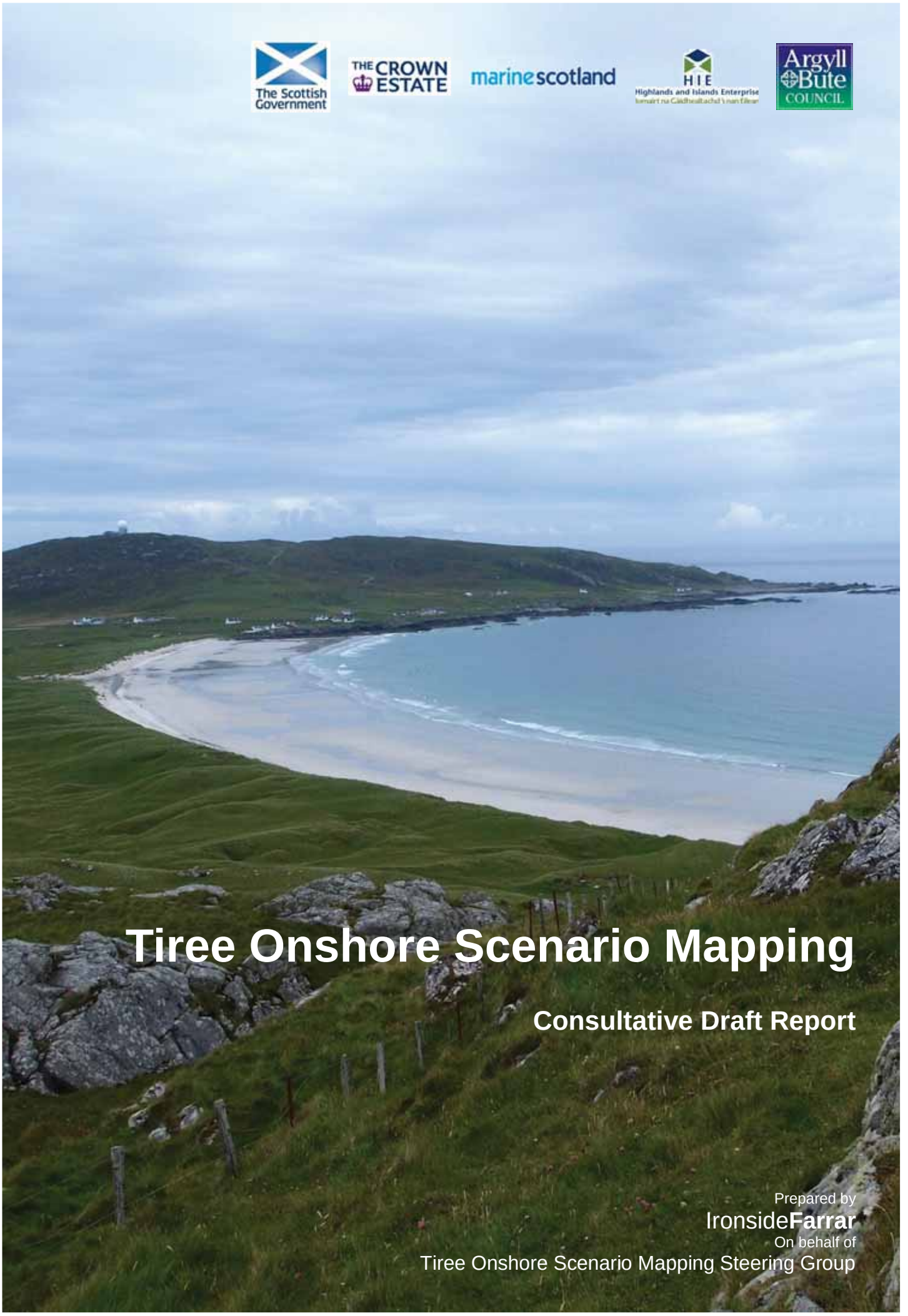

Tiree Onshore Scenario Mapping

Consultative Draft Report

Prepared by
IronsideFarrar
On behalf of
Tiree Onshore Scenario Mapping Steering Group

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Introduction

1.1 Background

The Scottish Government has set a range of challenging targets for energy and climate change. These recognise the potential to take advantage of the extensive marine energy resources (wind, wave and tidal power) available in Scottish waters with the following aims:

- renewable sources to generate the equivalent of 100 per cent of Scotland's gross annual electricity consumption by 2020, with an interim milestone of 31 per cent by 2011.
- renewables sources to provide the equivalent of 11 per cent of Scotland's heat demand by 2020.

To assist in meeting these targets, a Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters (Blue Seas - Green Energy) sets out the Government's vision for developing offshore wind energy up to 2020 and beyond.

Currently, up to 10 GW of planned development is in progress divided roughly equally between Round 3 sites and sites in Scottish Territorial Waters (STW). The Crown Estate has granted exclusive rights to ScottishPower Renewables (SPR) to take forward the development of the Argyll Array (180-300 turbines) offering a potential generation capacity of 1800 Mega Watts (MW). SPR will be submitting a Section 36 Consent to Scottish Ministers accompanied by a detailed Environmental Statement and an application for a Marine Licence under Section 16 of the Marine (Scotland) Act 2010.

This study seeks to better understand the potential Operational and Maintenance (O&M) implications associated with the proposed development of an offshore windfarm off the coast of Tiree. This draft consultation report will allow stakeholders to comment and make representation on the potential issues associated with Operations and Maintenance support related to the proposed Argyll Array.

1.2 Consultant's Brief

Argyll and Bute Council with the Scottish Government, Marine Scotland, Highlands and Islands Enterprise and the Crown Estate commissioned Ironside Farrar to develop a clearer understanding of the potential Operational and Maintenance implications of any future offshore array off Tiree. The work has been progressed through a Steering Group chaired by Argyll and Bute Council including the project partners plus: Tiree Community Development Trust, Caledonian Maritime Assets Limited, Scottish Natural Heritage, NHS Highland and the North of Scotland Public Health Network, and ScottishPower Renewables.

Operational and Maintenance needs (O&M) for offshore windfarms typically include a level of land based development. The Steering Group believe any land based implications need to be better understood early in the forward planning stages for the array and that this process should engage local community and other stakeholders to ensure early consultation and input.

The project seeks to map the onshore implications arising from the 4 scenarios identified by the developer relating to the associated construction, operational and maintenance requirements of the offshore wind farm development, seeking to optimise the socio economic benefit to the island and mitigate the negative consequences of each scenario. The project has been developed in an inclusive manner involving the community of Tiree, the developer and relevant public bodies who are involved in land use and marine planning and development or who provide services such as health services and education services. The main aim is to secure a sustainable vision for the future and provide a strategic decision-making tool, based on socio economic and environmental appraisals.

The Consultants have advanced the study as an independent consultant report under the auspices of the Steering Group. The Consultancy Brief is provided in Appendix 9.

1.3 Scope of Work / Approach

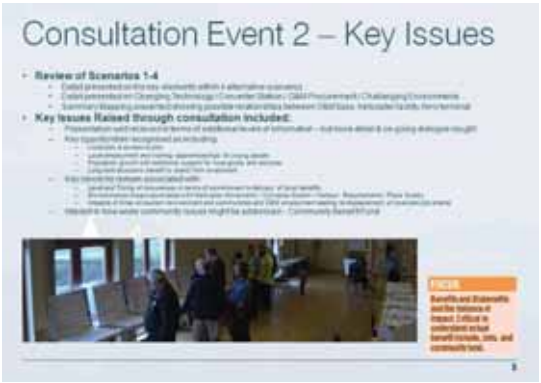
Ironside Farrar have completed the scope of work within a staged programme reporting to the Steering Group on approximately a monthly basis and with separate stakeholder / technical meetings advanced as required. The study has been progressed over the period July 2011 through to anticipated final reporting in early summer 2012. The project stages are detailed below:

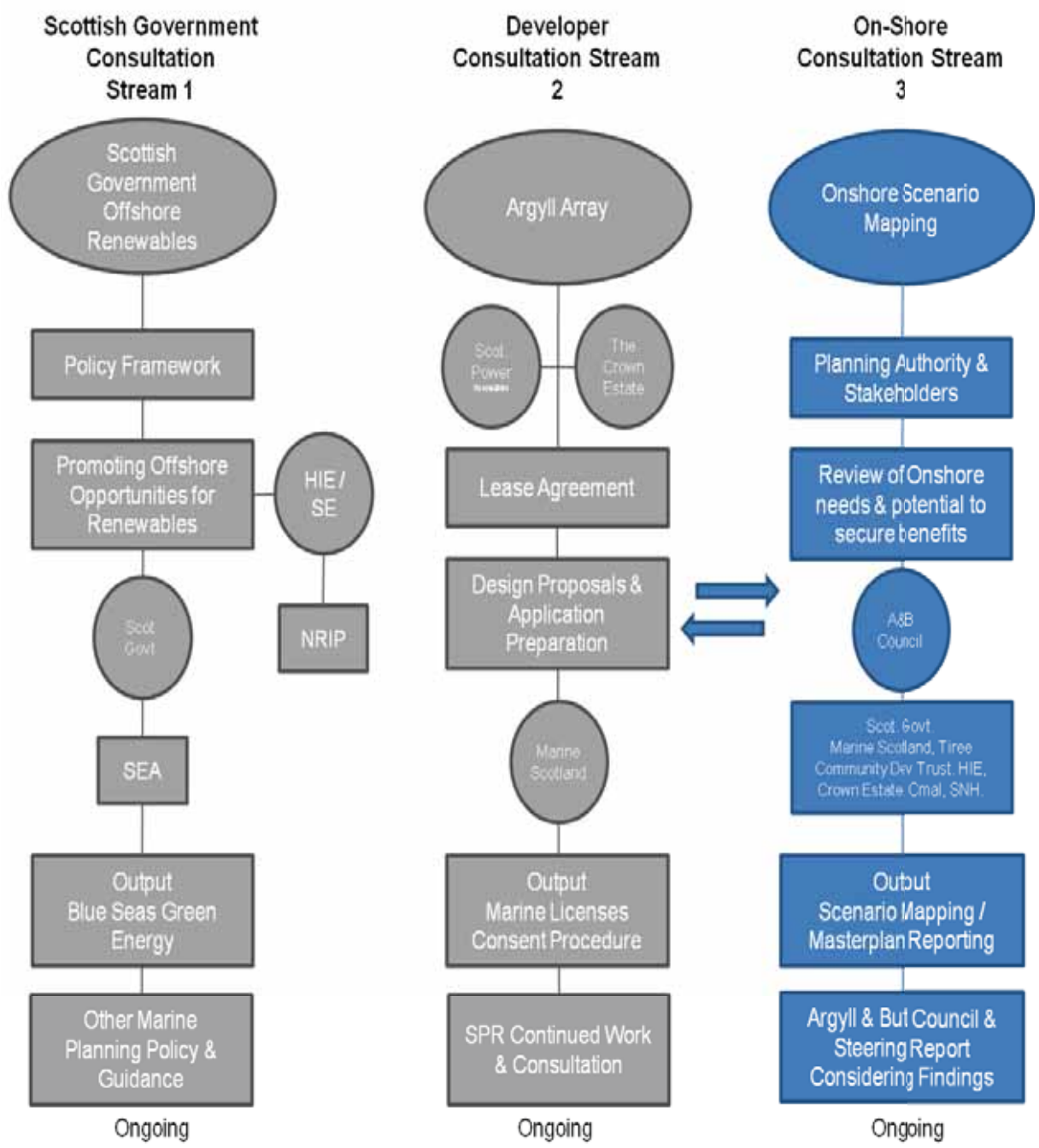
- Inception & Desktop Review — including Tiree site visit
- Develop Communication Strategy
- Community Consultation Event 1 — An Talla August 2011
- Scenario Testing & Impacts Assessment
- Mapping On-shore Requirements
- Community Consultation Event 2 — An Talla October 2011
- Impact Assessment, Mitigation
- Consultation Event 3 — An Talla November 2011
- Draft Consultation Report
- Final Report

The appraisal methodology seeks to establish a framework for assessment of the 4 Scenarios identified by ScottishPower Renewables (see section 3.0) based on the issues and opportunities and clarity of objectives. The setting of objectives is important and offers value in so far as it:

- Provides stakeholders with a tabulated indication of the assessment
- Provides a basis for structuring the assessment process
- Supports accountability and transparency of consultation
- Provides clarity on issues where strong and potentially divergent views exist

The selected objectives relate solely to the operations and maintenance aspects (O&M) of the proposed offshore array and are identified as broad goals of how O&M could contribute to island aspirations




Scottish Government Consultation Stream 1
Scottish Government Offshore Renewables
Policy Framework
Promoting Offshore Opportunities for Renewables
HIE / SE
NRIP
Scot Govt
SEA
Output Blue Seas Green Energy
Other Marine Planning Policy & Guidance
Ongoing
Developer Consultation Stream 2
Argyll Array
Scot Power
The Crown Estate
Lease Agreement
Design Proposals & Application Preparation
Marine Scotland
Output Marine Licenses Consent Procedure
SPR Continued Work & Consultation
Ongoing
On-Shore Consultation Stream 3
Onshore Scenario Mapping
Planning Authority & Stakeholders
Review of Onshore needs & potential to secure benefits
A&B Council
Scot. Govt Marine Scotland, Tiree Community Dev Trust, HIE, Crown Estate Cmal, SNH.
Output Scenario Mapping / Masterplan Reporting
Argyll & But Council & Steering Report Considering Findings
Ongoing

1.4 Consultation

Consultation and local engagement has been central to the scope of work with the intent of ensuring the local community, local businesses and wider stakeholders are better informed as to the potential implications of any future O&M operation on economic, social, and environmental issues.

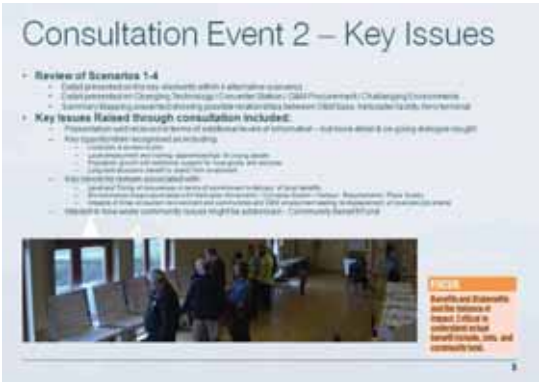
Communications Strategy
The Communications Strategy aims to explore with as many groups as possible the issues that the proposed Argyll Array project could have on the island of Tiree.

The Communications Strategy for the Tiree Onshore Scenario Mapping project has been tailored to promote a two way communication both understanding local issues, concerns and sensitivities to seek to provide additional evidence and technical information to inform debate and to ensure there is a clear direction, purpose, objectives and outcomes.

The key consultees have included: the Steering Group members; Argyll and Bute Council; Scottish Government; Marine Scotland; Highlands and Islands Enterprise; the Crown Estate; Tiree Community Development Trust; Caledonian Maritime Assets Limited; Scottish Natural Heritage; NHS Highland and the North of Scotland Public Health Network; and ScottishPower Renewables.

Workshop Consultations have been advanced with Argyll and Bute Council across Council Service Departments (Corporate Services / Education /Economic Development / Planning / Transport / Environmental Services / Business Gateway) and with Highland and Isles Enterprise and with Skills Development Scotland. Community Consultation has involved 1 orientation/baseline visit; 3 Consultation Events on Tiree; 1 Consultation Event with Tiree Association in Glasgow. A number of one-to-one business meetings held with local business interests and with specialist interest/representative and other groups including Tiree Fishermen's Liaison Group, NFUS; Coll Community Council and others (see Appendix 7 for copies of the Consultation Boards).

The consultants draft report will provide a basis for wider consultation allowing all stakeholders with an interest in Tiree and the future development of O&M to comment and make representation.




TELEPHONE
ROYAL MAIL

Tiree Context

2.1 Place

The Isle of Tiree, in Gaelic, Eilean Tiriodh is the most westerly island of the Inner Hebrides, sitting some sixty miles west of Oban and twenty-two miles west off Ardnamurchan, the nearest point on the Scottish mainland. It has an area of 7,834 hectares (30.2 sq mi) and a permanent population of around 730 that increases to approximately 2200-2400 in the peak summer season. The Isle of Coll sits close by to the northeast. Tiree and Coll are both connected to Oban by the Cal Mac ferry service and with connecting flights to Oban and Glasgow (Tiree only). Coll has an active community council equally interested in engaging on issues associated with energy developments and the array.

Tiree is approximately twelve miles long and up to six miles wide. There are three hills; Ben Hynish in the south rises to 462 ft, Ben Hough in the northwest tops at 390 ft and Beinn Ceann a' Mhara at 338ft . The island's beaches extend most of the way around the island's shoreline, a distance of forty-six miles altogether. The name Tiree/Tiriodh, Tir Iodh, means 'the land of corn', and represents one of the most fertile of the Hebridean islands.

Environment
Tiree has been known as the granary of the Hebrides, as grain crops grow well in Tiree's machair and famously sunny weather. Tiree's land is shared between 286 crofts and five farms, with the land divided into thirty one crofting townships, each managed by a Grazing Committee. In an agricultural sense, Tiree has an outer ring of machair, a middle area of dark, rich, arable earth, and a centre of peaty ground called sliabh. Machair creates a special and fragile environment of considerable ecological and conservation value strongly dependent upon agricultural management in the form of seasonal grazings. Further detail is provided in Appendix 2: Environmental Context.

Enterprise & Tourism
The economy of Tiree is sustained through the close integration of a number of sectors (tourism, agriculture, leisure, fishing, commerce) typically operated as owner managed micro and small enterprises (SME's) that combine with the service sector and help sustain wider aspects of community life.

Tourism is an important part of the island's economy and supports a strong self catering and second home/holiday home sector together with two hotels and a selection of guesthouses, bed and breakfasts and self catering cottages. Local enterprise in terms of arts and crafts is strong and growing and there is also a bank, post office, two general stores, a hardware store and electrical retailer, building supply and construction related businesses, two garages and a variety of small studio art and craft galleries, web and administration services.

Tiree is home to two major events with the Wave Classic and Tiree Music Festival. The Tiree Wave Classic is the most prestigious and longest standing windsurfing event on the British calendar, which in 2011 celebrated its 25th Anniversary. The Tiree Music Festival is a two-day open air event in its inaugural year and hosted the best of celtic music and promises to be a key event in Tiree's cultural calendar.

Health
Tiree has had an increasing population size over the past ten years with increasing numbers of people of working age. During this time the numbers of people of pensionable age has remained relatively stable. It is likely however that the number of elderly persons living on Tiree will increase in the next 20 years . Broadly similar conditions exist on Coll with a growing young population.

- Life expectancy at birth is higher than the Scottish average.
- Migration of people onto and off the island may change the age distribution of the population differently to that of the mainland.
- Health is an important consideration of both the proposed offshore array and any potential onshore developments through O&M and the change in demographics / environment etc this would bring.
    - Capacity of local health services (GP and Dentist) with increased population
    - Lifeline Services – ability to access healthcare on the mainland
    - Impacts on health and wellbeing including mental health issues arising from proposed array and associated on-shore development through O&M
    - Community issues arising from changes to population demographics

Social & Community Infrastructure

The main township is Scarinish with important townships at Crossapol, Balemartine, Barrapol, Vaul and Hynish. The island has all main services, School / Community Centre / Business Centre / Rural Centre / Places of Worship / Museum and transport facilities associated with airport and ferry terminal.

