consequently noise levels associated with installation and operational noise are not expected to cause any significant displacement or barrier effects for marine mammals or basking sharks.

Harbour and grey seal populations are stable in the study area and their populations are considered relatively robust.

Sea Generation (Kyle Rhea) Ltd will work with Marine Scotland and SNH to establish an appropriate mitigation and monitoring programme with the aim of reducing potential impacts on marine mammals.

## **2.7 Seabed (benthic) ecology**

The benthic ecology in Kyle Rhea is very important, with the tidal narrows forming part of the Lochs Duich, Long and Alsh Reefs SAC. Surveys using a towed video camera to collect footage of the seabed, as well as sonar to map the bathymetry and substrates of the seabed were used to supplement the existing knowledge of the benthic species and habitats within Kyle Rhea. These studies provide a high level of detail on the distribution of habitats and key species, increasing confidence in the accuracy of the impact assessment.

Impacts were predicted to be of highest significance during installation as a result of drilling the device foundations and anchoring of vessels. A small proportion (less than 0.0005%) of the seabed in Kyle Rhea will be taken by the Project.



Less significant potential impacts are predicted for operation and maintenance. Colonisation of the foundations of each device is expected to provide a larger surface area than that removed during installation. In Strangford the foundations are now colonised by many of the species found on the seabed in the immediate area. Kyle Rhea has been found to have similar benthic ecology to Strangford Lough and is afforded the same level of protection as a designated SAC therefore the Strangford EMP provides very useful experience to inform the Kyle Rhea EIA.

## **2.8 Fish and shellfish**

Many data sets were used to define the wide range of fish and shellfish species potentially present within the Kyle Rhea development site. Due to the extreme nature of the site i.e. rapid tidal currents, and the rocky seabed, the site is unlikely to be used by fish and shellfish for spawning or nursery grounds.

Impacts on fish and shellfish are predicted to occur during installation as a result of drilling into the bedrock. Drilling activity will create noise which has potential to cause mild behavioural changes in some fish species, however, this impact will be localised and temporary.

It is not anticipated that the array will form a significant barrier to fish species migrating through the area. Collision risk with the rotors has been considered, particularly for salmon and this is predicted to be of minor significance.

## **2.9 Commercial fisheries**

Consultation with local fishermen has not identified commercial fishing activities in the array area. Fishing activities are not extensive within the wider area (including the rest of Kyle Rhea as well as the waters to the north and south, i.e. Loch Alsh and the Sound of Sleat).

The key potential impact of the Project in relation to commercial fishing is from restricted transit through Kyle Rhea to fishing grounds on either side of the kyle however it is highly unlikely that there will be a closure of Kyle Rhea during any phase of the Project. The approach to maintaining a shipping lane through Kyle Rhea is discussed in Section 2.11.

## **2.10 Seascape and landscape**

Field surveys were undertaken to gain an appreciation of the character of the seascape and landscape around Kyle Rhea and what its relationship with the Project may be.

Computer modelling was used to work out from which parts of the surrounding landscape the Project would be visible. Once these areas had been established it was possible to assess what the potential impacts may be for various groups of people who use the area.

The Project is in a sensitive and relatively remote area and it will result in the introduction of a new and distinctive feature within Kyle Rhea. However, the impacts of the Project will be relatively localised given the elevated sides of Kyle Rhea which limit the view of the array from further afield, including the majority of Kyle Rhea village. The array will be located within the array boundary shown in Figure 1. A likely layout for the array is also provided in Figure 1. The design and layout of the array is likely to be largely constrained by the requirements for maritime navigation, tidal resource and structural engineering. Photomontage B (at the end of this non-technical summary) shows a current view of the site from the otter hide (view point location is shown in Image A). Photomontages C and D indicate what the site will look like with the array in place.

The design of the onshore elements of the Project is aimed at reducing the visual impact by planning to reinstate the area used for temporary directional drilling works as well as either using an existing building for the substation or designing a new building in the Forestry Commission land to be in keeping with the existing public toilet which is in a wood cabin style.

