

Sound of Islay Demonstration Tidal Array  
Environmental Report  
**Non-Technical Summary**



Project: Sound of Islay Demonstration  
Tidal Array

Date: April 2014



**SCOTTISHPOWER  
RENEWABLES**



## Preface

ScottishPower Renewables (UK) Ltd received the necessary licences and consent from the Scottish Government in March 2011 to allow the development of the Sound of Islay Demonstration Tidal Array.

An Environmental Impact Assessment was undertaken in 2010 to support the consent and license application, with the findings detailed in an Environmental Statement (ES). An Environmental Report (ER) has now been produced by Royal Haskoning and ScottishPower Renewables UK Ltd., to support an application for variations to the existing licence. The Environmental Report contains Supplementary Environmental Information, thereby updating the 2010 Environmental Statement.

This document provides a non-technical summary (NTS) of the Environmental Report, summarising changes to the Development, and updating to the Environmental Impact Assessment, where appropriate.

Copies of the Environmental Report and supporting appendices can be viewed at:

- Argyll and Bute, Islay Council Office, Jamieson Street, Bowmore, Isle of Islay, PA43 7HP;
- Islay Energy Trust, Custom House, Main Street, Bowmore, Isle of Islay, PA43 7JJ;
- Jura Servicepoint, Schoolhouse, Craighouse, Isle of Jura, PA60 7XG; and
- The Scottish Government Library, Victoria Quay, Leith, Edinburgh, EH6 6QQ.

The following documents can be obtained from ScottishPower Renewables by calling 0141 614 3112 or by writing to ScottishPower Renewables, Cathcart Business Park, Spean Street, Glasgow, G44 4BE:

- Paper copies of the original Environmental Statement and the Environmental Report at a cost of £300.00;
- CD's of the original Environmental Statement and the Environmental Report at a cost of £20.00;
- Paper copy of the Environmental Report £30.00; and
- Non-Technical Summary free of charge.

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# 1. Introduction

## 1.1. Overview

This document provides a Non-Technical Summary (NTS) of the Environmental Report produced to support changes to the licences and consents currently in place for the Sound of Islay Demonstration Tidal Array (hereafter known as the Development).

The Environmental Report provides Supplementary Environmental Information to the Environmental Statement (SPR, 2010<sup>1</sup>) that was produced in 2010 to support the original application. The Environmental Report has been prepared by Royal Haskoning and ScottishPower Renewables UK Ltd.

This document provides a non-technical summary (NTS) of the Environmental Report, which outlines the changes to the Development and provides an update, where appropriate, to the Environmental Impact Assessment of the potential impacts of the construction, operation and eventual decommissioning of the Development. Where the original impact assessment still applies for some receptors, a summary of this is included for completeness.

## 1.2. ScottishPower Renewables

ScottishPower Renewable Energy Limited, the parent company of ScottishPower Renewables (UK) Limited (hereafter referred to as SPR), is a wholly owned subsidiary of ScottishPower UK plc and has a renewable energy portfolio of over 1,420MW.

SPR aims to continue to expand its renewables capacity in the UK in order to help the Scottish and UK Governments meet their 2020 targets for electricity generation from renewable sources. This includes the development of some of the newer renewable technologies including wave and tidal renewables.

## 1.3. The Site

The Development will be located within the Sound of Islay, a narrow channel that separates the Isles of Islay and Jura, within the administrative area of Argyll & Bute Council on the west coast of Scotland. The tidal resource of this channel is recognised as one of the best on the west coast of Scotland, with local topography of the area providing an optimised working environment due to its shelter from the westerly storms that are prevalent elsewhere along the coast, together making the Sound of Islay a preferred location for the world's first tidal array.

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<sup>1</sup> ScottishPower Renewables (SPR, 2010). Sound of Islay Demonstration Tidal Array: Volume 1 Environmental Statement. Copyright ScottishPower Renewables (UK) Ltd. 2010.



The array boundary remains as described in the original 2010 ES.

The onshore substation will be located on the eastern side of Islay, at Traigh Bhan, south of Rubha na Traighe Baine. The proposed site is a flat area, sheltered by a tree line to the north and gently sloping elevated landform to the west. An access road to the site already exists, as well as overhead 33kV lines and poles owned by Scottish and Southern Electricity (SSE).

#### **1.4. Project Details**

The Development was the first tidal array consented in UK waters and as yet there are no tidal arrays installed in the UK. When built, it will deliver power directly into the National Grid.

The Development will see ten megawatt-scale devices installed in deep water (>48m) on an area of the seabed within the Sound of Islay, just south of Port Askaig. These will then be linked by seabed cables to Islay, to connect to the grid via a substation (as indicated in Figure 1).

Flow modelling has been carried out in the Sound of Islay to inform the design of the turbine layout. The ten turbines will be arranged so that they are spread out in four rows, the split being 2/2/3/3 from north to south. Subsequent work since the original application has identified a need to move the devices slightly, from their currently consented positions, in order to maximise energy production.

The devices to be installed are planned to be those of ANDRITZ HYDRO Hammerfest (AHH). The AHH prototype device has been deployed at the EMEC test facility in Orkney and the results of this testing has informed the need for some alterations to the design originally proposed in 2010 and therefore a need for changes to the Marine Licence for the Development. This testing work builds on the development work undertaken for the Hammerfest Strøm AS device in Norway where a 300kW scale device has been successfully designed, built and operated for more than 4 years. Deployment of the Development in the Sound of Islay will allow tidal array deployment in a relatively sheltered environment, providing further learning that will then assist in developing effective procedures for installation of the devices in more energetic and exposed marine environments, such as the Pentland Firth.