CMAL own and operate the Ferry Terminal and Pier on Tiree and the airport is owned and operated by HIAL. However, there is a Public Service Obligation contract with Hebridean Air Services that links Oban with Coll, Colonsay and Tiree. Transport infrastructure includes a local road network that comprises 47km (56%) B/C Class Roads and 36km (44%) of unclassified roads. Single track roads are common. Roads on the Island are lightly constructed and have generally evolved from un-surfaced tracks to roads that comprise of little more than a thin surface

Tiree School at Cornaigmore village provides full primary and secondary education. Tiree High School teaches up to sixth year, for students aged about 18 and to university entrance standard. About half of the island's population are Gaelic speakers, and the school teaches in both Gaelic and English. The school roll currently stands at 94 (10 at pre-school, 44 primary and 40 secondary) and has capacity to grow although investment likely to be required in terms of buildings and additional teaching staff/support.

2.2 Community

Tiree is located within the Oban South and the Isles Ward and is represented within the Argyll and Bute Council by three Councillors. No Community Council exists on Tiree with local issues addressed through the Tiree Community Development Trust (Isle of Coll represented by Community Council for Coll).

Tiree Community Development Trust (TCDT) (http://www.tireetrust.org.uk)
The Tiree Community Development Trust was formed in March 2006 and is owned, and managed by Tiree's community. It represents a community led approach to rural development promoting the sustainable, environmental, economic and social development of Tiree. TCDT have prepared a number of relevant documents relative to ambitions and issues for the island community. These include:

- Tiree Community Growth Plan 2011-2016
- Tiree Community Plan
- Tiree Forum Publication Tiree Today and for The Future

The TCDT in the Community Growth Plan 2011 -2016 have set out their vision for the island of Tiree as follows:

"In 2025 Tiree will continue to be a thriving and economically viable community sustaining a high quality of life for all whilst safeguarding our remarkable environment, heritage and culture. By making the Island more attractive to young people and families we will work towards a slow, sustainable population growth, preventing a population decline"

Other Groups / Community and Stakeholder Voices

Tiree is a small island community with a breadth of small groups and specialist interests. Many of these groups are established as ad-hoc groups to represent particular community interests, support community projects, promote environmental conservation and address community concerns. Relative to this project the important groups are:

No Tiree Array (http://www.no-tiree-array.org.uk/)
The No Tiree Array Group oppose the development of the Argyll Array and seek to promote within its objectives and aims to: conserve the Isle of Tiree's natural heritage, culture, economy and landscape value; resist the proposed construction of the Tiree (Argyll) Array or any ancillary development within 35km of the island's coastline, to accord with the recognized protocol of visual significance; and protect the island's fragile environment from any detrimental impact resulting from such development

Tiree Rural Development Ltd. (http://www.tireerd.org.uk/)
Rural Development Ltd (known as TRD) is a community company limited by guarantee with charitable status charged with caring for the island's land-based interest on behalf of its residents and visitors. The TRD operates the mart from the Rural Centre. Projects relate to the island's fragile biodiversity and support for the crofting way of life

Tiree Association (http://www.tireeassociation.co.uk)
The Tiree Association was founded in 1900 and seeks to celebrate and promote ties with the Island of Tiree, the Tiree Association takes pride in protecting and promoting Gaelic and Highland life for all Tirisdeach's to enjoy.

2.3 Policy Context

National & Regional Policy
The Government Economic Strategy set out the scale of the challenge in putting Scotland on to a higher sustainable growth path and the targets that have been set to help meet that challenge. The strategy identifies two clear, time-bound targets for increasing sustainable economic growth:

- to raise Scotland's GDP growth rate to the UK level by 2011; and
- to match the GDP growth rate of small independent EU countries by 2017.

The policy recognises that to achieve increased sustainable economic growth, Scotland needs to drive up its performance in relation to three key components: productivity, participation and population.

Highlands and Islands Enterprise are working to deliver the Government Economic Strategy and ensure the Highlands and Islands is a highly successful and competitive region so that increasing numbers of people choose to live, work, study and invest here. HIE have four priorities to support Scotland's economic recovery and deliver sustainable growth across the region. These are:

- Supporting businesses/social enterprises to shape & realise growth aspirations.
- Strengthening communities and fragile areas.
- Developing key sectors, particularly distinctive regional opportunities.
- Creating the conditions for a competitive and low-carbon region

Development Plan Framework
The Development Plan for the island of Tiree is the Argyll and Bute Structure Plan (2002) and the Argyll and Bute Local Plan (2009). The Local Plan **and the Structure Plan** are currently being replaced by a single Local Development Plan scheduled to be adopted mid 2013.

The first formal stage of the new plan has been completed with the publication of the Main Issues Report on the 13th of May 2011 and subsequent public consultation. As part of the LDP Consultation an open day was held on Tiree on the 16th of June for local residents to attend. It is intended to publish a proposed Local Development Plan for Argyll and Bute in the **third quarter of 2012** and adopt the new plan by the middle of 2013. In addition to issues including access to affordable housing and adequate infrastructure to service development needs, the potential Argyll Array off-shore wind farm is the biggest development issue facing the island.

Scenario 2
Strengths
Weaknesses
Opportunities
Threats
Jobs on Trees
Houses on Trees
School Rebuilt

Consultations

3.0 Communications Strategy

The Communications Strategy aims to explore with as many groups as possible the issues that the proposed Argyll Array O&M could have on the island of Tiree. The Communications Strategy for the Tiree Onshore Scenario Mapping project has been tailored to promote a two way communication both understanding local issues, concerns and sensitivities and providing additional evidence and technical information to inform debate. This will develop the information provided to the community to date and will ensure there is a clear direction, purpose, objectives and outcomes.

Steering Group Consultations
The key consultees have included the Steering Group members: Argyll and Bute Council; Scottish Government; Marine Scotland; Highlands and Islands Enterprise; the Crown Estate; Tiree Community Development Trust; Caledonian Maritime Assets Limited; Scottish Natural Heritage; NHS Highland and the North of Scotland Public Health Network; and ScottishPower Renewables.

Officer Group Consultations
Workshop Consultations have been advanced with Argyll and Bute Council across Council Service Departments (Corporate Services / Education /Economic Development / Planning / Transport / Environmental Services / Business Gateway) and with Highland and Isles Enterprise and with Skills Development Scotland.

Community and Stakeholder Consultations
Community Consultation has involved 1 orientation/baseline visit; 3 Consultation Events on Tiree; 1 Consultation Event with Tiree Association in Glasgow. A number of one-to-one business meetings held with local business interests and with specialist interest/representative and other groups including Tiree Fishermen's Liaison Group, NFUS; Coll Community Council and others (see Appendix 8).

Item	Timescale
Initial Fact Finding Visit	5th – 6th August 2011
Consultation Event 1	An Talla 24th – 25th August 2011
Consultation Event 2	An Talla 2nd- 4th October
Consultation Event (Tiree Association)	Glasgow 7th November 2011
Consultation Event 3	An Talla 29th– 30th November 2011
Presentation & Reporting	**May 2012**

Consultation Summary August—December 2011
Total consultations:

- Local community event attendance 206
- Local Businesses consulted 36
- Tiree Association event attendees 18
- Other Stakeholders (A&BC Officers etc) 21
- Ad-hoc / Written Consultees 20


Operations & Maintenance

Section 3
Consultations

Consultations included various groups making reference to studies and project information and views collated through their respective organisations and web sites. Each of the organisations holds information and content that informs the debate and these importantly include:

- Tiree Community Development Trust
  http://www.tireetrust.org.uk

- No Tiree Array
  http://www.no-tiree-array.org.uk/

- Tiree Rural Development Ltd
  http://www.tireerd.org.uk/

- Tiree Association
  http://www.tireeassociation.co.uk

The three island based consultation events were each organised with a specific purpose and intent and are summarised below:

Consultation Event 1 – Key Issues
The focus of the initial Consultation Event was to seek to better understand community issues and the implications on the topics identified by the TCDT/Forum in its report 'Tiree Today and for the Future'

- **Confirmation TCDT / Forum issues**
  - 12 Key Topic Issues and initial concerns raised from consultation
  - Jobs, Housing and implications for Education/Health /Life Style are key topic areas
  - Breadth of views from clear objection to positive support with most attendees reserving position

- **Objectives and Outcomes broadly supported**
  - Draft Objectives and Outcomes addressed key areas of concern

- **New and additional key issues advised at the consultation included:**
  - Need more detailed information on the O&M Scenarios and Tiree benefits
  - Better understanding of any proposed development scale relative to way of life
  - Need to understand job opportunities; employment and skill sets required for jobs
  - Lack of clarity in any information on the scale of change and infrastructure needs
  - Lack of clarity on potential for disruption and impacts on transport (air/ferry/roads)
  - Re-iterated more strongly concerns regarding light pollution and helicopter noise
  - Recognition that Tiree has successfully accommodated change in the past
  - Need to consider wider opportunity for developer contributions to community benefits

Consultation Event 2 – Key Issues

The focus of the second Consultation Event was to better understand the potential benefits and disbenefits and the balance of impact and to review potential benefit associated with jobs, and any potential community fund.

- Detail presented on the key elements within 4 alternative scenarios
- Detail presented on Changing Technology / Converter Station / O&M Procurement / Challenging Environments
- Summary Mapping presented showing possible relationships between O&M base, helicopter facility, ferry terminal

- **Key Issues Raised through consultation included:**
  - Presentation well received in terms of additional levels of information – but more detail & on-going dialogue sought
  - Key opportunities recognised as including:
    - Local jobs & access to jobs
    - Local employment and training /apprenticeships for young people
    - Population growth with additional support for local goods and services
    - Long term economic benefit to island from investment
  - Key concerns remain associated with:
    - Level and Timing of Assurances in terms of commitment to delivery of local benefits
    - Environmental impact associated with Helicopter Movements / Converter Station / Harbour Requirements / Place Quality
    - Impacts of Array on tourism /environment and communities and O&M employment leading to displacement of local jobs/job-shares
  - Interest in how wider community issues might be addressed – Community Benefit Fund


Consultation Event 3 – Key Issues
The focus of the third Consultation Event was to outline and allow consultees to review the initial findings and advise on the amendments to the scenario modelling relative to employment and other implications associated with O&M.

- Detail presented on the key elements within 4 alternative scenarios
- Detail presented on the amended Scenario Mapping outputs in terms of job numbers / housing / school places and demand on services.
- Additional mapping information provided on locational dependencies and scale of developments including the converter station.
- Summary Mapping presented showing possible relationships between O&M base, helicopter facility, ferry terminal

- **Key Issues Raised through consultation included:**
  - Limited attendance
  - Opportunities recognised as including:
    - Local jobs & access to jobs
    - Local employment and training /apprenticeships for young people
    - Population growth with additional support for local goods and services
    - Long term economic benefit to island from investment
  - Key concerns remain associated with:
    - Level and Timing of Assurances in terms of commitment to delivery of local benefits and lack of clarity regarding Community Benefits
    - Environmental impact associated with Helicopter Movements / Converter Station / Harbour Requirements / Impacts on Place Quality
    - Concerns expressed about delivery assurances, mitigation risks and scheme fundability
    - Impacts of array on tourism /environment and communities and O&M employment leading to displacement of local jobs/job-shares


In summary Consultation Feedback has highlighted concerns relating to:

Opportunities	Concerns
■ The project will provide the island with more investment, opportunities and financial benefit; economic growth is essential on a small island like Tiree. ■ Tiree needs this, the windfarm = jobs + people = the island's future. ■ Funded training will enable local people to take jobs. ■ Local building industry will benefit through the creation of indirect employment. ■ Local infrastructure will be improved. ■ Tiree is going backwards and it should be going forwards; the development will bring more families / people to the island. ■ Effects of the development, i.e. a growing population, more jobs, more children in the school, align with Tiree's Growth Plan. ■ A broad range of jobs will be created. ■ A 'sovereign wealth fund' could be created which would benefit the island over the next 20 years, providing a long term resource for the community. ■ Choosing a scenario with island involvement will provide local benefits. ■ Dispersing new housing across the island will reduce the impacts. ■ Recognition that the school requires help and the development offers the opportunity for this to happen.	■ Noise pollution by the helicopter flights as the island is downwind from the development site, residents will hear a lot of 'air traffic' to and from the site due to the amount of flights. ■ The ferry is already at capacity during much of the year, additional passengers will worsen this problem. ■ Loss of croft land will have a negative effect on the island. ■ An offshore converter would be very large and unsightly; however an onshore converter will also have a negative impact on the island. ■ The development would create a lot of light pollution on and offshore. ■ The suggestion that 60% of the workforce will have families is too high. ■ Concern over who will buy new housing and whether houses will become even less affordable for local residents. ■ Concern the island will become a 'hub' for other offshore wind developments on the west coast. ■ Concern that Gaelic will be diluted. ■ Worry that the sense of community will be lost on the island as a result of the proposed development. ■ Concern over the negative impact the development will have on tourism. ■ Fear that the development may drive people to move off the island

Section 3
Consultations

An important part of the consultation process has been developing the understanding of the issues around core and shared visions for the island whilst recognising that the balance of these issues varies between supporters and objectors to the array and these influence discussions on O&M.

A number of objectives were developed and consulted upon at each of the Consultation Events seeking to establish the importance of protecting key assets of the island that contributes to its qualities of place, community, life style and island economy. These are as follows:

Agriculture Objective:
To seek to maintain current land management practice and capacity including access to markets and sustaining agricultural / crofting employment

Fishing Objective:
To seek to maintain the fishing industry at current levels and/or support modest sustainable growth through improvements to infrastructure and secondary support for fishing incomes.

Design & Construction Objective
To seek to ensure place quality is enhanced, derelict and vacant land and buildings are utilised, sustainable design principles and local bespoke design guidance is adopted.

Education Objective:
To seek to ensure any additional population growth associated with O&M supports educational provision on the island.

Employment Objective
To seek to increase local employment opportunities that support skills and training and opportunities for young people whilst growing the locally employed population base and non-seasonal job opportunities.

Heritage Objective:
To seek to protect social, environmental and cultural heritage recognising a risk associated with de-population that impacts on a vibrant island cultural life.

Nature Conservation Objective:
To seek to respect nature conservation designations and ensure any future planning and design take full account of environmental/ impacts and conservation of natural systems.

Housing Objective
To seek to ensure any additional population growth associated with O&M provides housing complementary to the existing settlement structure and its distinctive place qualities.

Noise Objective:
To seek to ensure that the noise environment is addressed with specific reference to helicopter access and servicing.

Tourism Objective:
To seek to maintain the 'special qualities of place' that support the tourism sector recognising the importance of sports / leisure / recreation and cultural heritage to the tourism economy

Transport Objective:
To seek to maintain and enhance transportation access within the modes of air, sea and road with appropriate improvements to infrastructure or service levels that recognise the needs of all sectors.

Health
To seek to maintain access to health facilities and ensure provision addresses future health needs

Visual Change
To seek to ensure that the visual environment is addressed with specific reference to place quality, buildings and design.

Way of Life
To seek to maintain a special 'way of life' that offers a diversity of community interests, opportunity for enterprise, for relaxation and amenity that support civic community capacity and health and avoids the loss of the things that make Tiree a special place to live, work and visit.

The objectives have been used to allow comparative assessment and high level analysis of the four scenarios and these are summarised in Section 6.


Tiree Today
Our Concerns Include
For the Future
FISHING
Tiree Today
Our Concerns Include
For the Future
NOISE
Tiree Today
Our Concerns Include
For the Future
Tiree must remain a place where peace and tranquility can be found.
TOURISM
Tiree Today
Our Concerns Include
For the Future


Scenario 1 Onshore O&M Base


Scenario 2 Offshore O&M Base Platform


Scenario 3 Offshore O&M Base Motheship


Scenario 4 Onshore O&M Base / Mothership

Operations & Maintenance Scenarios

The Scottish Government and the Crown Estate advise that the Argyll Array has the potential to provide more than one fifth of Scotland's electricity needs and generate a capacity of 1800MW of clean, low carbon energy.

ScottishPower Renewables anticipate an investment of over £6.5 billion and are advancing a development programme that would extend from the current feasibility and development stage through to implementation and an operational site in 2018-2020. The windfarm would be anticipated to operate for at least 25 years.

4.1 SPR's O&M Scenarios

ScottishPower Renewables at this early Feasibility & Development Stage have developed four potential O&M scenarios relating to the operations and maintenance activity. These are as follows:

Scenario 1 - Onshore O&M Base
An onshore base on the island (office/warehouse/yard) with up to five workboats and one helicopter accessing the array. Requires a harbour or breakwater.

Scenario 2 - Offshore O&M Base (Platform)
An offshore platform, located within the array, with workboats and one helicopter stationed on the platform.

Scenario 3 - Offshore O&M Base (Mothership Operating from Mainland Port)
Two motherships, stationed within the array, with daughter workboats and one helicopter stationed on the motherships with the mothership working from a mainland port.

Scenario 4 - Onshore O&M Base / Mothership (Operating from Tiree)
A combination of scenarios 1 and 3 with an arrangement based on motherships /daughter workboats working within the array, with the motherships and helicopter working from a Tiree base. Requires a harbour or breakwater.

Each of these scenarios may have varying implications for any associated onshore development. It is important that each scenario is better understood, analysed and the onshore implications identified and mapped to assess the potential environmental, socio economic and health/wellbeing impacts.

The study has included development of each of the four scenarios and these are summarised in the following pages. It should be noted these are scenarios based on best understandings and pre-date detailed marine surveys, turbine supply and operational reviews that will influence future development of the preferred O&M strategy.

4.2 Scenario Planning – A Forward Planning Tool

Scenario Planning is a tool to help stakeholders and others better understand the implications of change and assist consultation on how to manage potential futures more effectively.

SPR are at an interim stage in developing the scenarios and the figures used we understand are based on assumptions and best estimates. This should be recognised as a qualification to the quantitative assessment of the four scenarios and highlights the challenge of providing meaningful and robust outputs early in the development planning process.

Scenarios are widely used by various organisations and groups to assess change and help to inform views and future decisions. The information can inform debate by looking at existing facilities or experience and making assumptions about possible futures.