## **2.11 Shipping and navigation**

Surveys were used to find out how Kyle Rhea is currently used by vessels. The surveys identified that an average of five or six vessels a day use the site in winter and 23 in summer. Kyle Rhea is used (mainly by smaller vessels) to avoid the longer and more exposed route around the west coast of Skye and for this reason it is popular with recreation vessels such as sailing boats

Meetings and other forms of communication with people and organisations that use or have an interest in Kyle Rhea were conducted to find out what the possible impacts of the Project may be. A hazard workshop was then held to find out what level of risks may be posed by the Project.

The impact assessment concluded that the main impacts that the Project may cause are associated with reducing the area in which vessels can manoeuvre within Kyle Rhea, increasing the risk of possible collision with the devices and construction vessels. A navigable channel to the east of the array has been identified and assessed as part of the Navigational Risk Assessment (NRA) for the Project. Should consent be granted for the project appropriate marking of the channel will have to be agreed with the appropriate authorities in order for the Project to proceed, this may include changes to the leading light, and buoys marking the eastern shore. Additional measures have been proposed to reduce the risk of collision including a navigation management system that would seek to limit passage to single transits at a time. The proposed measures are considered in the NRA and deemed to reduce the risks to an acceptable level.

## **2.12 Traffic and transport**

The majority of materials and equipment will be brought to the Project site by sea therefore minimising disruption to road traffic. The main potential impact upon traffic will be localised disruption and congestion to the roads around Kylerhea village from traffic to and from the Project onshore works. As discussed in Section 1.6, two options for onshore works are considered. For option 1, equipment and materials may be brought in to the ferry slipway and transported a short distance by road to the Forestry Commission land. The other option avoids the need to transport equipment and materials by road, bringing them in directly to the shore from which works can take place. In the second option only a small number of personnel vehicles will be required.

The residents of Kylerhea village may be affected as well as tourists and Forestry Commission personnel. This disruption will be limited to the installation period, in particular during mobilisation and demobilisation, either side of the onshore works.

## **2.13 Archaeology**

A desk based study, site visit and interpretation of data collected on the seabed has been used to work out what archaeology is present in both the onshore and offshore environments and what potential there is for, as yet undiscovered archaeology to be present.

It was concluded that some offshore areas of the Project site have potential to contain as yet unidentified archaeological features; therefore impacts to archaeology could occur during the Project installation. A number of ways of avoiding these impacts have been suggested, which focus on positioning the devices to avoid possible archaeological features. If this is put into practise the offshore impacts to Archaeology will be small or may not occur at all.

A number of onshore archaeological features have been identified including listed buildings and the kyle rhea slipway. There is also potential for, as yet undiscovered archaeology to be damaged or destroyed by the Project. There are a number of ways in which these impacts can be reduced and if these measures are taken, the impacts to onshore archaeology will be small.

## **2.14 Onshore noise**

Potential sources of noise from the Project include noise generated by onshore vehicles, marine vessels, drilling during installation, and from the SeaGen devices during operation. Directional drilling of the export cable is predicted to be the key source of noise disturbance to local residents. Once the surface is broken, noise during directional drilling noise will largely be produced by a generator, with typical noise levels temporarily increasing at nearby properties. The predicted maximum period of drilling for the onshore works is 75 days, with operation 12 hours a day, for 7 days a week. For option 1 the nearest dwelling (dwelling north of Kyle rhea) is within 274 metres of the proposed HDD works. For option 2 the nearest NSP (a dwelling within Kyle rhea, NSP 5) is approximately 20m away from the proposed HDD works, as a result the impact of noise is predicted to be worse for option 2. The ES provides suggested mitigation measures aimed at reducing the disturbance to local residents.

No significant noise is predicted during operation.

## **2.15 Socioeconomics**

The Project will provide socio-economic benefits to the local community. A small number of local jobs may be created, particularly to support on-going operation and maintenance for the life of the Project. In addition an increase in spend on local services is predicted, particularly during the installation phase from the influx of personnel to the area. There will also be on-going spend on local services associated with operation and maintenance. These predicted benefits must also be considered in relation to potential impacts upon existing economies such as tourism and recreation (discussed in Section 2.16) and commercial fisheries (Section 2.9).