The AHH tidal turbine is a fully submerged, bottom mounted, three-bladed rotor, variable pitch turbine, similar in arrangement to a horizontal axis wind-turbine. The nacelle houses the mechanical drive-train, gearbox, generator and associated components. The nacelle is attached to a tripod support structure - Figure 2 provides an illustration of the device concept.

The pitch of the rotors is variable, to present the most efficient angle of incidence to the oncoming flow, thereby generating the maximum energy from the flow at any given flow speed. When the tide reverses, the nacelle rotates 180° accordingly in order to extract energy from the flood, as well as the ebb tide.

A tripod base, fixed to the seabed using gravity ballast in the legs, will support the nacelle and the rotor structure.

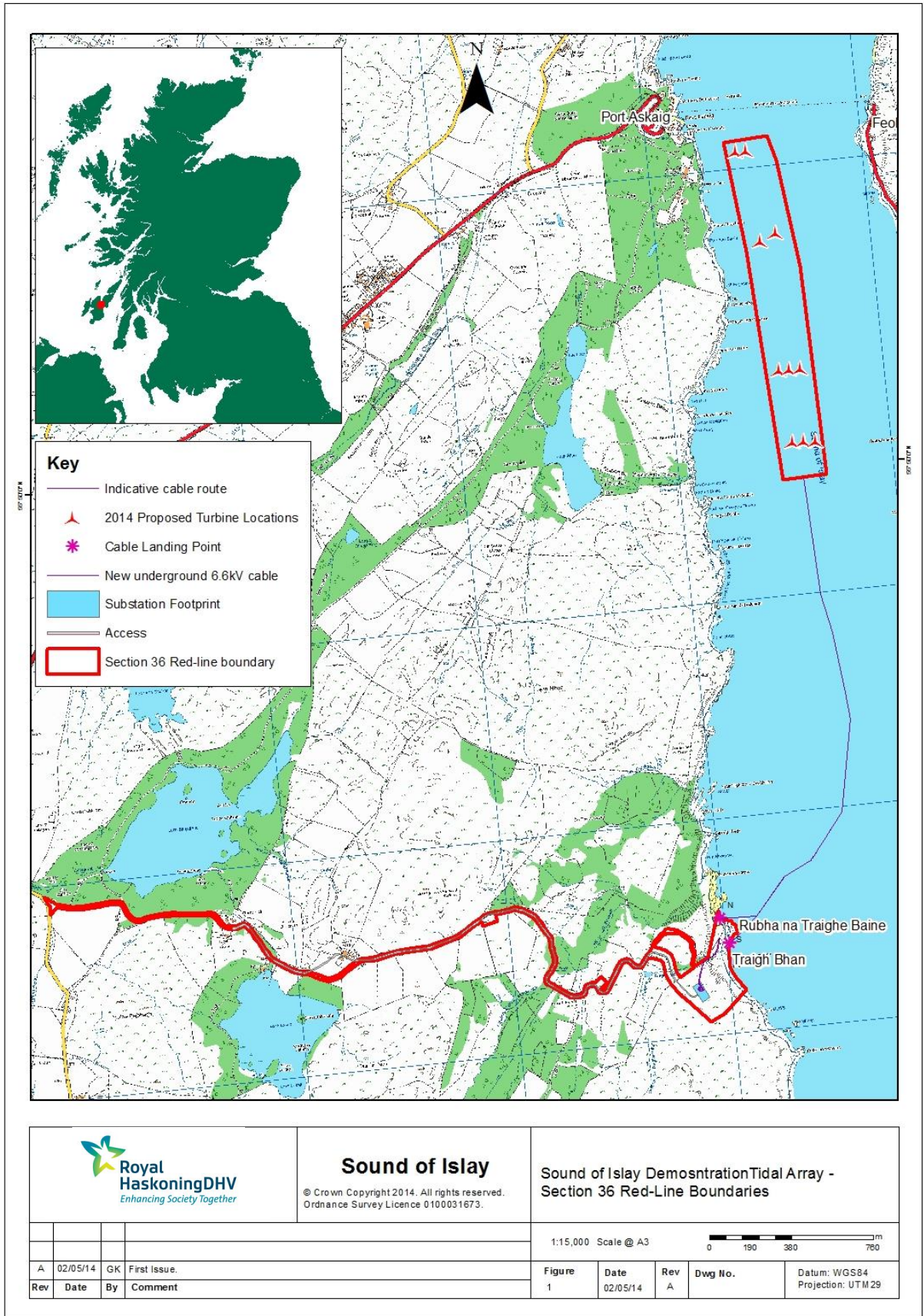
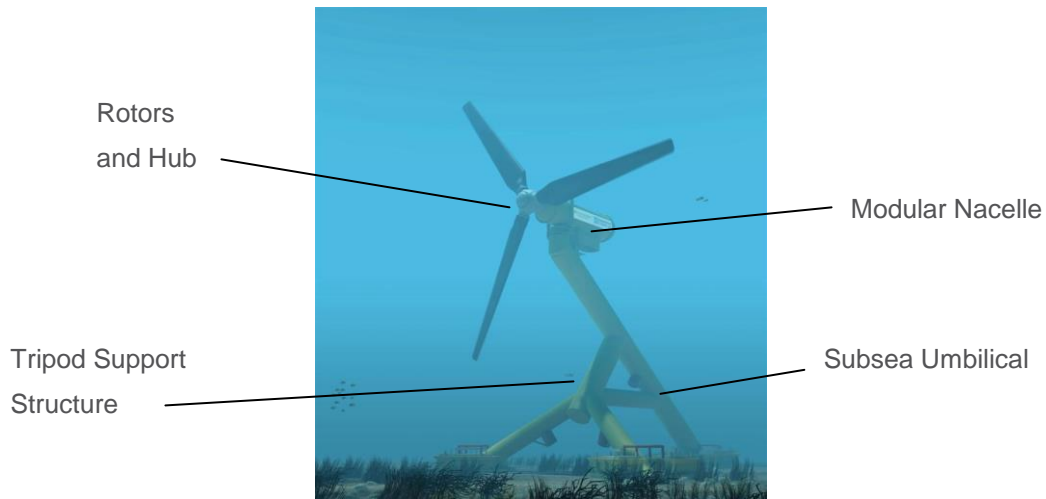