The scenario planning process can however provide a useful tool to highlight:

- Principal factors that create or drive change e.g. jobs, people, demand for services
- Provides based on percentage assumptions a better understanding of the range of change that might occur e.g. population growth / proportion of local versus new jobs
- Provides an explanation of likely outcomes based on understanding of existing baseline

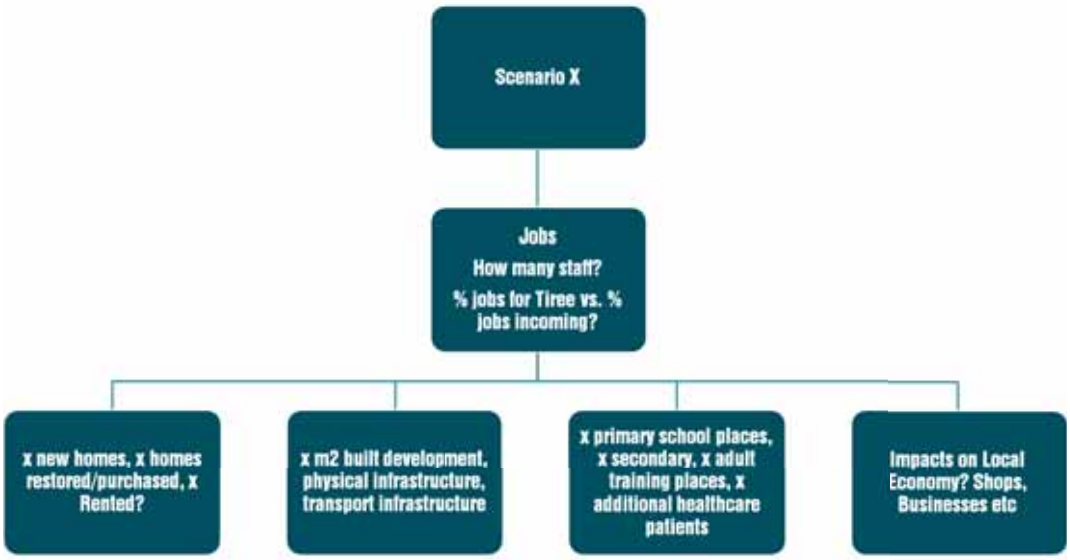
4.3 Key Issues influencing Benefits & Impacts

The key factors influencing change relative to the Onshore O&M Scenario Mapping can be addressed within each scenario based on an assumption of the level of activity e.g. assumed number of new employees choosing to live on Tiree or assumed number of new residents seeking new homes verses use of existing housing stock

Key areas that the scenario planning (see also Appendix 3) looks to address include:

- Nature of O&M Scenario
  - Onshore, Offshore Platform, Offshore Mothership, Onshore plus Mothership
- People required for each O&M Scenario
  - Onshore, Offshore - Tiree based Staff / Local jobs / Incoming workers
- Employment Profile for each O&M Scenario
  - Job Description / Skills Required / Training Support / Commitment to Local Job access
- Need & Implications for Community Infrastructure
  - Housing, Education, Healthcare and Lifeline service provision and Way of Life
- Need and Implications for Transport Infrastructure
  - Harbour upgrading , road access, ferry capacity, workboat facilities, helicopter access
- Need and Implications for Physical Infrastructure
  - Office, Workshop, Land Area, Maintenance Space, Harbour, ICT.

The diagram below illustrates some of the potential estimated outcomes that can be derived from scenario planning.



Comparative Assessment

Scenario 1 - Onshore O&M Base

An onshore base would have a Tiree base operating between the O&M office and workshops, harbour and helipad. This would include:

- Full O&M base including Office space, Maintenance and Workshop and Laydown space
- Helicopter pilot office within O&M base
- SCADA control room not on Tiree (utilise existing mainland facility)
- 5 x Workboats
- Helipad (1 x helicopter Eurocopter 135 or similar)
- Harbour upgrade would be required including breakwater

The proposed offshore array would be managed from an O&M base on Tiree.

Summary of Key Implications for Tiree

Onshore staffing would mean direct impacts and benefits to Tiree coupled with a requirement for a built facility or development of facilities on the island. The harbour would need to be upgraded to provide facilities for workboats and helipad would be stationed at either the harbour or the airport.

Key Areas that Need to be Addressed

Onshore O&M facilities will have implications on key areas of the islands economy and services that will require forward planning and dialogue to ensure change is managed and local communities are engaged in both the decision making process and mechanisms for delivery.

Overall Summary of Economic / Social & Environmental Impacts

Economic

- Direct Employment - 150 Array jobs (50% increase in current jobs base of island)
- Indirect Employment - 50 net additional jobs
- Approx £6.7 million net additional GVA per annum from all additional economic activity
- Substitution - Around 30-50 existing jobs would need to be back-filled as a result of residents choosing to work on proposed Array (50/50 between full and part-time jobs)
- 20-25 new residents seeking work on Tiree (outwith Array) with 5 new residents establishing new businesses on Tiree (assume home workers)
- 26-33 new houses needed with one-off construction impacts from housing development equivalent to 20 one-off annual jobs and £600,000 GVA
- New harbour – assume inclusion of 15 new marina berths for leisure purposes
- Tourists (potential for marina) + visiting friends + relatives generating local spending of £630,000 per annum less £100,000 per annum lost from holiday homes becoming permanent residences

Socio – Economic

- Increased population supports community infrastructure / resilience
- Supports more balanced demographic – age structure /social environment
- Increased population supports argument for improved ferry/air - lifeline services
- Greater demand for local goods and services
- Increased demand in sectors Hotels /Leisure/Retail sector

Environmental

- New harbour would need to be designed to ensure that there are no impacts on bird assemblages within SPA, SSSI and Ramsar site – Information to Inform an Appropriate Assessment will be required.
- Any development proposed at the airport would need to consider potential for impacts on the Tiree Machair SAC.
- Noise associated with helicopter flights – commitment to flight paths to avoid residential areas.
- Construction Method Statements for development activity

Employment – Jobs /Skills and Training

Job Generation

SPR estimate that an onshore O&M base on Tiree would generate up to 150 FTE jobs on Tiree with 38 of these jobs available to local people and 112 jobs for people relocating to the island.

Mitigation and Opportunities

The level and range of local job opportunity and training support for young people is an important local issue around which the community is seeking assurance. Types of assurance which would be helpful could include:

- Offshore Array Employment Charter e.g.
  - Commitment for local employment within O&M service contracts
- Education Charter e.g.
  - Commitment to higher and further education bursaries
- Public & Private Sector collaboration for advance skills training and career guidance e.g.
  - Advance skills training programmes Commitment to Apprenticeships
  - Commitment to adult & youth apprenticeships for technical support jobs

Built Development - O&M Facilities

O&M Facilities Required

The employment predictions establish office and workspace requirements and all supporting external space. The O&M operator will require a modern fully equipped facility with all normal servicing. The development will be expected to meet all Planning and Sustainable Design Guidance of Argyll and Bute Council and other agencies. Space requirements could be anticipated as follows:

- Office space 600m^2 – 2 storey building with 9m eaves height
- Modern open plan with ancillary services for boat and helicopter crews
- Full Broadband / ICT
- Workshop space 2500m^2 – single storey with 9m eaves height
- Stores and warehouse facility for spares and maintenance consumables
- External space - 1000m^2 - secure yardage
- Car & vehicular parking; fuel bunkering; external storage
- Helipad facility (if located with O&M base)
- Hangar (500m^2); Helipad Space (360m^2)

Opportunity and Mitigation

The scale of built development compares broadly with larger agricultural buildings on the island. These typically are of 800-1200m^2. Opportunity and Mitigation may be achieved by:

- Addressing needs with regard to A&BC Local Plan Industrial Land Allocation e.g.
  - Developing brown field land and minimising land take of land under agriculture
- Compliance with A&BC Sustainable Design Policy and Guidance e.g.
  - Limiting main building heights to maximum 9m to eaves
  - Considering scaling buildings to reflect current island scale
  - Employment of local architects / trades

Housing Requirements

Housing provision will be in part dependent on the level of local employment uptake (e.g. level of existing residents taking up jobs). In the Scenario Mapping we have assumed potential levels of local job uptake of between 15–25–35%. Assumptions on new build, locally purchased, restored and rented properties allow levels of new build housing to be estimated.

Opportunity and Mitigation
New housing needs to be developed in a manner sensitive to the settlement patterns of the island and seek to support local access to housing for young people from the island taking up employment in O&M. A number of housing scenarios could be envisaged including:

- Growth of a single Township e.g.
  - Settlement extension providing between 26 and 33 new homes
- Extension to a number of Townships across the island e.g.
  - Assuming 6 townships equates to 6 houses per township
- Dispersed housing e.g.
  - New housing throughout the island and on Brownfield land wherever possible

Housing is an important local issue around which the community is seeking assurance about quality and building design. Opportunity exists for housing refurbishment alongside contemporary new build in a manner that builds on community infrastructure and existing island skills capability and supports demand for goods, services & indirect jobs.

Infrastructure - Harbour / Airport / Roads

Harbour
The O&M operations will be operated by 5 workboats typically of 28m in length providing the service support and personnel access to the turbines in combination with the helicopter. A harbour facility created by a breakwater and offering pontoon / quay access will be required.

- Harbour Breakwater
  - Offering berthing for workboats all year round
- Pontoon and Quay facilities
  - 150 (+10)m sheltered pontoon length
  - Marine fuel bunkering (200,000l capacity) serviced and refuelled by sea-barge. It is not anticipated that workboat fuelling would require fuel import by ferry.

Airport/Heliport
The O&M operation could be supported by a helicopter base either at the harbour or potentially at the airport. Helicopter provision would include a hangar, helipad and fuel bunkering. Flight levels are currently under assessment but worst case numbers suggest 7-12 return flights per day. Fuelling provision for helicopters will not involve use of the ferry.

Local Roads
The O&M operation may require some local Road Network upgrading but only in the immediate local area of the O&M Base or between the base and the harbour. Access to the harbour / breakwater will be required for vehicles.

If helipad facilities were located at the airport volumes of traffic are unlikely to be significant. Existing road provision between the harbour and airport is adequate for the increased levels of use anticipated.

Opportunity and Mitigation
Infrastructure clearly needs to match any intensification of use whether this be associated with harbour/airport or roads. Local road upgrades may offer wider benefits as would development of the harbour. Issues requiring to be addressed would include:

- Harbour feasibility study should be advanced as this represents the most significant island infrastructure requirement for Scenario 1
  - Scenario 1 is predicated on a Harbour
  - Harbour at Gott Bay would involve 3+ year lead time & c. £15 million investment
  - Harbour planning needed in advance of Array commitment
  - O&M facility has strong dependencies with Ferry Terminal & other transport infrastructure
  - O&M operations will utilise airport (fixed wing) capacity in preference to extended helicopter flights
- - Harbour improvements may offer wider support to existing local businesses e.g.
  - Creating access for fishing / recreational boats and improving ferry weather protection and berthing ability
- Helicopter flights paths across defined sea routes could mitigate island over-flying.

Community Infrastructure

Education
The school roll currently stands at 94 (10 at pre-school, 44 primary and 40 secondary). Higher and further Education is provided on the mainland. Scenario 4 O&M operations would increase the resident population and increase the school roll. Based on a multiplier of 0.27 primary pupils per household (with families) and 0.2 secondary pupils per household (with families) the additional educational needs would include up to 9 Primary Pupil places and up to 7 High School places.

Health
O&M operations would potentially add 143 to an existing resident population of around 730. On the basis of new resident assumptions this could create additional demand on healthcare and community infrastructure. Health provision is responsive to demand/population with a particular need however to address community care.

Lifeline Services – Air and Ferry connections
Scenario 1 O&M operations by increasing island population will place additional demand on air and ferry connections. A 20% increase in population will require a review of current air and ferry capacity. Vehicular ferry capacity at weekends & in the summer months is near or at capacity. Reducing ferry cancellations and any improvement to capacity would offer local benefits.

Opportunity and Mitigation
A growing population would introduce both opportunity and impacts with mitigation dependent on investment in local capacity. Discussions are being progressed with a number of key service providers to identify any specific measures or responses.

- Discussions with CMAL / Calmac and HIAL regarding Lifeline services and need for forward planning to accommodate increased demand for these services
- Harbour feasibility study should be advanced

Scenario 2 - Offshore Platform

An offshore platform, located within the array, with workboats and one helicopter based on the platform.

- No O&M base on Tiree
- No SCADA control room (utilise existing mainland facility)
- Helicopter Station provided on mainland but with some limited use of Tiree (airport) and offering a potential link for local employees
- No O&M Support infrastructure required on Tiree

The proposed offshore array would be managed from a main land base with O&M activity operated from the platform.

The platform would operate similar to oil and gas developments with O&M staff recruited nationally and flown/ transported to the platform by air or boat from a mainland airport/port. No daily contact with Tiree would be required but fortnightly employment flights to the platform may be possible.

Summary of Key Implications for Tiree
Offshore staffing would mean no direct impacts or benefits to Tiree and no requirement for a built facility or development of facilities. Employment opportunity may exist at a minimal scale.

Key Areas that Need to be Addressed
Lack of Tiree based opportunity will require access to training schemes and opportunities - A wider opportunity would exist as part of the Argyll and Bute Renewable Energy Action Plan (REAP) to participate in wider skills and training programmes aimed at developing skills/competencies for the Renewable Energy Sector.

Overall Summary of Economic / Social & Environmental Impacts

Economic

- Direct Employment - 5 Array jobs, equating to 2% increase in current jobs base of Tiree
- Indirect Employment - very limited additional jobs or GVA for island
- Substitution - No substitution issues over existing jobs needing to be back-filled
- 1 new residents seeking work on Tiree (outwith Array) with no new residents establishing new businesses on Tiree
- 2-3 new houses needed, of which all assumed to be new build with one-off construction impacts from housing development equivalent to 2-3 one-off annual jobs and £0.1m GVA
- Visiting friends + relatives generating very limited local spending of c. £1,000 per annum
- no negative impact on existing visitor numbers through lost holiday homes

Socio – Economic

- No O&M based change to population on Tiree - any population structure changes will be in relation to existing factors i.e. availability of local jobs and employment
- No potential for improved ICT infrastructure etc through O&M activity
- There could be opportunity for access to training through for example Education Charters, Bursaries and Apprenticeships associated with the proposed array.

Environmental

- No harbour/breakwater would be required, nor any built development on the island with the exception of the convertor and therefore no anticipated environmental considerations or protection requirements. Potential environmental impacts of any onshore convertor needs to be assessed.
- Visual effects of the proposed offshore rig will need to be addressed in consultation with Marine Scotland
- Occasional helicopter flights associated with this Scenario and therefore noise associated with helicopter flights should be addressed through commitment to flight paths minimising impacts on residential areas.

Employment - Jobs /Skills/Training

Job requirements are broadly comparable to onshore facilities but none of the jobs would be based on Tiree. However a limited number of employees may be based on Tiree. The issue of skills requirements and development is currently being considered as part of the Argyll and Bute Renewable Energy Action Plan (REAP).

Built Development – O&M Facilities

Built development on Tiree would be limited to a potential converter station onshore.
No O&M workshop / office or other facilities would be proposed on Tiree.
All supplies would be sourced from a mainland base and delivered by air/sea directly to the rig.

Housing

Limited housing requirement on Tiree. Employment would be typically nationally recruited and access to the platform coordinated from the mainland O&M Base airport/port facility.

Infrastructure - Harbour / Airport / Roads

No harbour works required
No airport works required albeit that helicopter access to the existing airport may be used to a limited degree (e.g. for taking any locally employed people to and from the platform)
No road works required associated with O&M

Community Infrastructure

No additional load on community infrastructure except perhaps a potential requirement for medical support for non-surgical accidents / medical attention not provided by platform staffing, on a very limited basis.

Lifeline Services – Air and Ferry connections

No additional air or ferry requirements and no impact on existing ferry provision.

Scenario 3 - Offshore Motherships

Two motherships, stationed within the array, with daughter workboats and one helicopter stationed on the motherships with the mothership working from a mainland port.

- Operational control centre on Tiree but limited to office based functions, with no wider O&M support infrastructure (e.g. motherships) required on Tiree
- No SCADA control room (utilise existing mainland facility)
- No workshop facility
- Helicopter Station provided on Tiree

The proposed offshore array would be managed from a local Operational Control Centre based on Tiree and potentially located at the airport alongside helipad facilities. All physical operations and maintenance activity will be managed from the motherships with the vessels acting as a mobile platform. O&M staff would return to the mainland operating port, based on a shift pattern arrangement. No daily contact with Tiree would be required but fortnightly employment flights for local employees to the mothership may be possible.

Summary of Key Implications for Tiree
Offshore staffing would limit the impacts or benefits to Tiree with these limited to the operation control centre. Offshore employment opportunity may exist but would not be locally connected and access to opportunity may be more restricted than in Scenarios 1 and 4.

Key Areas that Need to be Addressed
Offshore staffing would limit the impacts or benefits to Tiree with these limited to the operation control centre and helicopter activity. Offshore employment opportunity may exist but would not be directly locally connected and access to opportunity may be more restricted than in Scenarios 1 and 4.

Overall Summary of Economic / Social & Environmental Impacts

Economic

- Direct Employment - 25 Array jobs, (8% increase in current jobs base of island)
- Indirect Employment - 5 net additional jobs on Tiree
- Approx £1.1 million net additional GVA per annum from all additional economic activity
- Substitution - 5-10 existing jobs would need to be back-filled as a result of residents choosing to work on proposed Array (split 50/50 between full and part-time positions)
- 5-10 new residents seeking work on Tiree (outwith Array) assume 1 new resident establishing a new business on Tiree;
- 4-6 new houses needed for new residents, of which one-off construction impacts from housing development equivalent to 5-6 one-off annual jobs and £0.2m GVA
- Visiting friends + relatives generating limited additional local spending of £7,000 per annum with lost spend of £10,000 per annum from holiday homes becoming permanent residences.

Socio – Economic

- No significant O&M based change to population on Tiree or resulting significant change to island services or businesses - any population structure changes will be in relation to existing factors i.e. availability of local jobs and employment
- Potential for improved ICT infrastructure etc through O&M activity (through Operating Control Centre)
- Opportunity for access to training could exist through for example Education Charters, Bursaries and Apprenticeships associated with the proposed array.

Environmental

- No harbour/breakwater would be required on the island so no potential impacts.
- Environmental design of any buildings would minimise potential impacts e.g. visual in line with Tiree Design Guide
- Any development proposed at the airport would need to consider potential for impacts on the Tiree Machair SAC.
- Noise associated with helicopter flights – commitment to flight paths to avoid residential areas.
- Construction Method Statements for development activity

Employment – Jobs /Skills and Training

Job Generation

SPR estimate that O&M from Offshore Motherships with only the operations control centre and helipad on Tiree would generate up to 25 FTE jobs on Tiree with 6 jobs for local people and 19 jobs for those relocating to the island.

Job requirements for the project are broadly comparable with those in scenario 1 with the difference being the majority of jobs would not be based on Tiree. The issue of skills requirements and development is currently being considered as part of the Argyll and Bute Renewable Energy Action Plan (REAP).

Mitigation and Opportunities

The level and range of local job opportunity and training support for young people is an important local issue around which the community is seeking assurance. Types of assurance which could be helpful could include:

- Offshore Array Employment Charter e.g.
  - Commitment for local employment within O&M service contract
- Education Charter e.g.
  - Commitment to higher and further education bursaries
- Public & Private Sector collaboration for advance skills training and career guidance e.g.
  - Advance skills training programmes Commitment to Apprenticeships
  - Commitment to adult & youth apprenticeships for technical support jobs

Built Development - O&M Facilities

O&M Facilities Required

Built development on Tiree would be limited to a potential converter station, an operational control centre and helicopter station/ hangar/helipad. The converter station could be proposed for either offshore or onshore – no decision has yet been made. No O&M workshop on the island would be required. Typically all supplies would be sourced from a mainland base and delivered by air/sea.

The employment predictions establish office and workspace requirements that should also allow for expansion and all supporting external space. The O&M operator will require a modern fully equipped facility with all normal servicing. Built development on Tiree will be expected to meet all Planning and Sustainable Design Guidance. Space requirements on Tiree are anticipated follows:

- Operations Control Centre 150m2
  - Modern open plan with ancillary services for helicopter crews
  - Full Broadband / ICT
- Mixed / Multi-function Workshop 500m2 – single storey with 9m eaves height
  - Stores and warehouse facility for spares and maintenance consumables
- External space - 250m2 - secure yardage
  - Car & vehicular parking; fuel bunkering; external storage
- Helipad facility
  - Hangar (500m2); Helipad Space (360m2)

Opportunity and Mitigation

The scale of built development compares broadly with larger agricultural buildings on the island. These typically are of 800-1200m^2. Opportunity and Mitigation may be achieved by:

- Addressing needs with regard to A&BC Local Plan Industrial Land Allocation e.g.
  - Developing brown field land and minimising land take of land under agriculture
- Compliance with A&BC Sustainable Design Policy and Guidance e.g.
  - Limiting main building heights to maximum 9m to eaves
  - Considering scaling buildings to reflect current island scale
  - Employment of local architects / trades

Housing Requirements

Housing provision will be in part dependent on the level of local employment uptake (e.g. level of existing residents taking up jobs). In the Scenario Mapping we have assumed potential levels of local job uptake of between 15–25–35%. Assumptions on new build, locally purchased, restored and rented properties allow levels of new build housing to be estimated.