## **2.16 Tourism and recreation**

Tourism and recreation represent a major sector in the economy of the local area. It is the aim of Sea Generation (Kyle Rhea) Ltd that the tidal array should add to the local economy, without discouraging existing tourism. In Strangford Lough the significant levels of publicity generated by SeaGen have provided the area with a great deal of visitor interest. Information boards and a scaled down model of the device were provided to the local tourist information centre to encourage and inform the visitors

## **2.17 Military activity**

Through consultation with the Defence Estates it was identified that there are no specific concerns related to military activities as a result of the Project. The Project is located outside



designated military practice and exercise areas and submarines are not expected to transit the site. During installation there is potential for minor disruption to military vessels due to the increase in installation vessels, however, with appropriate communication these activities can co-exist. On-going communication with the Defence Estates with regards to scheduling of works at the Project site, will prevent potentially conflicting activities. In addition, the implementation of the safety procedures identified for shipping activities through the Navigational Risk Assessment will reduce the significance of any impacts.

## **2.18 Cumulative impacts**

At the time of writing there are no foreseeable future projects likely to act cumulatively with the predicted impacts associated with the Project. A nearby tidal energy site had previously been considered by another developer. However those plans have not been progressed and no site agreement for lease has been obtained from The Crown Estate and therefore this has been discounted. Any existing projects/ developments form part of the baseline conditions upon which the impacts of the Project are assessed.

## **3 CONSENTING PROCESS - WHAT HAPPENS NEXT?**

An application was submitted to Marine Scotland in February 2013. Marine Scotland aims to make a recommendation with regards to the consenting of the Project within approximately 9 months; however, this may be extended depending on the complexity of the consenting process.

A local public exhibition will be arranged during the review period to provide further information and answer questions related to the Project, the EIA process and the contents of the ES.





The Environmental Statement is available in full on request at a cost of £15 for an electronic copy and £250 for a hard copy. Hard copies are also available in the Skye mobile library and at the Kyle of Lochalsh library.

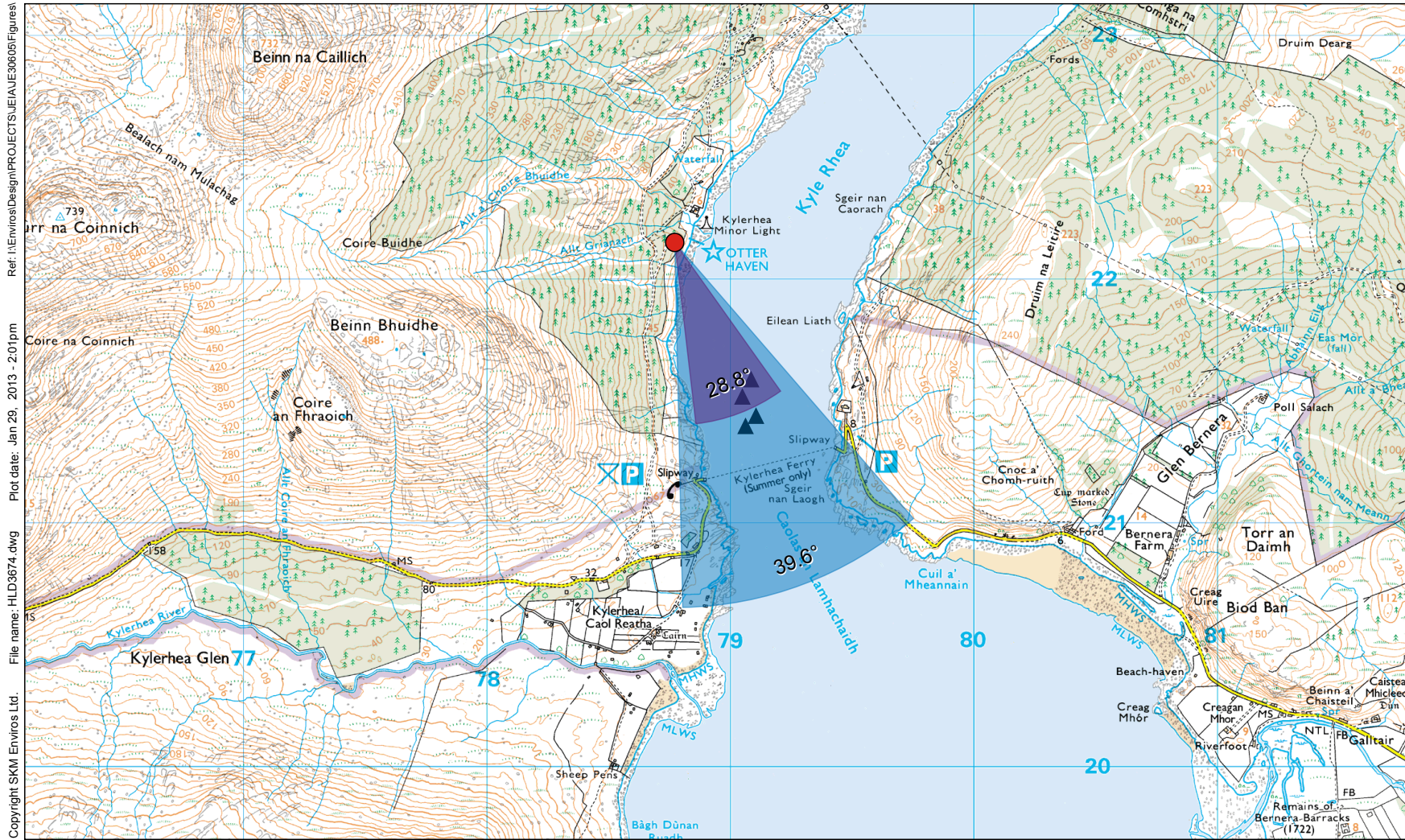
A copy of this Non-Technical Summary can be provided in Gaelic on request.