Figure 1 Project overview



**Figure 2** A schematic of the 300kW device

A series of variations are proposed to the Sound of Islay Tidal Demonstration Array, from the currently consented project. These variations include:

- Changes to the device dimensions from 23m rotor diameter to 26m;
- Altered device locations, with movement of between 41m and 117m from the consented locations, but still located within the original redline boundary;
- Inclusion of additional installation vessel options (tug vessel and barge with a 2 point anchor spread);
- Increased operational life of the project from 14 years to 25 years; and
- A revised onshore substation location.

A comparison of the previous and the current proposed tidal turbine can be seen in Table 1.

Table 1: Summary of device changes		
	Original ES	Revised Design
Substructure	Gravity	Gravity
Hub Height	22m	26m
Rotor diameter	23m	26m
Tip height	33.5m	39m
Deployment depth	50m	52.6m (min)
Under keel clearance	16.5m	13.6m (min)
Yaw mechanism	None	180°
Rotational Speed	10.2rpm	8.5rpm
Tip Speed	12ms <sup>-1</sup>	12ms <sup>-1</sup>

## 1.5. The Need for Renewable Energy

The central aim of UK Government energy policy is to establish a supply of energy that is diverse, sustainable, secure, and is offered at a competitive price. Key to this aim is an 80% reduction of carbon dioxide (CO<sub>2</sub>) emissions by 2050 (Section 1 of the Climate Change Act 2008). The development of renewable energy plays a primary role in UK Government strategy for carbon reduction and a target that 20% of the UK's electricity supply should come from renewable sources by 2020 (Energy Review, 2006) has been set.

UK Government targets for renewable energy will help the UK to meet its international obligations, but also obtain greater security of energy supply through the promotion of indigenous electricity generation.

The Scottish Government has more ambitious targets than Westminster and is keen to achieve a target of the equivalent of 100% of electricity demand being from renewable sources by 2020. Plans are developing to ensure that marine renewable energy sources such as wave, tidal and offshore wind will make a full contribution to meeting this target.

The Development will assist both the Scottish and UK Governments in meeting their future energy targets and reductions of greenhouse gas emissions. The Development capacity of 10MW equates to an average production of 26.3 GigaWatt hours per annum (GWh pa.), which is enough power to supply approximately 6621 average domestic households, based on the average domestic electricity consumption for Scotland in 2012 (DECC, 2013<sup>2</sup>).

## 2. Licensing

### 2.1. Regulatory Consents

A number of consents are required for the construction and operation of the Development. The Marine Scotland Licensing Operations Team (MS-LOT) is leading the consenting process.

ScottishPower Renewables (SPR) has applied for consent under Section 36 of the Electricity Act 1989 for the installation and operation of the generating station, and as part of this application, SPR seeks deemed planning permission for an onshore substation, transition pit, and associated infrastructure at the revised location.

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<sup>2</sup> DECC (2013). Sub-national electricity consumption statistics. Available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/267585/Sub-national\\_electricity\\_consumption\\_factsheet\\_2012.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/267585/Sub-national_electricity_consumption_factsheet_2012.pdf)

A Marine Licence for a new export cable route between the generating station and the new substation was granted in February 2014.

## **2.2. Project Timescales**

Indicative timescales for the Development are outlined in the bullets below:

- May 2014 – Consent and licence application;
- May 2014 to June 2014 – Statutory and public consultation;
- June 2014 – Argyll and Bute Council Planning Committee meeting;
- August 2014 – Section 36 Consent (with Deemed Planning Permission), and Marine License;
- September 2014 – anticipated Project Final Investment Decision;
- June 2015 to February 2016 – Onshore construction; and
- October 2015 to April 2017 – Offshore installation.

## **3. The Environmental Impact Assessment (EIA)**

The proposed Development in the Sound of Islay is subject to an EIA, as required under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000. The ES for the Development has been carried out in accordance with these regulations.

EIA is a tool for systematically examining and assessing the impacts and effects of a development on the environment. The resultant ES contains:

- A description of the development, including any alternatives considered;
- A description of the existing environment at the site and surrounding areas;
- A prediction of the potential impacts on the existing human, physical and natural environment at the site and assessment of subsequent effects;
- A description of mitigation measures to avoid or reduce such effects; and
- A Non-Technical Summary.

In order to revise the existing Marine Licence for the Development, Supplementary Environmental Information (SEI) is required to ensure the potential impacts associated with the revisions have been fully considered. This NTS provides an overview of the whole project, including the required variations and the associated impact assessment, either from the original EIA or the updated assessments in the Environmental Report.

### **3.1. Screening and Consultation**

The following are the key aspects which are reassessed in this SEI:

- Marine mammals
  - Collision risk from updated rotor parameters
- Marine benthic habitats
  - Habitat loss at altered locations within red-line boundary
  - New installation methodology proposed
- Maritime Navigation
  - Increase in turbine dimensions/ reduced clearance
  - Installation methodology
  - Increased operation duration
- Landscape
  - Visual impacts of substation on Islay instead of Jura
- Terrestrial Ecology
  - Potential impacts on otter in relation to the new substation location
- Birds
  - Potential impacts on nesting birds in relation to the new substation location.

Consultation with Marine Scotland and key stakeholders including the Scottish Environmental Protection Agency (SEPA), Scottish Natural Heritage (SNH), the Royal Society for the Protection of Birds (RSPB), Argyll and Bute Council, and the Northern Lighthouse Board (NLB) has informed the relevant assessments and identified appropriate mitigation measures to minimise the potential impacts of the project variations.