Opportunity and Mitigation
New housing needs to be developed in a manner sensitive to the settlement patterns of the island and seek to support local access to housing for young people from the island taking up employment in O&M. A number of housing scenarios could be envisaged including:

- Growth of a single Township e.g.
  - Settlement extension providing between 4 and 6 new homes
- Extension to a number of Townships across the island e.g.
  - Assuming 6 townships equates to 1 house per township
- Dispersed housing e.g.
  - New housing throughout the island on Brownfield land wherever possible

Housing is an important local issue around which the community is seeking assurance about quality and building design. Opportunity exists for housing refurbishment alongside contemporary new build in a manner that builds on community infrastructure and supports demand for goods, services & indirect jobs.

Infrastructure - Harbour / Airport / Roads

Harbour
No harbour works required.

Airport/Heliport
O&M helicopter base on Tiree operating from the airport or harbour with new hangar/fuel bunker and support facility (Operational Control Centre) and linking to offshore motherships. Flight levels are currently under assessment but worst case numbers suggest 1-5 return flights per day.

Local Roads
No road works required associated with O&M. If Operational Control Centre and helipad facilities were located at the airport volumes of traffic are unlikely to be significant.

Opportunity and Mitigation
There is no anticipated intensification of use whether this be associated with harbour/airport or roads. Issues requiring to be addressed would include:

- Helicopter flights paths across defined sea routes could mitigate island over-flying.
- Need to protect existing air and sea capacity through service demand and capacity planning with key bodies including CMAL and Argyll and Bute Council.

Community Infrastructure

Education
The school roll currently stands at 94 (10 at pre-school, 44 primary and 40 secondary). Higher and further Education is provided on the mainland. Scenario 3 O&M operations would increase the resident population and increase the school roll. Based on a multiplier of 0.27 primary pupils per household (with families) and 0.2 secondary pupils per household (with families) the additional educational needs would include up to 2 Primary Pupil places and up to 1 High School places.

Health
O&M operations would potentially add 19 to an existing resident population of around 730. On the basis of new resident assumptions this could create limited additional demand on healthcare and community infrastructure. Health provision is responsive to demand/population with a particular need however to address community care.

Lifeline Services – Air and Ferry connections
Limited additional ferry requirements would arise from Scenario 3.

Opportunity and Mitigation
A growing population would introduce both opportunity and impacts with mitigation dependent on investment in local capacity. Discussions are being progressed with a number of key service providers to identify any specific measures or responses.

Scenario 4 - Onshore Base /Motherships

A combination of scenarios 1 and 3 with an arrangement based on motherships /daughter workboats working within the array, with the motherships and helicopter working from a Tiree base.

- O&M Office space, Maintenance and Workshop, Laydown space on Tiree
- Helicopter pilot office within O&M base
- SCADA control room not on Tiree (utilise existing mainland facility)
- 2 Motherships
- Helipad (1 x helicopter Eurocopter 135)
- Harbour upgrade would be required including breakwater

The proposed offshore array would be managed from Tiree including all operational and maintenance activity excluding SCADA /off-site monitoring control. The motherships would operate from an enhanced harbour but would be stationed on-field returning to Tiree for re-supply, crew changeovers and parts on a regular cycle – probably fortnightly, with one mothership returning to Tiree each week. Helicopter flights would support the motherships and would work in combination with the motherships in delivering technical engineers to the turbines. It would not be envisaged that turbine towers, nacelles or blades would be stored on the island. Key activities would include operational management, marine & flight logistics, programme management and engineering support.

Summary of Key Implications for Tiree
The numbers of O&M staff living on Tiree is anticipated to be 59 people but the potential catchment would be wider allowing mainland and Coll resident employees to access Tiree for the shift changes moderating the likely demands for local services, housing and community infrastructure. Critical to this scenario is development of harbour facilities.

Key Areas that Need to be Addressed
Onshore O&M facilities will have implications on key areas of the islands economy and services that will require forward planning and dialogue to ensure change is managed and local communities are engaged in both the decision making process and mechanisms for delivery.

Overall Summary of Economic / Social & Environmental Impacts

Economic

- Direct Employment - 59 Array jobs (19% increase in current jobs base of island)
- Indirect Employment - 30 net additional jobs
- Approx £2.8 million net additional GVA per annum from all additional economic activity
- Substitution - 10-20 existing jobs would need to be back-filled as a result of residents choosing to work at Array (split 50/50 between full and part-time positions)
- 10 new residents seeking work on Tiree (outwith Array) and assume 2 new residents establishing new businesses on Tiree
- 10-13 new houses needed for new residents with one-off construction impacts from housing development equivalent to 10 one-off annual jobs and £0.3m GVA
- Assume 15 new marina berths, of which 6 permanent/5 visitor (attracting new visitors)
- Tourists (potential for marina) + visiting friends + relatives generating local spending of £600,000 per annum less £20,000 per annum lost from holiday homes becoming permanent residences.

Socio – Economic

- Level of population increase would support community infrastructure / resilience and more balanced demographic – age structure /social environment
- O&M based change to population on Tiree would support island services - need to ensure that demand is accommodated without affecting Lifeline Services (air/ferry)

Environmental

- New harbour would need to be designed to ensure that there are no impacts on bird assemblages within SPA, SSSI and Ramsar site – Information to Inform an Appropriate Assessment will be required.
- Any development proposed at the airport would need to consider potential for impacts on the Tiree Machair SAC.
- Noise associated with helicopter flights – commitment to flight paths to avoid residential areas.
- Construction Method Statements for development activity

Employment – Jobs /Skills and Training

Job Generation

SPR estimate that an onshore O&M base on Tiree would generate up to 59 FTE jobs on Tiree with 15 of these jobs available to local people and 44 jobs for people relocating to the island.

Mitigation and Opportunities

The level and range of local job opportunity and training support for young people is an important local issue around which the community is seeking assurance. Types of assurance which could be helpful could include:

- Offshore Array Employment Charter e.g.
  - Commitment for local employment within O&M service contract
- Education Charter e.g.
  - Commitment to higher and further education bursaries
- Public & Private Sector collaboration for advance skills training and career guidance e.g.
  - Advance skills training programmes Commitment to Apprenticeships
  - Commitment to adult & youth apprenticeships for technical support jobs

Built Development - O&M Facilities

O&M Facilities Required
The employment predictions establish office and workspace requirements and all supporting external space. The O&M operator will require a modern fully equipped facility with all normal servicing. The development will be expected to meet all Planning and Sustainable Design Guidance. Space requirements could be anticipated as follows:

- Office space 600m^2 – 2 storey building with 9m eaves height
- Modern open plan with all ancillary services for boat and helicopter crews
- Full Broadband / ICT
- Workshop space 2500m^2 – single storey with 9m eaves height
- Stores and warehouse facility for spares and maintenance consumables
- External space - 1000m^2 - secure yardage
- Car & vehicular parking; fuel bunkering; external storage
- Helipad facility (if located with O&M base)
- Hangar (500m^2); Helipad Space (360m^2)

Opportunity and Mitigation
The scale of built development compares broadly with larger agricultural buildings on the island. These typically are of 800-1200m^2. Opportunity and Mitigation may be achieved by:

- Addressing needs with regard to A&BC Local Plan Industrial Land Allocation e.g.
  - Developing brown field land and minimising land take of land under agriculture
- Compliance with A&BC Sustainable Design Policy and Guidance e.g.
  - Limiting main building heights to maximum 9m to eaves
  - Considering scaling buildings to reflect current island scale
  - Employment of local architects / trades

Housing Requirements

Housing provision will be in part dependent on the level of local employment uptake (e.g. level of existing residents taking up jobs). In the Scenario Mapping we have assumed potential levels of local job uptake of 25%. Assumptions on new build, locally purchased, restored and rented properties allow levels of new build housing to be estimated.

- 11 new homes built
- 13 existing homes restored/purchased
- 19 Other + rented / part time residents

Opportunity and Mitigation
New housing needs to be developed in a manner sensitive to the settlement patterns of the island and seek to support local access to housing for young people from the island taking up employment in O&M. A number of housing scenarios could be envisaged including:

- Growth of a single Township e.g.
  - Settlement extension providing up to 11 new homes
- Extension to a number of Townships across the island e.g.
  - Assuming 6 townships equates to 1-2 houses per township
- Dispersed housing e.g.
  - New housing throughout the island on Brownfield land wherever possible

Housing is an important local issue around which the community is seeking assurance about quality and urban design. Opportunity exists for housing refurbishment alongside contemporary new build in a manner that builds on community infrastructure and supports demand for goods, services & indirect jobs.

Infrastructure - Harbour / Airport / Roads

Harbour
The O&M operations will be operated by 2 motherships providing the service support and personnel access to the turbines in combination with a helicopter. A harbour facility created by a breakwater and offering quay access will be required.

- Harbour Breakwater
  - Offering berthing for mothership(s) all year round
- Pontoon and Quay facilities
  - 140m of alongside space- quay wall or breakwater
  - Marine fuel bunkering serviced and refuelled by sea-barge. It is not anticipated that workboat fuelling would require fuel import by ferry. Aviation fuel bunkering is to be confirmed by SPR.

Airport/Heliport
The O&M operation could be supported by a helicopter base either at the harbour or at the airport. Helicopter provision would include a hangar, helipad and fuel bunkering. Flight levels are currently under assessment but worst case numbers suggest 1-5 return flights per day. O&M operators would be expected to maximise the use of fixed wing aircraft over that of helicopters for mainland trips

Local Roads
The O&M operation may require some local Road Network upgrading but only in the immediate local area of the O&M Base or between the base and the harbour. Access to the harbour / breakwater will be required for vehicles. If helipad facilities were located at the airport volumes of road traffic are unlikely to be significant.

Opportunity and Mitigation
Infrastructure clearly needs to match any intensification of use whether this be associated with harbour/airport or roads. Local road upgrades may offer wider benefits as would development of the harbour. Issues requiring to be addressed would include:

- Harbour feasibility study should be advanced as this represents a key element of Scenario 4 support infrastructure:
  - Scenario 4 is predicated on a Harbour
  - Harbour at Gott Bay would involve 3+ year lead time & c. £15 million investment
  - Harbour planning needed in advance of Array commitment
  - O&M facility has strong dependencies with Ferry Terminal & Transport Infrastructure
  - O&M operations will utilise airport capacity in preference to extended helicopter flights
- Harbour improvements may offer wider support to existing local businesses e.g.
  - Creating access for fishing / recreational boats and improving ferry weather protection
- Helicopter flights paths across defined sea routes could mitigate island over-flying.
- Need to protect existing air and sea capacity via dialogue with key bodies including CMAL and Argyll and Bute Council.

Community Infrastructure

Education
The school roll currently stands at 94 (10 at pre-school, 44 primary and 40 secondary). Higher and further Education is provided on the mainland. Scenario 4 O&M operations would increase the resident population and increase the school roll. Based on a multiplier of 0.27 primary pupils per household (with families) and 0.2 secondary pupils per household (with families) the additional educational needs would include up to 4 Primary Pupil places and up to 3 High School places.

Health
O&M operations would potentially add 56 to an existing resident population of around 730. On the basis of new resident assumptions this could create additional demand on healthcare and community infrastructure. Health provision is responsive to demand/population with a particular need however to address community care.

Lifeline Services – Air and Ferry connections
Scenario 4 O&M operations by increasing island population will place additional demand on air and ferry connections. A 7% increase in population will require a review of current air and ferry capacity. Vehicular ferry capacity at weekends & in the summer months is near or at capacity. Reducing ferry cancellations and any improvement to capacity would offer local benefits.

Opportunity and Mitigation
A growing population would introduce both opportunity and impacts with mitigation dependent on investment in local capacity. Discussions are being progressed with a number of key service providers to identify any specific measures or responses.

- Discussions with CMAL / Calmac and HIAL regarding Lifeline services and need for forward planning to accommodate increased demand for these services
- Harbour feasibility study should be advanced
- Discussion with Argyll and Bute Council and relevant health providers to ensure that future demand for services can be accommodated.

Objective Led Analysis

6.1 Objective Led Analysis

Whilst Section 6 to follow provides an appraisal of the 4 Scenarios based on employment led factors i.e. numbers of new jobs based on Tiree and therefore requirement for homes, infrastructure etc, an objective led analysis can provide an initial review of potential implications against a wider range of topic areas.

One way to determine potential impacts (both positive and negative) relative to an existing resource at a strategic level (e.g. in terms of impact on agricultural land, employment, etc) is to use an objective-led assessment to 'test' the strategic action or proposal and thereby predict its impacts and any mitigation required.

6.2 Development of Objectives

The objectives have been derived from:

- Guidance on objective led assessment including Strategic Environmental Assessment (SEA) and Scottish Transport Appraisal Guidance (STAG)
- Review of the topics within Tiree Forum Brochure 'Tiree Today and for the Future'
- Objective-setting with Steering Group
- Consultation with the community during Consultation Event 1, 2 and 3.

6.3 Identifying Opportunity and Requirement for Mitigation

Given that the Operations and Maintenance (O&M) will not be decided until 2016 at the earliest, there is a need to review the key areas of mitigation and/or where benefits/opportunity needs to be captured through a variety of mechanisms:

Mitigation	Required and addressed through: Sensitive design in line with A&BC Sustainable Design Policy and Guidance and addressing mitigation in accordance with PAN 58 Mitigation Guidance.
Planning	Required and addressed through: Any potential new housing and associated infrastructure may be dealt with through consideration of development plan policy.
Service Demand	Required and addressed through: Services would be required to respond in relation to any increases in population and will require forward planning and co-ordinated service delivery including building community capacity, skills development and training.
Infrastructure	Required and addressed through: Provision of New Harbour/Breakwater that should seek to capture wider benefits to the island and support sustainable economic activity.

Detailed recommendations for capturing opportunity or mitigation are provided within the detailed Scenario Assessments in Section 6.

6.3 Summary of Objective Led Analysis

The use of objectives provide a systematic, rigorous, and consistent framework with which to assess potential impacts - the assessment asks whether each of the potential O&M Scenarios either supports the objective or works against it. The table below provides a summary of this analysis and how potential impacts require to be addressed for each of the Scenarios should these be advanced by the future O&M operator.

Objectives	Initial review of potential implications of each Scenario against objectives			
	Scenario 1	**Scenario 2**	**Scenario 3**	**Scenario 4**
Agriculture To seek to maintain current land management practice and capacity including access to markets and sustaining agricultural / crofting employment	Mitigation Infrastructure	-	-	Mitigation Infrastructure
Fishing To seek to maintain the fishing industry at current levels and/or support modest sustainable growth through improvements to infrastructure and secondary support for fishing incomes.	Infrastructure	-	-	Infrastructure
Design & Construction To seek to ensure place quality is enhanced, derelict and vacant land and buildings are utilised, sustainable design principles and local bespoke design guidance is adopted.	Mitigation	-	-	Mitigation
Education To seek to ensure any additional population growth associated with O&M supports educational provision on the island.	Service Demand	-	Service Demand	Service Demand
Employment To seek to increase local employment opportunities that support skills and training and opportunities for young people whilst growing the locally employed population base and non-seasonal job opportunities.	Infrastructure Service Demand	Infrastructure Service Demand	Infrastructure Service Demand	Infrastructure Service Demand
Heritage To seek to protect social, environmental and cultural heritage recognising a risk associated with de-population that impacts on a vibrant island cultural life.	Mitigation	-	-	Mitigation
Nature Conservation To seek to respect nature conservation designations and ensure any future planning and design take full account of environmental/ impacts and conservation of natural systems.	Mitigation	-	-	Mitigation

Objectives	Initial review of potential implications of each Scenario against objectives			
	Scenario 1	**Scenario 2**	**Scenario 3**	**Scenario 4**
Housing To seek to ensure any additional population growth associated with O&M provides housing complementary to the existing settlement structure and its distinctive place qualities.	Mitigation Planning Infrastructure	-	-	Mitigation Planning Infrastructure
Noise To seek to ensure that the noise environment is addressed with specific reference to helicopter access and servicing.	Mitigation	Mitigation	Mitigation	Mitigation
Tourism To seek to maintain the 'special qualities of place' that support the tourism sector recognising the importance of sports / leisure / recreation and cultural heritage to the tourism economy.	Mitigation Planning Infrastructure	-	-	Mitigation Planning Infrastructure
Transport To seek to maintain and enhance transportation access within the modes of air, sea and road with appropriate improvements to infrastructure or service levels that recognise the needs of all sectors.	Mitigation Service Demand Infrastructure	-	-	Mitigation Service Demand Infrastructure
Visual Change To seek to ensure that the visual environment is addressed with specific reference to place quality, buildings and design.	Mitigation	-	-	Mitigation
Health To seek to maintain access to health facilities and ensure provision addresses future health needs	Service Demand	Service Demand	Service Demand	Service Demand
Way of Life To seek to maintain a special 'way of life' that offers a diversity of community interests, opportunity for enterprise, for relaxation and amenity that support civic community capacity and health and avoids the loss of the things that make Tiree a special place to live, work and visit.	Mitigation Planning Service Demand Infrastructure	-	Mitigation Planning Service Demand Infrastructure	Mitigation Planning Service Demand Infrastructure

Mitigation and Monitoring

7.1 Developing Mitigation and Monitoring Measures

This study has highlighted a range of measures/approaches that would address impacts and capture benefits arising from each of the potential O&M Scenarios should these (or variations thereof) be taken forward to more detailed planning stages.

Measures are as follows:

- Mitigation – Sensitive design in line with A&BC Sustainable Design Policy and Guidance
- Planning – Appropriate planning for new housing and associated infrastructure
- Service Demand – Services would be required to respond in relation to any increases in population
- Infrastructure – New Harbour/Breakwater may be required and should seek to capture wider benefits to the island

7.2 Structuring Community Benefits

Consultation and the study assessment suggests Community Benefits could be anticipated to be an important part of the mitigation strategy and the provision of indirect assurances to the community. There is a need to address structure / sovereign fund and mechanism for funding applications.

SPR has been assessing the aspect of Community Benefits with the objective of sharing its conclusions with the island by the end of 2012. The company has confirmed its commitment to the principle of creating a Community Partnership Fund, a mechanism that would provide direct investment in Tiree and the people who live on the island and would support local projects and initiatives.

The development of a Community Partnership Fund would be based on a number of factors, including:

- Creation and administration of any fund would involve a number of organizations
- The investment would be intended to support Tiree economically and socially
- The investment would be additional to any sums paid by SPR to individuals or businesses in Tiree under private contracts or agreements related to the development and operation of an array
- The investment would also be separate to any improvements to Tiree infrastructure essential for the development of an array, such as harbour or infrastructure works

7.3 Building Community Capacity, Skills Development & Training

A critical requirement in delivering benefits to the Argyll & Bute economy and to local communities is the development of community capacity and specifically advance programmes associated with skills development and training.

The issue of skills requirements and development is currently being considered as part of the Argyll and Bute Renewable Energy Action Plan (REAP).