Please email requests to [info@marineturbines.com](mailto:info@marineturbines.com)

NTS Photomontage A - Viewpoint 3 (from the Seascape, Landscape and Visual Impact Assessment): Otter Hide  
 Grid Reference: 178773, 822152 Height: 29 mAOD Distance to nearest turbine: 653 m

KEY:

	28.8° View		39.6° View
	Viewpoint Location		Turbine Locations



File name: HLD3674.dwg Plot date: Jan 29, 2013 - 2:01pm Ref: I:\Enviros\Design\PROJECTS\NIE\IA\IE30609\Figures  
 Copyright SKM Enviros Ltd.

The viewpoint is positioned close to the otter hide to the north of the Glenelg to Kyle Rhea Ferry Crossing. It is located on the west side (Isle of Skye) side of Kyle Rhea. The precise location is outside the otter hide, adjacent to the footpath that leads to it.





**NTS Photomontage B - VIEWPOINT 3: OTTER HIDE**

Distance to nearest rotor: 653 metres    Camera: Canon EOS 5D Mk II    Focal length: 50mm    Camera height: 1.5 m    Date: 7/10/12    Time: 17:00

Recommended viewing distance when viewed with both eyes 350mm

Note: The original single frame photograph was taken with the camera at a slight angle of 0.3 degrees. The above illustration includes the rotation of the photograph by 0.3 degrees to allow a correct geometric 3D model view.





**NTS Photomontage C - VIEWPOINT 3: OTTER HIDE**

Distance to nearest rotor: 653 metres    Camera: Canon EOS 5D Mk II    Focal length: 50mm    Camera height: 1.5 m    Date: 7/10/12    Time: 17:00

Recommended viewing distance when viewed with both eyes 350mm

Note: The original single frame photograph was taken with the camera at a slight angle of 0.3 degrees. The above illustration includes the rotation of the photograph by 0.3 degrees to allow a correct geometric 3D model view.





**NTS Photomontage D - VIEWPOINT 3: OTTER HIDE**

Distance to nearest rotor: 653 metres Camera: Canon EOS 5D Mk II Focal length: 70mm Camera height: 1.5 m Date: 7/10/12 Time: 17:00

Recommended viewing distance when viewed with both eyes 537mm

Note: The original single frame photograph was taken with the camera at a slight angle of 0.3 degrees. The above illustration includes the rotation of the photograph by 0.3 degrees to allow a correct geometric 3D model view.