### **3.2. Data Collection and Surveys**

The following studies were completed as part of the original EIA:

Geophysical survey to understand the characteristics and features on the surface and subsurface of the seabed (ADCP, AWCP and geophysical);

- Drop down video survey work to establish seabed characteristics
- Metocean survey
- 1 year land based bird and marine mammal visual observations;
- Fish surveys and observer trips on local fishing vessels;
- Activity survey of local fishermen;
- Landscape, seascape and visual impact assessment;
- Marine traffic survey and Navigational Risk Assessment;
- Archaeological assessment of both the sound and land surrounding the area; and
- Terrestrial and intertidal ecological survey.

To inform the SEI, the following further studies were undertaken:

- Drop down video survey work to establish seabed characteristics for the new seabed cable route

- A second year of land based bird and marine mammal visual observations was undertaken, as originally planned, and has been included in the SEI;
- Landscape and seascape report;
- Navigational Safety Risk Assessment; and
- Terrestrial and intertidal ecological survey.

### 3.3. Impact Assessment Methodology

Impact identification and evaluation was carried out via a number of standard methods and techniques agreed during scoping and consultation for the original EIA. The Environmental Report follows the same methodology. The significance of residual effects has been assessed for each of the assessment chapters. Where possible this has been based on quantitative evidence; however, where it has not been possible to quantify effects they have been assessed qualitatively based on the best available knowledge and professional judgement.

Standardisation of the significance criteria generally leads to a common classification of the significance of effects. These are classified as Major, Moderate, Minor or Negligible. Effects are also described, where appropriate, according to whether they are Adverse, Neutral or Beneficial.

The potential impacts for each issue related to the Development have been produced with regards the following:

- Extent and magnitude of the impact (Table 2);
- Duration of the impact (short, medium or long-term);
- Nature of the impact (direct or indirect; reversible or irreversible);
- Whether the impact occurs in isolation or is cumulative in nature;
- Sensitivity of the receptor (Table 3);
- Whether the effects are positive or negative; and
- The level of mitigation that can be implemented to avoid, reduce or offset the effect.

Table 2: Magnitude definition	
Magnitude of Impact	Description
High	A fundamental change to the baseline condition of the receptor.
Medium	A detectable change resulting in the non-fundamental temporary or permanent condition of a receptor.
Low	A minor change to the baseline condition of the receptor (or a change that is temporary in nature).
Negligible	An imperceptible and/or no change to the baseline condition of the receptor.

Table 3: Sensitivity definition	
Receptor Sensitivity/Value/Importance	Description
High	Environment is subject to major change(s) due to impact. For example, sites contain features of international or national conservation or cultural designation, or permanent reduction of anthropogenic activity such as fish landings
Medium	Environment clearly responds to effect(s) in quantifiable and/or qualifiable manner. For example sites contain features of national or regional conservation or cultural designation, permanent modification of anthropogenic activity.
Low	Environment responds in minimal way to effects such that only minor change(s) are detectable. For example sites of local conservation or cultural value or temporary modification of anthropogenic activity.
Negligible	Environment responds in minimal way to effect such that only minor change(s) are detectable. For example sites contain features of local interest, little or no change to anthropogenic activity.

Sensitivity criteria can be based both on the degree of environmental response to an impact, as well as the 'value' of the receptor. The sensitivity for each impact is determined by consideration of at least one of the following points:

- Comparison with Regulations or standards e.g. British Standards;
- Compliance with policy, plans and guidance documents e.g. Local Plan;
- Reference to criteria such as protected species, designated sites and landscapes;
- Consultation with stakeholders; and
- Experience and professional judgements by specialists on environmental sensitivity.

A detailed description of the criteria used to assess sensitivity or value for each receptor is provided in the relevant assessment chapter.

By combining the magnitude of the impact and the sensitivity of the receptor in a matrix (Table 4) the final significance of the effect (prior to the implementation of mitigation measures) can be obtained. It should be noted that any residual effect (the effect after the implementation of mitigation) which remains at the level of 'Moderate' or 'Major' is regarded by the EIA Regulations as being significant.



Table 4: Significance matrix				
Magnitude of Impact	Receptor Sensitivity/Value/Importance			
	Negligible	Low	Medium	High
High	No significant effect	Moderate	Major	Major
Medium	No significant effect	Minor	Moderate	Major
Low	No significant effect	Negligible	Minor	Moderate
Negligible	No significant effect	Negligible	Negligible	Minor

Due to the differences between the individual technical assessments there is no specific definition that can be applied. Therefore, each receptor has its own impact assessment and defines the criteria for the level of residual effect. Where it has been possible to do so, this has been based upon accepted criteria, as well as by employing expert interpretation and value judgements.

## 4. Summary of Environmental Impacts

### 4.1. Physical Processes

#### 4.1.1. Introduction

The minor changes to the turbine parameters will not affect the original impact assessment and therefore this section provides the summary from the original assessment.

#### 4.1.2. Site characterisation

The physical environment and coastal processes within the study area is dominated by strong tidal flows through the Sound of Islay, the form of which is the result of previous glacial activity and subsequent sub-aerial weathering and erosion, leading to the landscape today.

#### 4.1.3. Potential impacts

The impacts of the Development on the physical environment and coastal processes are deemed to be of negligible significance due to the limited scale of the footprint of the array, and the low amount of energy that is to be extracted during operation.

Changes due to the presence of the seabed structures are considered to be less than those experienced due to the natural variation in both the seabed and shoreline. The Development will have a negligible significant effect on the hydrodynamic sedimentary regime within the Sound of Islay.

### 4.2. Benthic Ecology

#### 4.2.1. Introduction

The revised turbine locations and inclusion of anchor barges require that the benthic ecology impact assessment be revisited.