7.4 Consenting Requirements

The procedure for gaining planning permission for offshore renewables has changed since the enactment of the Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009. The recent shift in focus towards the offshore energy potential around the Scottish Coastline has led to the requirement for up to date and concise marine guidance. ScottishPower Renewables (SPR) require the following licenses and consents in order to construct and operate the proposed Argyll Array:

Offshore – from Scottish Ministers

- A Marine Licence under Section 16 of the Marine (Scotland) Act 2010,
- Consent under Section 36 of the Electricity Act 1989 from the Marine Scotland's Licensing Operations Team for the construction and operation of an offshore windfarm.
- SPR will also be required to submit an Environmental Statement under the Electricity Works (Environmental Impact Assessment) Regulations 2000. The Environmental Statement should include all potential effects the proposal may have on protected sites, in particular sites designated under EU and UK legislation including the Conservation (Natural Habitats) Regulations 1994 and the RAMSAR Convention of Wetlands of International Importance (1971).
- A 'decommissioning plan' will also be required under the Energy Act 2004

Onshore – from Argyll and Bute Council

- Planning permission under the Town and Country Planning (Scotland) Act 1997 and as amended by the 2006 Town and Country Planning (Scotland) Act 1997 with regard to any onshore infrastructure.
- Depending on the nature and scale of onshore built development, an EIA under The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 may be required in addition to a Habitats Regulation Assessment under the Conservation (Natural Habitats) Regulations 1994.
- **Any harbour works (on land owned by CMAL, including the harbour at Gott Bay) would be subject to a Harbour Revision Order (1964 Harbours Act) and would therefore be subject to a ministerial decision**

The Blue Sea Green Energy – Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters (2011) highlights the importance of effective engagement with communities at project level, an example of which is undertaking a scenario / masterplanning approach as a way of informing future decisions with regard to onshore aspects of a proposal and positive engagement with communities in order to discuss options and seek public acceptability. This study has been progressed based on these principles with community consultation at the heart of the process.

7.5 Licence Conditions / Planning Conditions & S75 Agreements

Offshore

There will be Licence Conditions (Marine Licence under Section 16 of the Marine (Scotland) Act 2010) and Planning Conditions (Section 36 of the Electricity Act 1989) attached to the Licence and Consent for the proposed offshore array, if granted.

National Planning Policy Guideline NPPG1 - the Planning System (paragraph 49) sets out six tests for conditions:

- necessary
- relevant to planning
- relevant to the development to be permitted
- enforceable
- precise
- reasonable in all other respects

Onshore

Argyll and Bute Council as the planning authority will determine any land based planning applications for on-shore development associated with the proposed offshore array. Planning conditions to protect the environment and public amenity will be applied to any consents as required along with any Section 75 Legal agreements.

7.6 Future Change / Project Uncertainties

Emerging Technologies and Operations and Maintenance (O&M)

The Operations and Maintenance industry associated with offshore wind turbine arrays is a relatively young and developing industry with no fixed model on how the activity should be undertaken.

Established arrays have differing O & M requirements depending on a range of topics including:

- Distance to the array
- Sea conditions
- Turbine warranty status
- Operator preferences
- Manufacturer preferences

Reliability of offshore turbines remains an issue for manufacturers and operators and the industry is intent on improving reliability through changing and evolving technologies. Turbine failures relate to gearbox, electrical and related issues. The cost of a turbine being inactive is such that the operators are seeking continual improvements to increase reliability and reduce turbine down time. 24/7 and quick access to the turbine fields is essential to the O & M operator. Emerging technology changes such as gearbox improvements or replacement with direct drive turbines will serve to reduce maintenance burdens over time.

Marine Planning
The Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009 include new powers and duties to designate Marine Protected Areas (MPAs) as part of a range of measures to manage and protect our seas for current and future generations. SNH and JNCC are currently reviewing potential MPAs and will be reporting to the Scottish Parliament by the end of 2012 - any future MPA designation in the waters around Tiree will be an important consideration for both the proposed Array and O&M requirements.

Challenging Environments
The marine environment is particularly challenging for construction, fixed structures as well as O & M activities and the Argyll Array will bring its own particular challenges given the known extremes of weather and sea state experienced in the area.

Offshore O&M often means working in challenging environments:

- Wave heights and swell and frequency of storms
- Increased maintenance of turbines in harsh environments
- Challenges of remote working and HSE requirements

The Scenarios are being developed in parallel with detailed marine and climatic surveys to allow the Operations and Maintenance (O&M) needs for the proposed array to reflect the sea conditions of the waters around Tiree. Significant wave heights and windspeeds during the winter months need to be addressed in developing O&M solutions. Discussions are ongoing with operators and manufacturers to match operational specifications with these conditions. The scenarios give an impression of the scale of activities, types of impacts and benefits and allow early consideration of how opportunities may be secured and mitigation addressed. New innovations can be anticipated to influence future O&M activity and impacts upon the levels and provision of:

- Mothership / Workboat size, crews, support, maintenance
- Helicopter type, size, crews, support, maintenance
- Technical support staff requirements and shift patterns
- Corresponding facilities requirement (size of onshore base, mothership(s), platform)

O&M Procurement and Warranties
The O&M Procurement Process will influence the exact nature of the way that O&M is implemented. It will be informed by:

- The O&M provision should the proposed array go ahead will be tendered and therefore will be open to variation based on appointed O&M operators approach to the proposed development
- The initial O&M provision for the Array (anticipated to be a 5 year period) will be delivered by the turbine manufacturer and their own O&M team. As the warranty period comes to an end the O&M services would be re-tendered.
- New technology as it becomes available will influence O&M e.g. more reliable turbine components fitted, workboats able to work in poor weather conditions, increased telemetry etc
- Changes in response to HSE requirements and offshore working practices

Different operators will bring different experience and innovation to the O&M activity with SPR and/or turbine suppliers specifying the standards and any pre-requisites for operations. This study process is seeking to help understand future requirements for O&M some time in advance of firm decisions being able to be reached.

SPR are looking to lodge applications for permission to construct the windfarm in 2013 with an ambition to move to construction and operation in 2017-18. Innovation in technology and new experience from existing sites will impact on O&M procurement and detail.

O&M Vessel Design Challenges and Technologies
Vessels associated with O & M activities range from workboats (anticipated at 28 metre length) to large scale mothership vessels. The mothership concept provides for all O & M related activity including ship to turbine transfer, staff accommodation and welfare facilities, supplies, consumables, helicopter transfer and workboat docking/launch.

Such a vessel could be based at a mainland port such as Oban, Campbeltown, Ullapool or could be based on Tiree, subject to adequate harbour provision.

An upgraded harbour on Tiree would require to provide breakwater(s) and berthing designed to counteract both sea swell and wind conditions as well as provide an adequate draft and thus offering an appropriate standard for array vessels. Harbour works (on land owned by CMAL, including the harbour at Gott Bay) would be subject to a Harbour Revision Order (1964 Harbours Act) and would therefore be subject to determination by Scottish Ministers

Array Construction
Construction of an array falls outwith the remit of this study and the following comments and observations are made in relation to onshore implications.

Turbine assembly, construction and erection will be by large specialist vessels, typically jack up barge style vessels. These vessels are of a scale that would not lend themselves able to utilise Tiree as a base and are likely to be based at a turbine assembly yard such as Harland and Wolffe in Belfast. Once on the array site, these vessels remain there until the turbines are erected prior to returning to the assembly base. Interaction with Tiree is anticipated to be very limited during the construction of the offshore elements however a level of supplies/stores could feasibly be located on the island.

Convertor Station

The proposed offshore Array will include a requirement for a Converter Station. Whilst not part of the brief for this study, we are aware that there have been discussions about the need, location and size of a Converter Station either onshore on Tiree or offshore.

The converter station will form part of the associated development of the windfarm. This means the electrical infrastructure required for the windfarm – including export cabling (to take electricity to the national grid), substations and converter stations. Cabling would be underground and not on overhead lines.

A decision has not yet been taken on whether to propose that the converter station be offshore or onshore. If onshore, a building of dimensions 100 x 50 and up to 25 metres may be proposed (SPR Scoping Document, 2010).

An onshore convertor station would measure approximately 100m x 50m x 25m high. The height of the station is determined by the electrical components within the building, and it is expected that only a short section of the station would be at height of 25m, with the rest at a lower level.

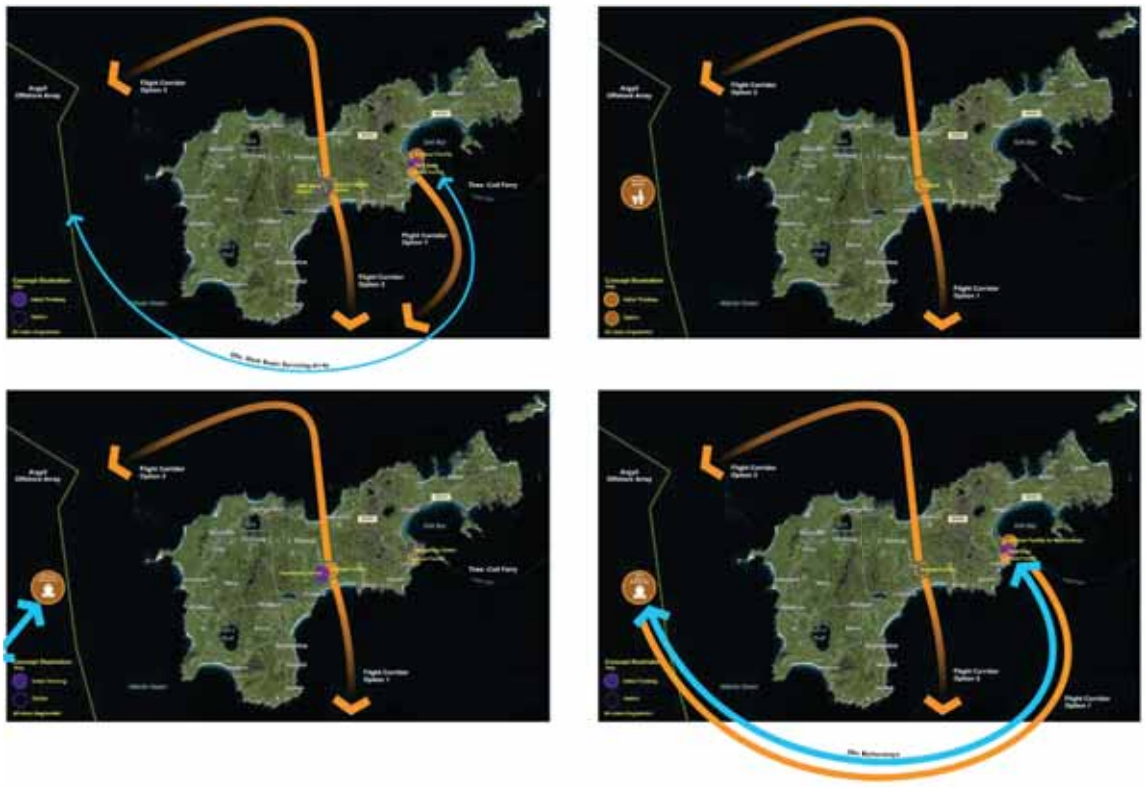
The convertor station has the potential to be a significant issue for the island with significant implications associated with its location / design and construction **e.g. road upgrade**. Detailed assessment of the potential on and offshore locations and the construction approach need to be addressed as early priorities within the development of the array. **The final decision on the convertor station will be informed by ongoing technical studies.**

The Local Development Plan (LDP) currently being drafted by Argyll and Bute Council to replace the existing Local Plan (2009) **and Argyll and Bute Structure Plan (2002)** will need to look at potential locations for the convertor station should this be anticipated to be onshore on Tiree. If the Convertor Station was to be located on Tiree, planning permission would be required and may include need for Environmental Impact Assessment / Habitats Regulation Assessment to address landscape and visual sensitivities, designated sites etc.

Helicopter Access and Flight Corridors
The proposed offshore array will include a requirement for helicopter support on the island of Tiree.

Each of the development scenarios will have different helicopter service needs but the level of use has the potential to create significant, (real and perceived) impacts on people, property and island qualities.

The issues, requirements, specification and operational management of helicopter facilities needs to be addressed and developed e.g. Whisper Helicopters / Flight Paths / Operating Times / Emergency Procedures etc.



Future Steps

Future Steps (O&M)

The consultants have advanced the Tiree Scenario Mapping Study in close consultation with the client partners, steering group and the local community and other stakeholders. The project is at an early development stage and it will be critically important to ensure partner, community and stakeholder interest continue to be coordinated and active engagement maintained with local communities.

Discussions within the Steering Group have indicated the intent for Argyll and Bute Renewable Alliance (ABRA) to take a more active role in supporting the co-ordination of next steps between the stakeholders.

The scenario mapping study has been undertaken to inform stakeholders and the community around the potential options for Operations and Maintenance (O&M) of the Argyll Array. Further development work will be required by SPR in consultation with Marine Scotland, The Crown Estate and Argyll and Bute Council.

Elements of development and feasibility will be progressed by ScottishPower Renewables closely linked to the Licensing and Consent programme and development of the Argyll and Bute Local Development Plan. Important next steps in this regard will include:

- ***Array / Operational Baseline Studies***
  Need to establish environmental /wave /construction & operational parameters effecting marine servicing as part of Scheme Development. Procurement arrangements and manufacturer /operational requirements

- ***Converter Station Design & Locational Assessment***
  Converter Station decisions are important to impact and mitigation. We understand that detailed assessment will be through the EIA for the proposed Array.

- ***Licence / Planning Procurement Programme***
  Need to ensure programme convergence on key consent and delivery issues

- ***Local Development Plan (LDP)***
  Development Framework / Masterplan to maintain continuing consultation and potentially to help inform the LDP.

Future Steps & Engagement

In addition to the elements noted above, a number of additional studies and actions need to be advanced and co -ordinated with stakeholders and communities if benefits are to be secured from the proposed Argyll Array and O&M arrangements. These will include:

- ***Engagement & Communications***
- Maintaining engagement activity e.g. through Argyll & Bute Renewable Energy Alliance (ABRA)
- ***Harbour Feasibility Study***
  Harbour requirement for Scenario 1&4 and would require early study and delivery
- ***Advance Skills and Training Programme***
  Advance Initiative required linking Skills /Training with future need with 3-4 year lead time with all key partners
- ***Community Benefit Review***
  Need to continue a dialogue on opportunity and issues associated with Community Benefits
- ***Health Impact Assessment***
  Ensure potential impacts and service demand are reviewed in advance with key partners

Maintaining engagement with communities and stakeholders will be critical if these groups are to continue to be involved in the development planning process. A high level innovative form of engagement has been advanced as part of Scenario Mapping. Stakeholder and communities will seek to continue to be informed in both the Licence and Planning consent procedures but as importantly, in areas associated with agreements for Community Benefits, harbour development and future project planning for the servicing of the Array and all land based implications.

A significant part of the local community is undecided as to the balance of benefits and impacts, opportunities and threats associated with the proposed array. Quality engagement and ensuring all parties (Supporter and Opponents) are well informed will be important.

Summary

Ironside Farrar recommend that the 'Future Steps' includes the following key areas. These recommendations have been informed by community consultation progressed to date.

Future Steps (Addressing O&M)

- **Operational Baseline (Array) Studies**
  Need to establish environmental /wave /construction & operational parameters affecting marine servicing. We understand that detailed assessment will be via EIA and engineering design for the proposed array.
- **Converter Station Design & Locational Assessment**
  Converter Station decisions are important re potential impacts and mitigation. We understand that detailed assessment will be progressed via EIA for the proposed Array.
- **Licence / Planning Procurement Programme**
  Need to seek programme convergence on key consents and delivery
- **Local Development Plan (LDP)**
  Development Framework / Masterplan to maintain continuing consultation and potentially to help inform the LDP. Scenario mapping has the potential to help inform the LDP as the scenarios and details continue to develop.

Future Steps (Addressing Engagement)

- **Maintaining Local Engagement**
  Ensuring Local Communities and Stakeholders continue to be involved and are kept up to date with the planning and O&M process
- **Harbour Feasibility Study**
  Detailed study outcomes will impact on viability of Scenario 1&4 and would require early study and delivery
- **Advance Skills and Training Programme**
  Advance Initiatives required linking Skills /Training with future need with c. 3-4 year lead time.
- **Community Benefit Review**
  Need to continue a dialogue on opportunity and issues associated with Community Benefits
- **Health Impact Assessment**
  Ensure potential impacts and service demand are reviewed in advance with key partners

Appendix 1
Socio-Economic Assessment

Argyll Array Wind Farm – Tiree Onshore Scenario Mapping

Socio-Economic Impacts

Report for Argyll and Bute Council

March 2012

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1. Introduction

This report presents EKOS's independent analysis of the potential on-shore socio-economic impacts (positive and negative) of the proposed Argyll Array off-shore wind farm development at Tiree (the Array). The impacts will arise through the operation and maintenance (O+M) of the completed development.

This analysis builds on base information provided by the developer, Scottish Power Renewables (SPR), relevant previous research, EKOS experience of undertaking project appraisals and evaluations, and feedback from the community and businesses on Tiree.

For clarity, the onshore impacts of four scenarios have been tested:

- Scenario 1 Onshore O+M base on Tiree – an onshore base on Tiree would operate between the office, workshops, harbour and helipad. This scenario therefore has significant direct impacts occurring at the O+M base, which is assumed to be at the harbour with possible facilities at the airport.

  Onshore staffing on Tiree would mean direct impacts coupled with the need for built facilities on the island. For this scenario the harbour would need to be upgraded to accommodate workboats – this creates the potential to develop a marina on Tiree.

- Scenario 2 Offshore O+M base on a platform – an offshore platform servicing the Array would connect to a mainland port for staffing and equipment. This scenario has no or negligible direct impacts for Tiree in terms of O+M activity. Any impacts or benefits would occur wherever the O+M mainland base operates from.

  For this scenario the platform would operate similar to oil and gas developments, with O+M staff recruited nationally and transported to the Array by air or boat from the mainland. No daily contact with Tiree would be required, but fortnightly employment flights to the platform may be possible. Offshore employment opportunities will exist but will not be locally connected, and access to employment for residents of Tiree will be restricted.

- Scenario 3 Offshore O+M base on a mothership – an offshore mothership arrangement for servicing the Array would operate from a mainland port. This scenario would have an Operational Control Centre and helicopter crew based on Tiree with all other O+M activity based on the mothership. This scenario therefore has minor direct implications for Tiree in terms of O+M activity. The main impacts or benefits would occur wherever the mainland base operates from.

  For this scenario all physical O+M activity would be managed from the mothership, with daughter workboats acting as mobile platforms. O+M staff would return to the mainland operating port, based on a shift pattern. Offshore staffing would limit the impacts on Tiree to the operational control centre. Offshore employment opportunities will exist but will not be locally connected, and access to employment for residents of Tiree will be restricted.

- Scenario 4 Onshore O+M base and Mothership – an onshore O+M base would comprise office, harbour and helipad. Two motherships would use the harbour for crew changes, refuelling and supplies. This scenario is a combination of Scenarios 1 and 3 and therefore has direct impacts for Tiree in terms of the O+M base, which is assumed to be at the harbour with possible facilities at the airport.

  The Array O+M would be managed from Tiree but staff would be stationed offshore. The potential catchment for employees could include Coll (as well as the mainland) moderating the likely demands for local services and housing.

  For this scenario the harbour would need to be upgraded to accommodate workboats – this creates the potential to develop a marina on Tiree.

These four scenarios have been presented to, and discussed with the community, at consultation events on Tiree. Feedback from these events, and from direct consultation with businesses has informed the socio-economic impact appraisal, as presented in Chapter 4.

2. Socio-Economic Context

This section presents an outline socio-economic context at the Argyll and Bute Local Authority area, and at the local level for the island of Tiree. The analysis is based on official government and other data sources (which provide a range of data, but which is held at different geographic levels and covers different time periods) together with three substantial research studies:

- Tiree Community Growth Plan 2011-2016;
- Phase 2 Socio-Economic Report, Argyll Renewables Communities, SQW, November 2011; and
- Population and Epidemiology of Coll and Tiree, Sarah Griffin, 2011.