#### 4.2.2. Site characterisation

The seabed habitat survey undertaken for the original survey is used to identify the habitats and species within the offshore site. The site is typical of the region and characterised by patches of coarse gravel and rocky substrate with typical species and plants found within the site. No species of conservation significance were present in the array boundary, and those species present are considered to be well adapted to living in a dynamic, high energy environment.

An additional survey was undertaken of the new cable route. However it should be noted that consent was received for the export cable in February 2014 and so this is not part of the current application.

### 4.2.3. Potential impacts

Following a review of the new turbine locations and the potential anchor locations in relation to the seabed data collected for the original assessment it was identified that these changes do not alter the original impact assessment:

- Indirect impacts from sediment disturbance and smothering resulting from construction activities are considered to be of negligible significance. Species found within the Sound of Islay are common to this part of Scotland and tolerant of high energy environments.
- Post construction there is the potential for habitat alteration to occur around the foundation structures. Foundations are expected to be readily colonised by local species from adjacent areas and may cause a localised increase in biodiversity, feeding opportunities and refuge habitats for a range of species.
- The direct impact on habitats and species through the installation of foundation structures, subsea cables and associated infrastructure are considered to be of short term duration and negligible significance.

## 4.3. Marine Mammals

### 4.3.1. Introduction

An updated collision risk assessment has been undertaken to consider the revised rotor diameters.

The shore based survey for marine mammals (which was combined with the bird survey described in Section 4.7) was planned to continue for 2 years. The original assessment was based on just under 1 year of data collection and so the revised assessment takes into account a full 2 years of survey data.

### 4.3.2. Site characterisation

The original 2010 ES and corresponding surveys showed that the area was used by low numbers of marine mammals, suggesting that the Sound of Islay is not a highly important area for these species. Harbour seal is the most common species in the Sound of Islay with grey seal also being present regularly but less numerous. Sighting rates for harbour and grey seal were lower in year 2 than year 1. There were infrequent sightings of cetaceans and basking shark and so these species were not taken forward in the updated impact assessment.

### 4.3.3. Potential impacts

Collision risk modelling for harbour and grey seal identifies a negligible magnitude for collision risk with the operation of the tidal array. Using the collision risk modelling approach which was not available for the original assessment the revised impact is considered to be minor, which is lower than the predicted moderate significance estimated during the original assessment.

The impacts on harbour seal have also been put in the context of the South-East Islay Special Area of Conservation (SAC) which is designated for harbour seal (also known as common seal). The assessment shows that the potential impacts from the Development are not likely to undermine the conservation objectives for harbour (common) seals in the South-East Islay Skerries SAC.

Since the original assessment a number of other tidal projects have come into the planning process and therefore a cumulative impact assessment is now required for marine mammals. The projects to be assessed were agreed with Marine Scotland. As with the Sound of Islay Demonstration Tidal Array alone, the cumulative impacts will be of minor significance and should not undermine the conservation objectives for harbour (common) seals in the South-East Islay Skerries SAC.

## **4.4. Marine Fish/Shellfish**

### **4.4.1. Introduction**

The minor changes to the turbine parameters and increased operational life will not affect the impact magnitude identified in the original impact assessment and therefore this section provides the original summary for marine fish and shellfish.

### **4.4.2. Site characterisation**

There have been no physical surveys completed for fisheries within the Sound of Islay for the Development. Data for the impact assessment is based upon data and fisheries statistics from Marine Scotland, DEFRA, CEFAS, UKOOA and the International Council for the Exploration of the Sea (ICES). Information can also be drawn from the drop down video surveys of the benthic ecology completed for both the array and the cable route (see Section 4.2), as well as substantial consultation with local fishermen and fishing management bodies (see Section 4.9).

### **4.4.3. Potential impacts**

The main potential impact on fish is considered to be the noise generated from construction activities, in particular from turbine placement and cable installation. The main noise production will be from installation vessels and workboats and the operation of machinery on the vessels themselves. The main potential receptor species identified is herring, a species of fish particularly sensitive to noise; however, the types of sediment favoured as a spawning habitat by herring are not present in the Sound of Islay.

The construction methodology aims to minimise smothering effects. It is assessed that the Development will have, at worst, negligible adverse effects on marine fish and shellfish resources.

Potential impacts during operation of the Development include underwater noise and vibration from the tidal turbines, fish aggregating effects of the structures within the Development and the influence of electromagnetic fields from the cables on sensitive species. On assessment, these issues are expected to be of negligible or no significant effect.

The potential for the Development to act as a physical barrier to the movement of fish is also considered and its significance is assessed as minor adverse.

## **4.5. Anadromous fish**

### **4.5.1. Introduction**

As with marine fish, the minor changes to the turbine parameters and increased operational life will not affect the magnitude identified in the original impact assessment for fish which migrate between fresh water and seawater (anadromous fish) and therefore this section outlines the original summary.

### **4.5.2. Site characterisation**

Surveys were completed for migratory and anadromous fish populations in potential natal rivers adjacent to the Sound of Islay in particular for salmonids (sea trout and salmon).

Local salmon fishery associations were consulted alongside Marine Scotland (Pitlochry) to ensure all viable records about migratory and anadromous populations were considered.

There is no evidence to suggest that anadromous fish use or transit the waters of the Sound of Islay. Furthermore, survey has shown that watercourses on Islay and Jura adjacent to the Development have limited potential to support anadromous fish populations. A precautionary approach to assessment has been taken, and it has been assumed that migratory fish species do make use of the Sound, although the Sound is not considered to be a site of particular importance for anadromous fish.

### **4.5.3. Potential impacts**

Few studies have considered specifically the effects of offshore renewables installations on anadromous fish species. However, available information has been reviewed and indicates that any effects on such species would be negligible.

## **4.6. Elasmobranchs**

### **4.6.1. Introduction**

As with the other fish groups described above, the minor changes to turbine parameters and increased operational life will not affect the magnitude identified in the original impact assessment for shark species (elasmobranchs) and therefore this section primarily focuses on the original assessment.

### **4.6.2. Site characterisation**

Two individual basking sharks were sighted in September 2010 which was included in the year 1 dataset of the shore based survey

Basking shark was not frequently sighted in the Sound of Islay during Year 2, with only a single individual being recorded during October 2010.

#### 4.6.3. Potential impacts

The Development is unlikely to significantly impact elasmobranchs overall.

Collision could theoretically impact basking sharks and although the potential magnitude of this impact is considered to be low, given the high importance of this species, the significance of this effect has been assessed as moderate. All other impacts have been assessed as being of negligible significance.

To manage potential impacts and inform mitigation, post installation monitoring for elasmobranchs could be combined with marine mammal monitoring. Whilst no mitigation is planned at this stage of the Development, monitoring will allow the significance of collision risk to be continually assessed and if required, appropriate collision mitigation will be implemented.

### 4.7. Ornithology

#### 4.7.1. Introduction

The new substation location is in proximity to a breeding nest site for golden eagle and so the potential disturbance effects are considered further.

A 2<sup>nd</sup> year of vantage point survey of marine birds has been completed since SPR (2010) and a review of this is provided.

The Year 2 fieldwork did not identify any new seabird features in the study area (the Inner Sound) which would require further assessment and therefore the outcomes of the original impact assessment (SPR, 2010) have not changed.

#### 4.7.2. Site characterisation

Breeding golden eagle was recorded in the study area for the new substation location. Due to the high protection on this species the information must remain confidential. A confidential appendix to the Environmental Report will be provided to Marine Scotland, SNH and the RSPB.

#### 4.7.3. Potential impacts

The construction impact is considered to be of **major** adverse significance. However, implementation of mitigation measures including restrictions during the breeding season and screening to reduce potential disturbance will ensure that significant effects are avoided. Monitoring of the birds will also be in place to

ensure the potential impacts are being managed effectively. SPR is committed to working closely with the RSPB and SNH in developing an appropriate mitigation and monitoring strategy.

## **4.8. Terrestrial Ecology**

### **4.8.1. Introduction**

The change to the substation location from Jura to Islay required a new assessment. An additional habitat survey (known as a 'Phase 1' survey) was completed for the revised substation location and surrounding area.

### **4.8.2. Site characterisation**

A Phase 1 Habitat Survey of the new substation location was completed. This identified a number of habitat types, with the majority of the proposed substation location being on bracken which is not considered to be of conservation value. Blanket bog and wet dwarf shrub heath around the substation is of local conservation importance.

Evidence of otters was recorded along watercourses within the survey area.

### **4.8.3. Potential impacts**

The ecological impact assessment deems the impacts on the terrestrial habitats described above to be of minor significance.

The short term and low magnitude of the onshore construction works will result in an impact of minor significance on otters.

## **4.9. Commercial Fisheries**

### **4.9.1. Introduction**

Only minor changes to turbine parameters and increased operational life will not affect the magnitude identified in the original impact assessment and therefore this section provides the original summary.

### **4.9.2. Site characterisation**

There has been extensive consultation completed with local fisherman regarding the Development.

Due to the nature of the local physical environment, commercial fishing within the Sound of Islay is limited to the use of static gears. Fishing for crustacean species such as velvet swimming crab, brown crab, and lobster is practiced by approximately 10 fishing vessels, with concentrated effort occurring during the winter and spring months.

### 4.9.3. Potential impacts

Concerns from local fishermen focused on loss of fishing area and navigational issues relating to entanglement and loss of boats and equipment. Navigation is considered separately within Section 4.17 with the Navigational Safety Risk Assessment process took into account feedback from the fishermen. Impacts of the proposed Development are deemed to range between minor adverse and minor beneficial levels providing appropriate mitigation measures are implemented.

## 4.10. Transport and Traffic

### 4.10.1. Introduction

The installation methods for the onshore works remain consistent and mitigation measures to avoid disruption will be used to minimise any potential impact. The original assessment considered traffic on Islay as well as Jura, this is described below.

### 4.10.2. Site characterisation

The Sound of Islay has a number of ferry routes which are of high importance to the local community.

### 4.10.3. Potential impacts

During construction, the Development could cause disruption by adding to the traffic in the lead up to the ferry as well as on the ferry; however, this will be temporary, and with careful planning and mitigation, these effects can be reduced to minor / no significant effect.

The onshore traffic and transport facilities on Islay may be affected temporarily during construction. However, due to the high capacity of the roads in relation to the predicted levels of work traffic and the delivery of equipment and materials by boat where possible, the impacts are expected to be of negligible significant effect.

## 4.11. Tourism, Recreation and Socio-economics

### 4.11.1. Introduction

Tourism and recreation is assessed on a wider scale, taking into account Islay and Jura as a whole and so the small scale changes to the Development do not alter the original assessment. Therefore this section provides the original summary.

### 4.11.2. Site characterisation

Tourism and recreation are vitally important to the economy and the communities of Islay and Jura.



### 4.11.3. Potential impacts

The Development will bring with it minor beneficial socio-economic benefits. A small number of local jobs may be created during the construction of the project, and there will be a temporary increase in local spend associated with the installation phase, as well as ongoing spend associated with operation and maintenance.

SPR is working with the Islay Energy Trust (IET) to maximise the potential benefits to the local community. This includes identifying opportunities for local businesses and liaising with stakeholders to optimise the impacts and benefits.

The Development is not expected to have any significant long term adverse effect on existing marine and coastal activities, or on visitor numbers / visitor experiences. Any negative effects will be short-term and limited to the construction phase. With mitigation, the significance of effect is assessed to be at worst minor adverse during construction and negligible during operation.