This assessment only considers the impact of the long-term operation and maintenance of the Arrray – the O+M jobs.

2.1 Argyll and Bute Council

The Argyll + Bute local authority area had a resident base of almost 90,000 people in 2010, accounting for around 1.7% of the Scottish population.

An outline review of the socio-economic context for the area shows:

- a lower proportion of working-age residents than the national average – 62.3% compared with 65.7% – reflecting that young adults in particular leave the area for further/higher education and employment;
- more residents are self-employed than the national average – 13% compared with 7.4% across Scotland;
- a lower rate of unemployment – 6.3% compared with 7.4% across Scotland;
- residents are better qualified over all qualification categories with only 9.5% having no qualifications, compared with a national average of 12.3%;
- a lower proportion of residents on out-of-work benefits – 3.4% compared with 4.0% across Scotland; and

- a greater incidence of part-time working, accounting for 36.8% of all jobs compared with a national average of 32.2%.

2.2 Tiree

There is only limited direct data available on the socio-economic make-up of Tiree. Based on data gathered from a range of sources, we have identified the following:

- the current population on Tiree is around 730 people, of whom around 58% are of working age – this is lower than both the Argyll + Bute and Scottish averages, as presented above;
- there is a high proportion of retired residents on Tiree, 27% compared to the Scottish average of 16%;
- of the working-age population:
    - 28% are in full-time employment, compared with a national average of 40%
    - 13% are in part-time employment, national average of 11%
    - 17% are self-employed, national average of 7%
    - 38% are economically inactive, national average of 35%;
- there are around 320-330 jobs on Tiree, made up of both employee and self-employed jobs – a significantly higher proportion are likely to be within the 'Hotels, Distribution and Retail' and 'Public Administration' sectors that both the local authority and national averages;
- SIMD data reports that around 8% of the population would described themselves as 'employment deprived' equating to around 35 people;
- recorded unemployment is under 2%, significantly lower than the Argyll + Bute and Scottish averages;
- there are around 520 houses on the island, of which:
    - 340 are permanently occupied homes
    - 146 are second and/or holiday homes, 30% of the total stock compared with the Argyll + Bute average of 16%
    - 36 are vacant;

- the average income for residents is around £21,000 per annum, compared with the Argyll + Bute and Scottish averages of around £26,000 per annum;

- average property prices on Coll and Tiree were £120,500 in 2010; and
- there are almost 300 crofts and 6 farms on Tiree, but data from 2004 reports that only 82 crofts were being actively farmed.

Based on consultation with local business owners/managers and residents, the following presents a qualitative review of the socio-economic position on Tiree:

- there is potential for the Array to help re-balance the population profile of Tiree by attracting working age residents and retaining school leavers. It is recognised that there has been a long-term population decline which, coupled with the higher profile of older residents and ongoing migration, may decline further;
- it is recognised that Scenario 1 will generate a significant uplift in the current population base of the island, but in historic context the increased population would be roughly equivalent to that of the 1950s-60s;
- there is an opportunity to up-skill the population and encourage school pupils to aim for permanent / full-time / well paid employment positions at the Array – there is interest from Argyll College in delivering bespoke engineering training for local residents (most likely from an off-site location);
- there is interest from residents in the creation of permanent full-time employment with good career prospects and salary. Some existing employees will therefore be interested in shifting from having one or several jobs to a new position at the Array. There is also an expectation that the Array is likely to attract 'returners' to Tiree i.e. those that already have an established family connection with the island;
- a significant proportion of residents are employed on several part-time and/ or seasonal working patterns – there is therefore greater capacity/need for more employment positions outwith the peak holiday seasons (Easter/ Summer/October). There is also a higher than average incidence of informal working patterns where residents provide services to each other on a non-employment contract, and sometimes non-cash, basis;
- there does not appear to be a high level of spare capacity within the labour market that could accommodate high numbers of new jobs at the Array without having a negative impact on existing activity. If a significant

proportion of Array jobs were taken by local residents, there would be (relatively) high levels of substitution as employers have to back-fill existing low pay / part-time jobs. Some of these could be taken by existing residents who might take on more employment, but there might also be a need to attract new residents to fill these positions – it is recognised that it will be more difficult to attract new residents to part-time / low pay jobs than it would be for permanent high skills jobs at the Array;

- while the scenarios will have both positive and negative impacts on the tourist base (see the scenario assessments), it is recognised that there is potential to use the increased population of new residents as a catalyst to develop and diversify the tourism offering on the island. There will be more people living on the island, more visitors (assuming the marina proceeds) and more people movements to and from the mainland;
- feedback from the schools suggests that they are likely to be able to accommodate the forecast additional pupils so long as they are spread across the different age groups and don't all arrive in the same year. There may be a need for additional teaching staff with Scenario 1, but there are ongoing fluctuations in school rolls which has been managed in the past;
- the island's doctor is likely to be able to accommodate the forecast additional patients – there is already a need to deal with major uplifts in the population base over peak holiday seasons;
- the dentist may need to increase the time that they spend on Tiree to accommodate the forecast uplift in population associated with Scenario 1, but this is likely to be minimal;
- in retail terms, the forecast additional residents are not likely to have a significant impact on businesses as they already deal with major uplifts over peak holiday seasons. Scenario 1 will have the greatest impact and may require some additional staff and/or increase in the hours worked by existing part-time staff; and
- the Array could have a negative impact on crofting as a lifestyle choice if a significant proportion of the new jobs are taken by crofters and/or they back-fill employment positions left vacant by others. This would have a direct knock-on negative impact on land management, environment quality and diversity, which could in turn negatively impact on tourism. Many of the existing crofters on the island balance crofting with other part-time jobs.

3. Key Assumptions

In assessing the potential on-shore impacts of the proposed Array development, we have made a number of critical assumptions:

- for each option two scenarios have been considered where local residents secure either 15% or 25% of the O+M jobs;
- for each resident who secures a jobs at the Array, it is assumed that 1.25 jobs will need to be back-filled as residents substitute a number of part-time positions for one full-time position;
- each job at the Array will generate 0.15 net additional multiplier position on Tiree through business spend and supplier linkages;
- of the residents who move to Tiree to take up employment at the Array, it is assumed that 70% are single and 30% comprise adult only or adult and child families, with an average of 2.66 persons per family household;
- of the new child residents, it is assumed that 30% are pre-school, 40% are primary school age and 25% are secondary school age;
- each new household will generate 14 days visitor trips per annum – visiting friends and relatives – each of whom will spend £15 per day on Tiree, generating additional economic activity;
- new family households will be accommodated in existing houses that are refurbished (30%), new houses to be built (40%) and houses taken from the holiday/second home sector (30%);
- new single residents will be accommodated in existing houses that are refurbished (15%), new single houses to be built (10%), new shared housing units (60%) and houses taken from the holiday/second home sector (15%);
- each new household will spend an average of £100 per week on Tiree;
- while not certain, we have assumed that scenarios 1 and 4 will result in the development of a new 50 berth marina, of which 25 will be permanent berths and 25 will be visitor berths;
- the visitor berths will used at 100% capacity over a four month period and will also be used for 60 other days across the year, each berth will have an average of four people per berth, spending in total £100 per night on Tiree;

- of the new adult residents who move to Tiree (non-Array workers), 10% will establish new businesses, creating an average of 2 f/t employment positions per business;
- of the other non-Array adult residents, 65% will seek employment and 25% will be economically inactive; and
- those houses that are taken from the second/holiday homes sector will incur lost income to the island – it is assumed that each house is occupied for 15 weeks per annum by an average of four people spending £35 per day in total.

The socio-economic appraisals presented on the following pages are based on these assumptions.

4. Scenario Impact Analysis

This chapter presents the likely socio-economic impacts associated with the four scenarios for O+M of the Array. There is very little benchmark or evaluation evidence that can be applied to the assessment of impact, therefore we have based our appraisal on our professional judgement, as influenced by the feedback and views of local residents and businesses.

In analysing the scenarios, it is clear that there are both positive and negative relationships between different types of impacts, in particular:

- the higher the number of permanent Tiree-based O+M jobs that are created, the greater the physical and social impact that occurs i.e. through new housing development and changes in the culture/way of life on the island;
- the higher the number of permanent Tiree-based O+M jobs that are created, the greater the potential to secure professional (and highly paid) employment positions to existing residents, particularly school-leavers;
- the higher the proportion of jobs that are taken by local residents, the greater the issue of substitution i.e. more residents giving up part-time and seasonal work that will need to be back-filled by other residents. Some employment is likely to be taken by other residents (both new and existing) but there may be a long-term negative effect on some types of employment, particularly crofting which is tied to the resident's house and is unlikely to be back-filled;
- the lower the proportion of jobs that are taken by local residents, the lower the positive impact in supporting a long-term sustainable economy for Tiree i.e. there will be a greater turnover of employees who relocate to the island for a few years but ultimately move away;
- in order to maximise local employment prospects a bespoke training initiative will need to be developed and delivered for residents to ensure that they have the skills required – this is likely to be based outwith Tiree (to maximise the catchment base) and therefore require residents to live away from the island for a short period of time;

- the higher the number of new permanent residents that are attracted to live on Tiree, the greater the number of second/holiday home owners who will shift from servicing the visitor market and seek permanent tenants i.e. the higher the value of lost spend from tourists to the island;
- the higher the number of new permanent residents, the greater the number of new build houses that will be required creating competition with local residents i.e. there is already an identified housing shortfall on the island;
- the lower the number of new permanent residents that are attracted to live on Tiree, the greater the imbalance between visual and economic impacts i.e. residents will have the negative visual impact of the Array, but not the positive economic impacts associated with new jobs/residents;
- the lower the number of new permanent residents the lower the potential negative impact in relation to dilution of Gaelic culture, loss of way of life, potential increase in crime, vehicle damage to machair, etc;
- there is no evidence to suggest that the Array development will have a negative impact on tourism and fishing on Tiree, however, there is potential that some visitors might not choose to come to Tiree, meaning some lost income to the island; and
- there is some indication that crofting could be negatively impacted and therefore scope for lost income to the island as well as a major shift in the way of life, and the way the island's habitats are managed – these have potential negative effects on the attractiveness of the island, and therefore on tourism.

There is therefore no right or wrong answer in terms of the 'best' impact for Tiree, but it is important that the effects of each scenario are understood.

4.1 Scenario 1

This section presents the estimated socio-economic impacts on Tiree and the wider Argyll and Bute economy associated with Scenario 1 – giving high and low impacts depending on whether 15% or 25% of the direct Array jobs go to local residents. The assessment is made based on the assumptions outlined at Chapter 3.

Direct Array and Additional Economic Impacts

Scenario 1 assumes that there will be 150 direct O+M jobs created on the Array, of which we would estimated that between 23 (15%) and 38 (25%) will be taken by local residents, with the remainder taken by employees who will relocate to Tiree.

The new activity will generate additional employment through business supplier purchases, employee purchases, and visitor purchases. We have estimated that this new activity will generate additional employment of:

- 40 new jobs on Tiree;
- 75 new jobs in Argyll + Bute; and
- 120 new jobs in Scotland.

An increase of 190 new jobs on Tiree[1] equates to around a 60% increase in the number of jobs currently based on Tiree.

Together these direct (150) and additional (40) jobs will generate additional economic value on Tiree. The Government's preferred method of assessing economic value is through Gross Value Added (GVA) which in broad terms is a measure of the salary and profits generated.

Our assessment would suggest that around £6.6 million GVA will be generated through this additional economic activity. It is expected, however, that a high proportion of this will be spent outwith Tiree, but a significant proportion will be captured within Argyll and Bute, supporting further employment at the local authority level.

1 150 direct Array jobs, plus 40 additional jobs.

The GVA created through the direct and additional jobs at the Argyll + Bute level is estimated at £7.0 per annum and at the Scottish level of £7.5m per annum.

It is important to note that these employment and GVA impacts are not cumulative but represent the scale of impact at these different spatial levels.

Social Impacts

It is expected that a significant proportion of the employees at the Array will be new residents – between 113 (75%) and 128 (85%) of the total jobs. These new residents will comprise a mix of:

- single adults making up 70% of all new employees – between 79 and 89 people;
- adults with partners/spouses making up 30% of all new employees who bring an equal number of other adults to live on Tiree – 34-39 workers plus partners/spouses equating to 68-78 people; and
- children aged from 0-15 assuming 0.66 children per family household i.e. 34-39 x 0.66 – between 22 and 25 children.

The total new population living on Tiree is therefore 146-166 adults and 22-25 children. This equates to around a 25% increase in the current population base of Tiree, estimated at 730 people. It is likely that a significant proportion of the single adults will not make a permanent move to Tiree, but will most likely live there only during working periods, and that there will be a high level of turnover in this group.

It is likely that adults with partners/spouses (and children) will be more likely to make a permanent move to Tiree becoming integrated into the local community.

The adult population will be made up of those who work directly on the Array (13-128 people), and the spouses/partners of Array workers (34-39 people). We have assumed that these non-Array adults will be made up of:

- those who will look for employment on Tiree – 22-25 people (65%);
- those who will start (or relocate) their own business – 3-4 people (10%); and
- those who will not work (economically inactive) – 8-10 people (25%).

While individual people may change over the operating period of the Array, it is assumed that the volume of impacts described above will be permanent.

Based on our assessment of 23-30 of the Array jobs being taken up by local residents, we have estimated a knock-on effect of creating the need to back-fill between 28-47 existing jobs on Tiree as residents substitute existing employment (full/part time, permanent/temporary/seasonal) for permanent work at the Array.

A high proportion of these jobs could be taken by the 22-25 new residents (as outlined in the bullets above) who will relocate to Tiree with their partners/spouses. There would, however, be a need for existing residents to fill some of these positions. Alternatively there will be a need to attract wholly new residents (not included in this assessment) to be recruited if these jobs are to be back-filled, with no negative substitution effects for the island's economy.

Based on consultation with education and health professionals on Tiree, it is assumed that this level of impact can be accommodated within the existing service provision, with the following provisos:

- the uplift in population will have a minimal impact on local health services and new residents are likely to be fairly easily accommodated on the patient roll. The population on the island can increase by more than 500 people over peak holiday periods, many of whom will seek medical assistance.

  The impact of new residents is likely to be accommodated with no need for any increase in service provision.

- at present Tiree is served by a part-time dentist who works on the island for one week in every four.

  Whilst there is a need to provide emergency dental care for visitors to the island, the majority of dental work is pre-planned. The impact of new residents is therefore likely to require a modest increase in the existing service provision, based on a 25% uplift in population.

- Tiree provides both primary (English and Gaelic) and secondary education to residents. The current roll of the primary is 44 pupils (across both English and Gaelic units) with four teachers. The current roll of the secondary is 39 pupils with around 10 full-time equivalent positions. There is, however, significant variation in the roll with the secondary dropping from 56 to 39 over the past seven years and a further drop forecast for next year to around 30 pupils.

  The impact of 10 additional primary and 6 secondary pupils can be accommodated within the physical capacity of the school buildings, but an increase of 25% and 15% respectively on the current roll of the primary and secondary, might require a small uplift in additional teaching staff.

Housing Impacts

The effects of Scenario 1 will generate both permanent and one-off impacts on the local housing market.

In order to accommodate the new residents who will relocate to Tiree to work on the Array, there will be a need to provide new housing. Our analysis shows that depending on the proportion of jobs that are taken by local residents and therefore those that must be filled by new residents, there will be a need for 81-92 new permanent homes.

Our analysis assumes that there would be sufficient water, sewerage and power supply to meet these additional houses, but this would need to be investigated in detail at the appropriate stage.

We have assumed that these houses will be made up from the following stock:

- existing vacant and derelict houses on Tiree that will be refurbished to provide family homes – 22-25 units;
- new houses that are built to accommodate single employees, based on 3 adults per unit – 16-18 units;
- new houses that are built to accommodate families – 21-24 units; and
- existing houses that are taken from the second/holiday home sector and let as permanent residences – 22-25 units.

These impacts are assumed to be permanent and continuous.

There will also be one-off impacts within the construction sector associated with refurbishment and development to create new homes. Due to the nature of construction activities, construction jobs are based on an assessment of Man Year Equivalents (MYE). This method allows the number of people that will work on the construction activities over the build period (which will vary between full-time, part-time, permanent, temporary and contract) to be estimated as an annual equivalent post i.e. the total number of full-time workers that would be needed to complete the developments if all the construction activity was undertaken over a one year period.

Our analysis identifies that these activities would lead to the creation of around 40 MYE posts, generating one-off GVA impacts of around £1.15 million.

Tourism Impacts

Scenario 1 will generate tourism impacts for Tiree.

The extent to which positive impacts will outweigh the negative is highly dependent on the development of a new marina within the harbour – we have assumed a 50 berth marina, of which 25 berths will be exclusively for the use of visiting boats. Impacts have been estimated at:

- positive impacts will be generated through the attraction of visitors who are visiting friends/relatives on the island and also those using the visitor berths at the marina:
    - with a marina included, the impacts are estimated at around 6,250 visitor days per annum, generating £480,000 spend each year
    - without a marina the impacts are estimated at around 1,680 visitor days per annum generating £25,000 spend each year; and
- these positive impacts are offset through the negative effects of lost visitors as some holiday and second homes are removed from this sector and owners lease them as permanent residences to Array workers:
    - the impacts are estimated at around 10,000 lost visitor days per annum that would have generated around £85,000 spend each year.

Summary Impacts

Scenario 1 generates the greatest impact on Tiree, primarily through the attraction of new residents who will work at the Array.

In total our analysis identifies the following socio-economic benefits for Tiree associated with Scenario 1:

- 150 permanent jobs based on Tiree through the Array;
- 38-40 other jobs created through new business and resident spend;
- 23-38 jobs at the Array will go to local residents, leaving 28-47 jobs to be back-filled by others (assuming an average of 1.25 jobs per employed resident); and
- 22-25 new adult residents will seek employment when they relocate to Tiree, four will be self-employed and 10 will be economically inactive.

Outwith the Array, we would estimate that between 64-81 new jobs will be created/ need to be backfilled as a result of Scenario 1, but we have estimated only 22-25 new adult residents are likely to seek employment.

The analysis shows a gap of 40-50 positions that would need to be filled either by existing residents, new residents who expect to be economically inactive, or by attracting more new residents to the island. Consultation with local residents and business owners raises concerns about the capacity (and interest) of existing residents to take on these new employment opportunities.

As presented in Chapter 2, however, around 35 residents have previously described themselves as 'employment deprived'. There is no data to show whether this relates to the need for full- or part-time positions and therefore no means of assessing the employment gap that could arise.

In addition to the benefits there is also potential for negative impacts to occur, namely a large influx of new people living on the island, possible reduction in crofting activity, change in land management (potentially affecting tourism), dilution of Gaelic culture, loss of way of life, increased crime, vehicle damage to machair, etc.

The summary impact table for Scenario 1 is presented over.