The Development will create a new attraction for Islay and Jura, increasing the islands' profiles for renewable energy and wet renewable development, with assessed minor beneficial significance to tourism and the local community.

The project will supply approximately the equivalent of Islay's electricity demand on average.

## 4.12. Munitions and Military

### 4.12.1. Introduction

The slight changes to the turbine locations and device parameters will not affect the military operations in the area beyond shipping affects which are dealt with in Section 4.17. This section provides the original summary.

### 4.12.2. Site characterisation

The Development is located outside of any designated military areas and submarines are not expected to use the site.

There are no known unexploded munitions within or near to the Sound of Islay. It is also unlikely that munitions from official disposal sites could migrate into the Sound of Islay, with the nearest site over 100 km away.

### 4.12.3. Potential impacts

During construction there may be minor disruption to military vessels operating near the Sound of Islay in adjacent Practice Exercise Areas (PEXAs); however, ongoing communication with the Defence Estates

and subsequent scheduling of works at the tidal site will ensure coordination of any potentially conflicting activities. The implementation of the safety procedures identified in the Navigational Safety Risk Assessment will reduce the significance of effects to negligible.

Should any unexpected munitions be encountered at the Development the works will cease, contractors will leave the site and MoD and emergency services will be consulted as necessary. The significance of effect here is assessed as negligible.

## **4.13. Air Quality**

### **4.13.1. Introduction**

The proposed changes to the project are on the same magnitude as the original assessment and so will not alter the impact assessment. This section therefore provides the original summary.

### **4.13.2. Site characterisation**

There is no local population living close to the area where the revised cable route will come ashore.

### **4.13.3. Potential impacts**

Air quality impacts are only likely to arise during construction / decommissioning of the onshore works, based on impact to sensitive receptors (i.e. points where the public are likely to be regularly present and exposed for a period of time). It is anticipated that the increase in traffic on the local road network and dust emissions during construction will be of negligible significance.

Machinery used in the onshore construction phase could cause an impact on air quality in the immediate vicinity of the works; however, the impacts will be local and short term lasting for the duration of construction only. They are assessed as being of negligible significance.

## **4.14. Onshore Noise**

### **4.14.1. Introduction**

Noise impacts from the onshore substation were scoped out of the original assessment due to the small scale of these works. The original assessment included noise impacts on Islay in relation to onshore traffic and from the marine works which remain valid.

### **4.14.2. Site characterisation**

The ambient noise levels close to the development site and associated on shore works will include natural noise from wind, waves and sea-birds along with intermittent anthropogenic noise such as low levels of cars traffic along the A846 and operation of ferries.

#### 4.14.3. Potential impacts

Key noise and vibration effects on humans associated with the Development are likely to arise as a result of the operation of work-boats and other marine construction equipment/vessels during the array and cable installation. Low levels of noise may be omitted during construction of the substation. However, the separation distance between the sub-station and potentially sensitive properties will be sufficient to suitably attenuate any noise emissions.

### 4.15. Water and Sediment Quality

#### 4.15.1. Introduction

Changes to the installation method will not affect the original assessment given the small scale of the works and the limited potential for contamination in this area. This section therefore outlines the original summary for the water and sediment quality assessment.

#### 4.15.2. Site characterisation

There has been limited anthropogenic input to the environment within the Sound of Islay, which combined with the high energy environment and lack of sedimentary substrate that has the potential to hold contaminants have led to a reasonable assumption that sediment quality is good. From extensive water quality monitoring carried out by SEPA, water quality in the Development site is good.

#### 4.15.3. Potential impacts

The main impacts from the proposed Development would relate to accidental spillages of materials during construction, operation (including maintenance) and decommissioning. The magnitude of potential spills within the Sound is assessed as being low, in a medium sensitivity environment, resulting in impacts assessed as minor significance. Similar impacts were predicted for construction, operation and decommissioning. Current best practice will be adhered to for site management such as CIRIA Guidance note C650 or SEPA PPG5. The environment of the Sound is such that even if small spillages occur materials will be quickly dispersed and be of very minor significance.

### 4.16. Landscape and Seascape

#### 4.16.1. Introduction

Substation location on Islay is visible from the CalMac ferry, the road on Jura and the Jura NSA. A report is included as an appendix to the Environmental Report which provides graphics of the substation.

#### 4.16.2. Site characterisation

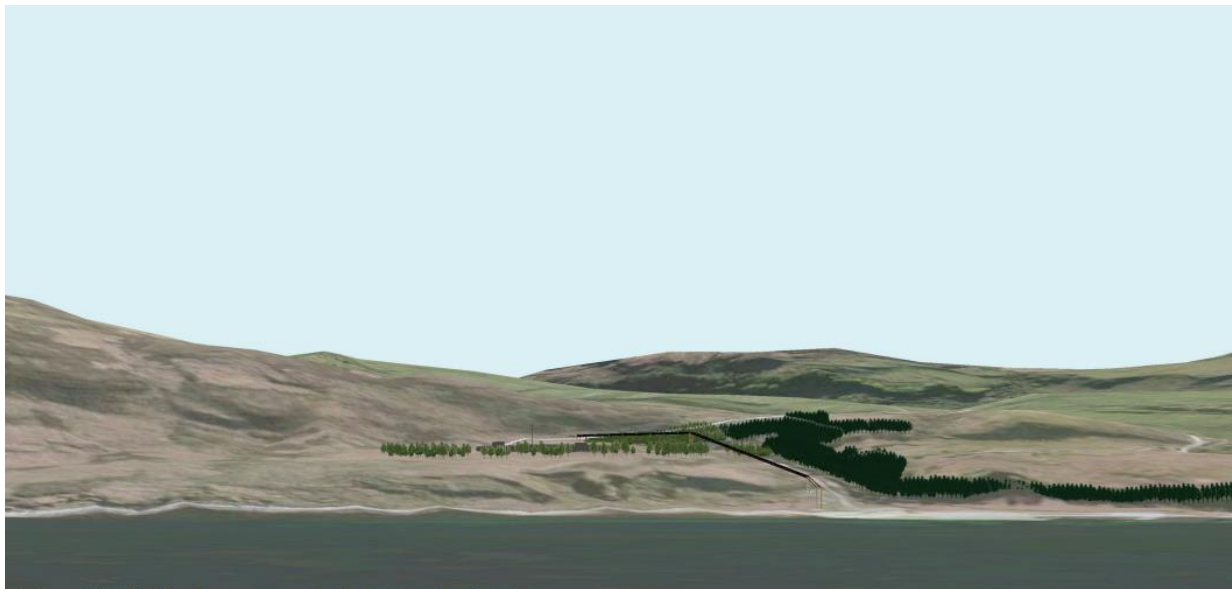
The proposed substation site is located near the eastern coastline of Islay with landform forming part of the plateau moorland massif which extends from Port Ellen to Port Askaig. The high, rocky plateau has an undulating landform and a massive scale. Steep slopes are broken by numerous rocky outcrops and