Table 1: Scenario 1 Impact Assessment

Scenario 1 Impact Assessment	15% Jobs for Locals	25% Jobs for Locals
Direct Array and Additional Economic Impacts (Annual)		
Total direct jobs (Array O+M)	150	150
Direct jobs for local residents	*(23)*	*(38)*
Direct jobs for new residents	*(127)*	*(112)*
Additional jobs – new business, resident and visitor spend	+40	+38
Total GVA generated (direct + additional jobs) per annum	£6.6m	£6.58m
Social Impacts (Permanent)		
New population on Tiree	191	169
Single adults	*(89)*	*(79)*
Family adults	*(77)*	*(68)*
Children	*(25)*	*(22)*
New adult population	166	146
Array workers	*(128)*	*(113)*
Non-Array adults – looking for work	*(25)*	*(22)*
Non-Array adults – start new business	*(4)*	*(3)*
Non-Array adults – economically inactive	*(10)*	*(8)*
Jobs to be back-filled	28	47
Housing Impacts (Permanent)		
Total homes for new residents	92	81
New homes – existing refurbished family homes	*(25)*	*(22)*
New homes – new build shared housing (3 adults per unit)	*(18)*	*(16)*
New houses – new build family homes	*(24)*	*(21)*
New houses – from second/holiday homes	*(25)*	*(22)*
Housing Construction Impacts (One-Off)		
Housing construction jobs (direct + additional jobs)	41 MYEs	36 MYEs
Total housing construction GVA generated	£1.236m	£1.091m
Tourism Impacts (Annual)		
New tourist days per annum (VFR + marina)	6,300	6,100
New tourist spend (VFR + marina)	£0.483m	£0.480m
Lost tourist days per annum (lost holiday homes)	-10,400	-9,200
Lost tourist spend (lost holiday homes)	-£0.091m	-£0.081m

Source: EKOS Economic Impact Analysis, Scenario 1, December 2011

4.2 Scenario 2

This section presents the estimated socio-economic impacts on Tiree and within the wider Argyll + Bute economy associated with Scenario 2. The assessment is made based on the assumptions outlined at Chapter 3.

Direct Array and Additional Economic Impacts

Scenario 2 assumes that there will be 150 direct O+M jobs created on the Array, but only five of which will be based on Tiree, with the remaining 145 stationed on an off-shore platform, serviced from a mainland port through workboats and a helicopter. It is assumed that 75 employees will be resident within Argyll + Bute and all 150 will be resident in Scotland.

An increase of five new jobs on Tiree will have a minimal impact, equating to around a 2% increase in the number of jobs currently based on Tiree.

Of the five jobs that will be based on Tiree, we have assumed that one will be taken by a local resident and the remaining four will be taken by new residents who will move to Tiree. These five jobs will generate around £0.2m GVA per annum.

It is expected, however, that a high proportion of this will be spent outwith Tiree, but a significant proportion will be captured within Argyll and Bute, supporting employment at the local authority level.

The new activity will generate additional employment through business supplier purchases, employee purchases, and visitor purchases. We have estimated that this new activity will generate additional employment of:

- no new jobs on Tiree;
- 25 new jobs in Argyll + Bute, generating net additional GVA of £3.3m per annum; and
- 90 new jobs in Scotland, generating net additional GVA of £7.1m per annum.

Social, Housing and Construction Impacts

The social impacts of the Array will have a very limited effect on the existing social make-up of Tiree, and that the employees resident at the Argyll + Bute and Scottish levels will either be already resident in these locations, or will be assimilated into them with very little additional social effects.

It is assumed that the four additional Array workers will be accommodated within the existing housing stock on Tiree (accommodated in housing removed from the second/holiday homes stock) with very limited impacts, and that there will be no additional housing construction activity or impacts.

As Scenario 2 does not have the potential to support the development of a new marina at the harbour, the tourism impacts will be neutral i.e. any VFR tourism spend will be offset by the removal of holiday spend.

There are therefore no additional housing, construction or tourism effects to consider with Scenario 2, but there are social effects. An important positive aspect of this scenario is that many potential negative impacts would be avoided such as helicopter flights, a reduction in crofting activity, change in land management (and the consequent potential impact on tourism), dilution of Gaelic culture, loss of way of life, crime, vehicle damage to machair, and changes to house prices/availability, etc.

Summary Impacts

Scenario 2 generates very limited impacts on Tiree. In total our analysis identifies the following socio-economic effects:

- five permanent jobs based on Tiree through the Array;
- no additional jobs created through new business and resident spend;
- one job at the Array will go to a local resident, any need to back-fill this position can be accommodated easily by other residents; and
- the four new adult employees will be made up of three single adults and one who will relocate their family – five new adults and one new child in total.

The summary impact table for Scenario 1 is presented over.

Table 2: Scenario 2 Impact Assessment

Scenario 2 Impact Assessment	
Direct Array and Additional Economic Impacts (Annual)	
Total direct jobs (Array O+M)	5
Direct jobs for local residents	*(1)*
Direct jobs for new residents	*(4)*
Additional jobs – new business, resident and visitor spend	-
Total GVA generated (direct + additional jobs) per annum	-
Social Impacts (Permanent)	
New population on Tiree	6
Single adults	*(3)*
Family adults	*(2)*
Children	*(1)*
New adult population	5
Array workers	*(4)*
Non-Array adults – looking for work	*(1)*
Non-Array adults – start new business	-
Non-Array adults – economically inactive	-
Jobs to be back-filled	1
Housing Impacts (Permanent)	
Total homes for new residents	2
New homes – existing refurbished family homes	-
New homes – new build shared housing (3 adults per unit)	*(1)*
New houses – new build family homes	-
New houses – from second/holiday homes	*(1)*
Housing Construction Impacts (One-Off)	
Housing construction jobs (direct + additional jobs)	-
Total housing construction GVA generated	-
Tourism Impacts (Annual)	
New tourist days per annum (VFR)	-
New tourist spend (VFR)	-
Lost tourist days per annum (lost holiday homes)	-
Lost tourist spend (lost holiday homes)	-

Source: EKOS Economic Impact Analysis, Scenario 2, December 2011

4.3 Scenario 3

This section presents the estimated socio-economic impacts on Tiree and the wider Argyll and Bute economy associated with Scenario 3 – giving high and low impacts depending on whether 15% or 25% of the direct Array jobs go to local residents. The assessment is made based on the assumptions outlined at Chapter 3.

Direct Array and Additional Economic Impacts

Scenario 3 assumes that there will be 150 direct O+M jobs created on the Array, but only 25 of which will be based on Tiree, with the remaining 125 stationed on an off-shore platform, serviced from a mainland port through workboats and a helicopter. It is assumed that 85 employees will be resident within Argyll + Bute and all 150 will be resident in Scotland.

An increase of 25 new jobs on Tiree will have a small impact, equating to around a 4% increase in the number of jobs currently based on Tiree. Of the 25 jobs, we have estimated that between 4 (15%) and 6 (25%) will be taken by local residents, with the remainder taken by employees who will relocate to Tiree.

The new activity will generate additional employment through business supplier purchases, employee purchases, and visitor purchases. We have estimated that this new activity will generate additional employment of:

- 4 new jobs on Tiree, generating additional GVA of £1.075m per annum;
- 29 new jobs in Argyll + Bute, £3.8m GVA per annum; and
- 94 new jobs in Scotland, £7.2m GVA per annum.

It is important to note that these employment and GVA impacts are not cumulative but represent the scale of impact at these individual spatial levels.

Social Impacts

It is expected that a significant proportion of the employees at the Array will be new residents – between 19 (75%) and 21 (85%) of the total jobs. These new residents will comprise a mix of:

- single adults making up 70% of all new employees – between 13-15 people;
- adults with partners/spouses making up 30% of all new employees who bring an equal number of other adults to live on Tiree – 6 workers plus partners/spouses equating to 12 people; and
- children aged from 0-15 assuming 0.66 children per family household i.e. 6 x 0.66 = 4 children.

The total new population living on Tiree is therefore 25-27 adults and 4 children. This equates to around a 4% increase in the current population base of Tiree, estimated at 730 people. It is likely that a significant proportion of the single adults will not make a permanent move to Tiree, but will most likely live there only during working periods, and that there will be a high level of turnover in this group.

It is likely that adults with partners/spouses (and children) will be more likely to make a permanent move to Tiree becoming more integrated into the local community.

The adult population will be made up of those who work directly on the Array (19-21 people), and the spouses/partners of Array workers (6 people). We have assumed that these non-Array adults will be made up of:

- those who will look for employment on Tiree – 4 people;
- those who will start (or relocate) their own business – 1 person; and
- those who will not work (economically inactive) – 1person.

While individual people may change over the operating period of the Array, it is assumed that the volume of impacts described above will be permanent.

Based on consultation with education and health professionals on Tiree, it is assumed that this level of impact can be accommodated within the existing service provision with no adverse impacts.

Based on our assessment of 4-6 of the new Array jobs being taken by local residents, we would estimate a minimal knock-on effect of the need to back-fill existing jobs, estimated at 5-8 jobs. We would estimate that there is sufficient capacity within the existing labour market to provide this level of cover i.e. 4 new residents looking for work plus existing residents looking for (additional) work.

An important positive aspect of this scenario is that many potential negative impacts would be avoided (and/or significantly reduced) such as helicopter flights, a reduction in crofting activity, change in land management (and the consequent potential impact on tourism), dilution of Gaelic culture, loss of way of life, crime, vehicle damage to machair, and changes to house prices/availability, etc.

Housing Impacts

The effects of Scenario 3 will generate both permanent and one-off impacts on the local housing market.

In order to accommodate the new residents who will relocate to Tiree to work on the Array, there will be a need to provide new housing. Our analysis shows that depending on the proportion of jobs that are taken by local residents and therefore those that must be filled by new residents, there will be a need for around 15 new permanent homes.

We have assumed that these houses will be made up from the following stock:

- existing vacant and derelict houses on Tiree that will be refurbished to provide family homes – 4 units;
- new houses that are built to accommodate single employees, based on 3 adults per unit – 3 units;
- new houses that are built to accommodate families – 4 units; and
- existing houses that are taken from the second/holiday home sector and let as permanent residences – 4 units.

These impacts are assumed to be permanent and continuous.

There will also be one-off impacts within the construction sector associated with refurbishment and development to create new homes. Due to the nature of construction activities, construction jobs are based on an assessment of Man Year Equivalents (MYE). This method allows the number of people that will work on the construction activities over the build period (which will vary between full-time, part-time, permanent, temporary and contract) to be estimated as an annual equivalent post i.e. the total number of full-time workers that would be needed to complete the developments if all the construction activity was undertaken over a one year period.

Our analysis identifies that these activities would lead to the creation of around 7 MYE posts, generating one-off GVA impacts of around £0.19 million.

Tourism Impacts

As Scenario 3 does not have the potential to support the development of a new marina at the harbour, the tourism impacts will be neutral i.e. any VFR tourism spend will be offset by the removal of holiday spend.

Summary Impacts

Scenario 3 generates the some impact on Tiree, primarily through the attraction of new residents who will work at the Array.

In total our analysis identifies the following socio-economic benefits for Tiree associated with Scenario 3:

- 25 permanent jobs based on Tiree through the Array;
- 4 other jobs created through new business and resident spend;
- 4-6 jobs at the Array will go to local residents, leaving 5-8 jobs to be back-filled by others (assuming an average of 1.25 jobs per employed resident); and
- 4 new adult residents will seek employment when they relocate to Tiree, 1 will be self-employed and 1 will be economically inactive.

It is assumed that these new non-Array residents can be assimilated into the local employment base with no, or very limited, impact.

Outwith the Array, we would estimate that between 9-12 new jobs will be created on Tiree as a result of Scenario 3, but only 4 new adult residents who are likely to seek employment. It is assumed that these other positions can be filled by existing residents taking on new/additional jobs.

The summary impact table for Scenario 3 is presented over.

Table 3: Scenario 3 Impact Assessment

Scenario 3 Impact Assessment	15% Jobs for Locals	25% Jobs for Locals
Direct Array and Additional Economic Impacts (Annual)		
Total direct jobs (Array O+M)	25	25
Direct jobs for local residents	*(4)*	*(6)*
Direct jobs for new residents	*(21)*	*(19)*
Additional jobs – new business, resident and visitor spend	+4	+4
Total GVA generated (direct + additional jobs) per annum	£1.075m	£1.072m
Social Impacts (Permanent)		
New population on Tiree	32	28
Single adults	*(15)*	*(13)*
Family adults	*(13)*	*(11)*
Children	*(4)*	*(4)*
New adult population	28	24
Array workers	*(21)*	*(19)*
Non-Array adults – looking for work	*(4)*	*(4)*
Non-Array adults – start new business	*(1)*	*(1)*
Non-Array adults – economically inactive	*(2)*	*(1)*
Jobs to be back-filled	5	8
Housing Impacts (Permanent)		
Total homes for new residents	15	15
New homes – existing refurbished family homes	*(4)*	*(4)*
New homes – new build shared housing (3 adults per unit)	*(3)*	*(3)*
New houses – new build family homes	*(4)*	*(4)*
New houses – from second/holiday homes	*(4)*	*(4)*
Housing Construction Impacts (One-Off)		
Housing construction jobs (direct + additional jobs)	7 MYEs	6 MYEs
Total housing construction GVA generated	£0.206m	£0.182m
Tourism Impacts (Annual)		
New tourist days per annum (VFR)	300	260
New tourist spend (VFR)	£4,500	£4,000
Lost tourist days per annum (lost holiday homes)	-1,700	-1,500
Lost tourist spend (lost holiday homes)	-£15,000	-£13,500

Source: EKOS Economic Impact Analysis, Scenario 3, December 2011

4.4 Scenario 4

This section presents the estimated socio-economic impacts on Tiree and the wider Argyll and Bute economy associated with Scenario 4 – giving high and low impacts depending on whether 15% or 25% of the direct Array jobs go to local residents. The assessment is made based on the assumptions outlined at Chapter 3.

Direct Array and Additional Economic Impacts

Scenario 4 assumes that there will be 150 direct O+M jobs created on the Array, 60 of which will be based on Tiree, with the remaining 90 stationed on an off-shore mothership, serviced from a mainland port through workboats and a helicopter. It is assumed that 100 employees will be resident within Argyll + Bute and all 150 will be resident in Scotland.

An increase of 60 new jobs on Tiree will have a large impact, equating to around a 20% increase in the number of jobs currently based on Tiree. Of the 60 jobs, we have estimated that between 9 (15%) and 15 (25%) will be taken by local residents, with the remainder taken by employees who will relocate to Tiree.

The new activity will generate additional employment through business supplier purchases, employee purchases, and visitor purchases. We have estimated that this new activity will generate additional employment of:

- 23-24 new jobs on Tiree, generating additional GVA of £2.7m per annum;
- 50 new jobs in Argyll + Bute, £4.6m GVA per annum; and
- 110 new jobs in Scotland, £7.3m GVA per annum.

It is important to note that these employment and GVA impacts are not cumulative but represent the scale of impact at these individual spatial levels.

Social Impacts

It is expected that a significant proportion of the employees at the Array will be new residents – between 45 (75%) and 51 (85%) of the total jobs. These new residents will comprise a mix of:

- single adults making up 70% of all new employees – between 32 and 36 people;
- adults with partners/spouses making up 30% of all new employees who bring an equal number of other adults to live on Tiree – 13-15 workers plus partners/spouses equating to between 26 and 30 people; and
- children aged from 0-15 assuming 0.66 children per family household – i.e. 13-15 x 0.66 = 9-10 children.

The total new population living on Tiree is therefore 58-66 adults and 9-10 children. This equates to around a 20% increase in the current population base of Tiree, estimated at 730 people. It is likely that a significant proportion of the single adults will not make a permanent move to Tiree, but will most likely live there only during working periods, and that there will be a high level of turnover in this group.

It is likely that adults with partners/spouses (and children) will be more likely to make a permanent move to Tiree becoming more integrated into the local community.

The adult population will be made up of those who work directly on the Array (45-51 people), and the spouses/partners of Array workers (14-15 people). We have assumed that these non-Array adults will be made up of:

- those who will look for employment on Tiree – 9-10 people;
- those who will start (or relocate) their own business – 2 people; and
- those who will not work (economically inactive) – 3 people.

While individual people may change over the operating period of the Array, it is assumed that the volume of impacts described above will be permanent.

Based on consultation with education and health professionals on Tiree, it is assumed that this level of impact can be accommodated within the existing service provision.

Based on our assessment of 9-15 of the new Array jobs being taken by local residents, we would estimate a knock-on effect of the need to back-fill existing jobs (11-19 jobs) as residents substitute other employment for jobs at the Array. We would estimate that there is likely to be sufficient capacity within the existing labour market to provide this level of cover i.e. 10 new residents looking for work plus existing residents looking for new (additional) work.

Housing Impacts

The effects of Scenario 4 will generate both permanent and one-off impacts on the local housing market.

In order to accommodate the new residents who will relocate to Tiree to work on the Array, there will be a need to provide new housing. Our analysis shows that depending on the proportion of jobs that are taken by local residents and therefore those that must be filled by new residents, there will be a need for 32-37 new permanent homes.

Our analysis assumes that there would be sufficient water, sewerage and power supply to meet these additional houses, but this would need to be investigated in detail at the appropriate stage.

We have assumed that these houses will be made up from the following stock:

- existing vacant and derelict houses on Tiree that will be refurbished to provide family homes – 9-10 units;
- new houses that are built to accommodate single employees, based on 3 adults per unit – 6-7 units;
- new houses that are built to accommodate families – 8-10 units; and
- existing houses that are taken from the second/holiday home sector and let as permanent residences – 9-10 units.

These impacts are assumed to be permanent and continuous.

There will also be one-off impacts within the construction sector associated with refurbishment and development to create new homes. Due to the nature of construction activities, construction jobs are based on an assessment of Man Year Equivalents (MYE). This method allows the number of people that will work on the construction activities over the build period (which will vary between full-time, part-time, permanent, temporary and contract) to be estimated as an annual equivalent post i.e. the total number of full-time workers that would be needed to complete the developments if all the construction activity was undertaken over a one year period.

Our analysis identifies that these activities would lead to the creation of around 15 MYE posts, generating one-off GVA impacts of around £0.46 million.

Tourism Impacts

Scenario 4 will generate tourism impacts for Tiree.

The extent to which positive impacts will outweigh the negative is highly dependent on the development of a new marina within the harbour – we have assumed a 50 berth marina, of which 25 berths will be exclusively for the use of visiting boats. Impacts have been estimated at:

- positive impacts will be generated through the attraction of visitors who are visiting friends/relatives on the island and also those using the visitor berths at the marina:
    - with a marina included, the impacts are estimated at around 5,200 visitor days per annum, generating £465,000 spend each year
    - without a marina the impacts are estimated at around 650 visitor days per annum generating £10,000 spend each year; and
- these positive impacts are offset through the negative effects of lost visitors as some holiday and second homes are removed from this sector and owners lease them as permanent residences to Array workers:
    - the impacts are estimated at around 4,000 lost visitor days per annum that would have generated around £35,000 spend each year.

Summary Impacts

Scenario 4 generates the greatest impact on Tiree, primarily through the attraction of new residents who will work at the Array.

In total our analysis identifies the following socio-economic benefits for Tiree associated with Scenario 1:

- 60 permanent jobs based on Tiree through the Array;
- 24 other jobs created through new business and resident spend;
- 9-15 jobs at the Array will go to local residents, leaving 11-19 jobs to be back-filled by others (assuming an average of 1.25 jobs per employed resident); and
- 10 new adult residents will seek employment when they relocate to Tiree, 2 will be self-employed and 3 will be economically inactive.

Outwith the Array, we would estimate that between 35-42 new jobs will be created on Tiree as a result of Scenario 4, but only 10 new adult residents who are likely to seek employment.

The analysis shows a gap of 24-32 positions that would need to be filled either by existing residents, new residents who expect to be economically inactive, or by attracting more new residents to the island. Consultation with local residents and business owners raises concerns about the capacity (and interest) of existing residents to take on these new employment opportunities.