massive boulders and by upland lochs. The plateau forms a steep, rocky coastline, often with cliffs however the sheltered coastline of the Sound of Islay has a more indented character, with some narrow bays and shingle beaches amongst the cliffs.

#### 4.16.3. Potential impacts

The original ES considered the visual significance associated with the Sound of Islay development as moderate significance during construction reducing to minor / no significance during operation. The new substation site is likely to offer a reduction in visual impact given that the surrounding landscape is slightly different in terms of topography and areas of existing native woodland offering a slightly more concealed location. There will also be reduced construction works associated with the new substation development given that there is already an access road to the proposed site. Additionally the Dunlossit Estate will no longer be looking directly at the substation as the new location is now on the east coast, slightly south of the mansion house. The additional mitigation measures including proposed re-contouring, colour mitigation and additional tree planting will offer a further reduction in visibility of the substation. Therefore the original statement of a **minor** or **no significant effect** on landscape views during operation and construction remains.

Figure 3 below shows a graphic of the substation with the proposed contouring, colouring and tree planting.



**Figure 3:** Visual representation of the substation with proposed mitigation looking west from the Sound of Islay

## 4.17. Shipping and Navigation

### 4.17.1. Introduction

The revised device parameters, which reduce the under keel clearance to 5.1m (as opposed to 8m previously) and therefore an updated Navigational Safety Risk Assessment (NSRA) has been completed.

### 4.17.2. Site characterisation

Further to the surveys and consultation undertaken for the original assessment a Hazard Identification and Risk Assessment workshop was undertaken to focus on the Development revisions.

The baseline description with regards navigational movements within and surrounding the Development site has remained generally unchanged since the production of the original ES. The Sound of Islay is located away from the main shipping route in the area (i.e. the Minch and routes to the Atlantic and Outer Hebrides).

### 4.17.3. Potential impacts

The conclusions drawn from the NSRA based on the updated development scenario are that the risks identified are all '**Tolerable with Monitoring**' as long as the mitigation identified and set out is applied to the project.

## 4.18. Cultural Heritage and Archaeology

### 4.18.1. Introduction

A review of available information identified no new constraints in terms of historic records, sites and monuments, scheduled monuments, or listed buildings. Therefore the original assessment is deemed to remain valid and this section outlines the original summary.

### 4.18.2. Site characterisation

An archaeological study was undertaken to determine the potential for submerged artefacts, wrecks and coastal remains within the area of the Development and wider Sound of Islay, using geophysical data. A number of wrecks were identified, but none were within the Development site.

### 4.18.3. Potential impacts

Five distinct impacts of negligible to major significance have been identified. Mitigation has been outlined which is considered to completely mitigate residual impacts, and which has the potential to result in positive impacts in some cases.

## 5. Conclusion

Overall, with implementation of the stated mitigation measures by SPR, combined with ongoing dialogue with interested stakeholders and the Regulatory Authorities, it is predicted that Sound of Islay should not have any unacceptable long term impacts.

For some key potential impacts, particularly relating to marine mammals and golden eagle, appropriate mitigation and monitoring will be developed in consultation with the relevant stakeholders. Key elements of this strategy will be application for a licence to potentially disturb European Protected Species (EPS), establishment of a series of monitoring measures aimed at answering key questions about behaviour of, and effects on, key receptors, a commitment to put in place any mitigation that is indicated by the results of monitoring.

The project will make a significant contribution to national targets for renewable energy generation, has an international profile, and is a key project in demonstrating the potential to harness tidal power in Scotland.

## 6. Further Information

Copies of the Environmental Report and the original Environmental Statement can be viewed at:

- Argyll and Bute, Islay Council Office, Jamieson Street, Bowmore, Isle of Islay, PA43 7HP.
- Islay Energy Trust, Custom House, Main Street, Bowmore, Isle of Islay, PA43 7JJ.
- Jura Servicepoint, Schoolhouse, Craighouse, Isle of Jura, PA60 7XG.
- The Scottish Government Library, Victoria Quay, Leith, Edinburgh, EH6 6QQ.

The following documents can be obtained from ScottishPower Renewables by calling 0141 614 3112 or by writing to ScottishPower Renewables, Cathcart Business Park, Spean Street, Glasgow, G44 4BE:

- Paper copies of the original Environmental Statement and the Environmental Report at a cost of £300.00;
- CD's of the original Environmental Statement and the Environmental Report at a cost of £20.00;
- Paper copy of the Environmental Report £30.00;and
- Non-Technical Summary free of charge.