As presented in Chapter 2, however, around 35 residents have previously described themselves as 'employment deprived'. There is no data to show whether this relates to the need for full- or part-time positions and therefore no means of assessing the employment gap that could arise.

In addition to the benefits there is also potential for negative impacts to occur, namely a large influx of new people living on the island, possible reduction in crofting activity, change in land management (potentially affecting tourism), dilution of Gaelic culture, loss of way of life, increased crime, vehicle damage to machair, etc.

The summary impact table for Scenario 4 is presented over.

Table 4: Scenario 4 Impact Assessment

Scenario 4 Impact Assessment	15% Jobs for Locals	25% Jobs for Locals
Direct Array and Additional Economic Impacts (Annual)		
Total direct jobs (Array O+M)	60	60
Direct jobs for local residents	*(9)*	*(15)*
Direct jobs for new residents	*(51)*	*(45)*
Additional jobs – new business, resident and visitor spend	+24	+23
Total GVA generated (direct + additional jobs) per annum	£2.7m	£2.7m
Social Impacts (Permanent)		
New population on Tiree	76	67
Single adults	*(36)*	*(31)*
Family adults	*(30)*	*(27)*
Children	*(10)*	*(9)*
New adult population	66	58
Array workers	*(51)*	*(45)*
Non-Array adults – looking for work	*(10)*	*(9)*
Non-Array adults – start new business	*(1)*	*(1)*
Non-Array adults – economically inactive	*(4)*	*(3)*
New jobs to be back-filled	11	19
Housing Impacts (Permanent)		
Total homes for new residents	37	32
New homes – existing refurbished family homes	*(10)*	*(9*
New homes – new build shared housing (3 adults per unit)	*(7)*	*(6)*
New houses – new build family homes	*(10)*	*(8)*
New houses – from second/holiday homes	*(10)*	*(9)*
Housing Construction Impacts (One-Off)		
Housing construction jobs (direct + additional jobs)	16 MYEs	14 MYEs
Total housing construction GVA generated	£0.494m	£0.436m
Tourism Impacts (Annual)		
New tourist days per annum (VFR + marina)	5,300	5,200
New tourist spend (VFR + marina)	£0.467m	£0.466m
Lost tourist days per annum (lost holiday homes)	-4,200	-3,700
Lost tourist spend (lost holiday homes)	-£36,000	-£32,000

Source: EKOS Economic Impact Analysis, Scenario 4, December 2011

Appendix 2
Environmental Baseline

Appendix 2 Environmental Baseline

2.1 Baseline Data

This section includes baseline environmental data for Tiree collected by means of a desk based study using:

- SNHi web based data and reporting
- Pastmap
- UK Biodiversity Action Plan
- Argyll and Bute Biodiversity Action Plan
- SNH Tiree, Coll and the Western Isles Natural Heritage Futures (2002)

2.2 Description of Tiree

Tiree is located on the west coast of Scotland, 22km west of Mull and is the most westerly of the Inner Hebrides. The island is approximately 3 by 12 miles and primarily has a very flat topography, the highest point on the island being Ben Hynish which stands at 141m. The main settlement on the island is Scarinish, while several other settlements are scattered across the island connected by a single track road network.

The majority of the island is used for agricultural purposes, predominately for livestock rearing and some crop growth.

2.3 European Designated Habitats and Species

There are 8 designated sites on the island, these are as follows:

Designation	Name	Distribution	Comment
SSSI	Ceann a' Mhara to Loch a' Phuill	Western side of island	Biological: Habitat: Coastal Biological: Habitat: Freshwater
SSSI	Hough Bay and Balevullin Machair	Northern side of island	Biological: Habitat: Coastal Biological: Habitat: Machair Grassland Biological: Habitat: Standing Water
SAC	Tiree Machair	Island wide designated areas	Embryonic shifting dunes; 'white dunes', 'grey dunes', humid dune slacks, machairs, natural eutrophic lakes with

Designation	Name	Distribution	Comment
			Magnopotamion or *Hydrocharition*- type vegetation.
SAC RAMSAR SSSI	Sleibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast)	Island wide designated areas The majority of the islands coastline is designated as a RAMSAR site due to the wetland habitat.	SPA & RAMSAR - Dunlin, Redshank, Oystercatcher, Ringed Plover, Turnstone, Barnacle Goose, Greenland white-footed goose. SSSI - breeding waders and terns, wetland breeding bird assemblage, wintering shoreline waders, wintering Greenland geese, coastal dunes and machair, standing water and associated aquatic flora.
SAC	Loch a' Phuill	South-western side of island	Natural eutrophic lake with *Magnopotamion* or *Hydrocharition*- type vegetation.
SPA	Tiree (Corncrake)	Island wide	Corncrakes
Area of search for Marine SPA	Coastal Waters	Coastal waters around Tiree including Array site, Coll and Mull	Wintering Great Northern Divers
Area of search for MPA	Skye to Mull MPA	Coastal waters around Tiree, Coll, Mull, Small Isles and Skye (Eigg, Muck and Rhum)	Basking Sharks and Minke Whale

2.3 Machair

Machair is a distinctive sand dune formation formed by a particular combination of physical factors, including climate and landform. Machair is formed when sand with a high shell content is blown onshore on to which vegetation develops that is typical of calcareous to neutral sandy grassland. The habitat type supports large breeding bird populations and is particularly important for waders and corncrake (*Crex crex)*.

Low intensity farming such as the traditional agricultural practices that take place on Tiree benefit the machair. Sheep and cattle rough graze around the island's coastal areas.

JNCC Description – Tiree is considered to have the most extensive and diverse area of **machair** outside the Outer Hebrides. 24% of the total area of the island is machair. The machair complex on Tiree is uncultivated and has a long history of seasonal grazing. There is a diverse series of physical machair formations. The Tiree complex is also noteworthy as one of the few examples of rabbit-free machair in Scotland. An Fhaodhail and the Reef is an extensive area of wet machair grading into an extensive marsh and wetland (An Fhaodhail), and is the only site in the Inner Hebrides that is influenced by saline water. The site is unusual in that it is grazed only by cattle, a traditional management practice that has maintained an extremely rich and varied flora. In contrast, Hough Bay – Balevullin is a complex of dry machair and hummocky dunes forming an intricate mosaic with wet machair and dune slack vegetation

2.4 Locally Designated Sites

There are approximately 18 Local Nature Conservation Sites on Tiree as identified within the Argyll and Bute Local Plan (2009).

2.5 Environmental Baseline Summary

Environmental Topic	Summary of Environmental Baseline	Implications for Operations & Maintenance (O&M)
Geology & Soils	• There are no features of geological interest within the proposed development site or in the vicinity. No issues relative to groundwater, contaminated land, mining/stability or quarrying have been identified at this stage.	• Localised geo-environmental requirements will be assessed as part of detailed O&M design should this be Tiree based.
Land Use & Infrastructure	• Primarily agricultural land / rough grazing • Dispersed settlements / individual housing	• If crofting jobs are reduced/crofters move jobs to O&M, land management may decline.

<table>
<tr><th>Environmental Topic</th><th>Summary of Environmental Baseline</th><th>Implications for Operations & Maintenance (O&M)</th></tr>
<tr><td></td><td>• Single track road network</td><td>• Assessment of croft boundaries/habitat management as a result of crofting should be undertaken to assess potential changes.
• Assessment of road network/potential upgrades required.</td></tr>
<tr><td>Water Quality</td><td>• Drinking water protected areas (surface water): present – Loch a’ Phuill and surrounds
• Drinking water protected areas (groundwater bodies): present – all of Tiree designated

<table><tr><th>Water Body ID</th><th>Water Body Name</th><th>Category</th><th>Current Classification</th></tr><tr><td>100238</td><td>Loch a’ Phuill</td><td>Lake</td><td>Moderate</td></tr><tr><td>150379</td><td>Tiree bedrock and localised sand & gravel aquifers</td><td>Groundwater</td><td>Good</td></tr><tr><td>150380</td><td>Balephuil Bay coastal sand and gravel</td><td>Groundwater</td><td>Good</td></tr><tr><td>150381</td><td>Hynish and Gott Bay sand and gravel</td><td>Groundwater</td><td>Good</td></tr><tr><td>200086</td><td>Coll and Tiree</td><td>Coastal</td><td>Good</td></tr><tr><td>200119</td><td>Sea of the Hebrides</td><td>Coastal</td><td>Good</td></tr><tr><td>200505</td><td>Atlandtic Ocean – SW Mull</td><td>Coastal</td><td>Good</td></tr></table>(Data source: SEPA RBMP)</td><td>• Scottish Water would be approached as part of the consultation process to identify existing foul water infrastructure and capacities.
• Adherence to statutory and other guidelines
• Confirm risk and design to meet any flood management requirements
• Surface Water drainage (SUDS) will follow guidance provided within the CIRIA SUDs Manual and Sewers for Scotland (2nd Edition) criteria</td></tr>
<tr><td>Ecology / Biodiversity</td><td>Habitats
The island supports a diverse range of habitats which in turn support a range of flora and fauna. Tiree is home to nationally and internationally important populations of breeding,</td><td>• Liaison with A&BC, SNH, RSPB</td></tr>
</table>

Environmental Topic	Summary of Environmental Baseline	Implications for Operations & Maintenance (O&M)
	wintering and passage birds - Monthly and Annual bird monitoring is undertaken on the island by a member of the RSPB. Grassland – machair, sliabh / Coastal / Freshwater / Farmland / Wetland ***Species*** The following species and habitats are identified within the Argyll and Bute Biodiversity Action Plan as being present on Tiree: - barnacle goose, white footed goose, brown hare, corncrake, skylark, song thrush, otter, brown trout, dragonflies and damselflies, basking sharks, harbour porpoise and minke whale, cetaceans. -improved grassland, machair and dune, controlled waters, fens and reedbeds, flowing water, freshwater lochs, inshore sub-litterol sediment, sub-litterol sands and gravels ***Designated Sites*** There are a number of EU and UK designated sites on Tiree, the key reason for the majority of these designations being down to the abundance of machair found on the island and the species it supports; 24% of the island's coverage is machair. Tiree machair and many of its associated species of flora and fauna are protected under European and UK legislation such as RAMSAR, SSSI, SAC and SPA. Machair is listed as a priority habitat in the EU Biodiversity Action Plan, the UK Biodiversity Action Plan and Argyll & Bute Council Local Biodiversity Action plan. ***Marine Protected Areas (MPA)*** The Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009 include new powers and duties to designate Marine Protected Areas (MPAs) as part of a range of measures to manage and protect our seas for current and future generations. SNH and JNCC are currently reviewing potential MPAs and will be reporting to the Scottish Parliament by the end of 2012 - any future MPA designation in the waters around Tiree will be an important consideration for both the proposed Array and O&M requirements.	

<table>
<tr><th>Environmental Topic</th><th>Summary of Environmental Baseline</th><th>Implications for Operations & Maintenance (O&M)</th></tr>
<tr><td></td><td>Locally Designated Sites
There are approximately 18 Local Nature Conservation Sites on Tiree as identified within the Argyll and Bute Local Plan (2009).</td><td></td></tr>
<tr><td>Cultural Heritage</td><td>• Tiree has a rich history dating from around 9000 years ago that strongly influences the Island today.
• Tiree has played a key role in Scottish history due to its location at the centre of trading routes (Ireland, Outer Hebrides, Orkney, Norway) for the west coast economy.
• There are 12 Scheduled Ancient Monuments (SAM) located around the island, many of which are churches/ chapels. Of significance is the 1st century BC Dun Mor a’ Chaolis broch and cup marked rock (prehistoric ringing stone). It is important that any potential onshore infrastructure takes into account the location and settling of SAMs on the island and in some circumstances scheduled ancient monument consent may be required.
<table>
<tr><th>Scheduled Ancient Monument</th><th>Grid Reference</th></tr>
<tr><td>Kirkapol Church</td><td>NM042472</td></tr>
<tr><td>Kirkapol Chapel & cross-incised rocks</td><td>NM042473</td></tr>
<tr><td>Dun Mor a’ Chaolais, broch & cup marked rock</td><td>NM083476</td></tr>
<tr><td>Cill Choinnich Chapel</td><td>NL943447</td></tr>
<tr><td>An Dun, dun, Eilean Dubh, Ceann a’ Mhara</td><td>NL936411</td></tr>
<tr><td>Dun nan Gall, fort, Ceann a’ Mhara</td><td>NL935409</td></tr>
<tr><td>St. Patricks Chapel, Ceann a’ Mhara</td><td>NL937401</td></tr>
<tr><td>Cill Fhinnein, Chapel, Kenovay</td><td>NL993467</td></tr>
<tr><td>Balephetrish, marble Quarry</td><td>NM014473</td></tr>
<tr><td>Balephetrish, limestone quarry</td><td>NM016470</td></tr>
<tr><td>Balephuill Bay, kelp kilns</td><td>NL939403</td></tr>
<tr><td>Cladh Sorobaidh, burial ground, site of church & two</td><td>NL983416</td></tr>
</table></td><td>• Prior agreement with Argyll and Bute Council to determine appropriate design for new buildings and infrastructure
• Liaison with Historic Scotland and AB&C.
• Gather advice with regard to any potential Scheduled Ancient Monument consent required.</td></tr>
</table>

<table>
<tr><th>Environmental Topic</th><th>Summary of Environmental Baseline</th><th>Implications for Operations & Maintenance (O&M)</th></tr>
<tr><td></td><td>
<table>
<tr><td>crosses</td><td></td></tr>
<tr><td>Eilean na Ba, fort, Ceann a’ Mhara</td><td>NL933400</td></tr>
</table>

Heritage influences all aspects of the islands place quality including landscape, language, land management and communities.
There are 58 listed buildings on Tiree; 17 are Category A, 38 are Category B and 3 are Category C listed. Category A-listed buildings are of the most cultural significance, these are as follows:

Hynish, Harbour and Lighthouse establishment – signal tower, harbour, 1 Upper Square, 2 Upper Square, 3 Upper Square, 4 Upper Square, 1 & 2 Lower Square. 3 & 6 Lower Square, 4 & 5 Lower Square, stores, reservoir, store, coal store, dock and pier – all individually listed.
3 Kilmoluaig
13 Kilmoluaig

Hynish – Between 1837 - 40, Alan Stevenson used Hynish Harbour and facilities for the construction and servicing and maintenance of Skerryvore Lighthouse which is located off the coast of Tiree. Today some of the remaining harbour buildings are used as a museum.
Skerryvore Lighthouse is a Category A Listed Building

</td><td></td></tr>
<tr><td>Landscape & Visual</td><td>

Tiree benefits from a high quality environment and natural resources. In recognition of the special qualities, large areas of the island are protected by statutory designations.
Tiree is therefore internationally recognised for its flora (including machair) and fauna (particularly bird interest) and beaches.
The topography of Tiree is very flat. There are several small hills, the tallest of which is Ben Hynish which stands at 141m.
The majority of buildings on the island are 1 or 1.5 storeys tall, therefore do not have any significant impact on the views to, from or across the island. The fact that there are very few trees on the island means that there is no screening from one area to the next.

</td><td>

Further assessment of O&M requirements and potential impacts on Tiree
Design Statement.
Landscape Strategy
Adherence to Best Practice building and landscape design

</td></tr>
</table>

Environmental Topic	Summary of Environmental Baseline	Implications for Operations & Maintenance (O&M)
	• There is a community wind turbine (Tilley) on the eastern side of the island which is visible from most areas of Tiree. The turbine if 75m in height to blade tip. • 'Dark sky' environment – i.e. lack of light pollution	
Community Effects	• The Gaelic culture and language, the way of life, the pace of life, architecture, crofting, the scenery and the people themselves. These are all factors that combine to make Tiree what it is - a special living historical and environmentally important landscape that supports an isolated and proud community. – Strong music, poetry, story-telling and dance – Community spirit events – Island stewardship and self sufficiency – Culture and Gaelic language – International Watersports – World class beaches – Seafaring heritage • Access and Recreation – Core Paths, Access to beaches etc	• Liaison with Tiree Community Development Trust and A&BC as art of O&M planning
Noise & Vibration	• There is very little existing noise on the island other than from the airport (1/2 flights per day) and the ferry pier (1 sailing per day). All other noise occurs as a result of vehicles, farm workings and environmental noise such as animals and the sea/wind.	• Noise, from helicopter flights and potential for increased fixed wing flights to/from Tiree should be routed to minimise flying over residential areas. • Construction method and programme. • Adherence to agreed assessment methodology and mitigation with A&BC • Transport Assessment will inform assessment of potential operational impacts.

Environmental Topic	Summary of Environmental Baseline	Implications for Operations & Maintenance (O&M)
Air Quality	• Due to the fact that very little industrial and commercial activity takes place on Tiree, air quality levels are of a high standard. • Currently the only activities that generate NO_2 / SO_2 emissions are the daily/twice daily flight the daily ferry sailing and low levels of traffic, all of which have a minimal effect on the local air quality.	• Construction undertaken to agreed programme to avoid impacts. • Adherence to agreed assessment requirements and mitigation in liaison with A&BC Environmental Health and Planning Department.
Waste and Waste Management	• Existing landfill site at Gott Bay	• Construction undertaken to agreed programme to avoid impacts. • Provide recycling facilities • Educate visitors and workforce on waste hierarchy and importance of recycling
Traffic & Transport	The island is reached via air or sea. • There is a ferry from Oban - daily during summer, 3 / 4 per week during winter • A daily flight from Glasgow • A flight from Oban – not daily • Traffic levels on the island are low – private cars, some farm vehicles, cyclists. Levels of traffic do rise during the summer months due to the number of tourists visiting the island. • The main public transport service is provided by the Council in the form of a Council owned accessible bus operated on a 'ring and ride' service • In addition to this there are school journeys throughout the island at school times operated by two buses, each by a different contractor. These journeys are timetabled and the information freely available. Some fare paying passengers do also make use of these journeys.	• Appropriate planning of O&M would minimise traffic issues e.g. peak travel to/from O&M base • Road maintenance key issue • Traffic management as required.

Appendix 3
Scenario Profiles & Assumptions

1.0 What is Scenario Mapping / Planning?

Scenario Planning is a tool to help stakeholders and others better understand the implications of change and assist consultation on how to manage potential futures more effectively.

We are at an interim stage in developing the scenarios and the figures used are provisional and still being developed. The scenario planning process can be used to highlight:

- Principal factors that create or drive change e.g. jobs, people, demand for services
- Provides based on percentage assumptions a better understanding of the range of change that might occur e.g. population growth / proportion of local versus new jobs
- Provides an explanation of likely outcomes based on understanding of existing baseline

Scenarios are widely used by various organisations and groups to assess change and help to inform views and future decisions. The information can inform debate by looking at existing facilities or experience and making assumptions about possible futures.

2.0 Key Issues influencing Benefits & Impacts

The key factors influencing change relative to the Onshore O&M Scenario Mapping include:

- Nature of O&M Scenario
  - Onshore, Offshore Platform, Offshore Mothership, Onshore plus Mothership
- People required for each O&M Scenario
  - Onshore, Offshore - Tiree based Staff / Local jobs / Incoming workers
- Employment Profile for each O&M Scenario
  - Job Description / Skills Required / Training Support / Commitment to Local Job access

- Need & Implications for Community Infrastructure
  - Housing, Education and Healthcare and Lifeline service provision and Way of Life
- Need and Implications for Transport Infrastructure
  - Harbour upgrading , road access, ferry capacity, workboat facilities, helicopter access
- Need and Implications for Physical Infrastructure
  - Office, Workshop, Land Area, Maintenance Space, Harbour, ICT.

3.0 Scenario Development

New employment and the additional people this might bring to Tiree are one of the key factors that influence change.

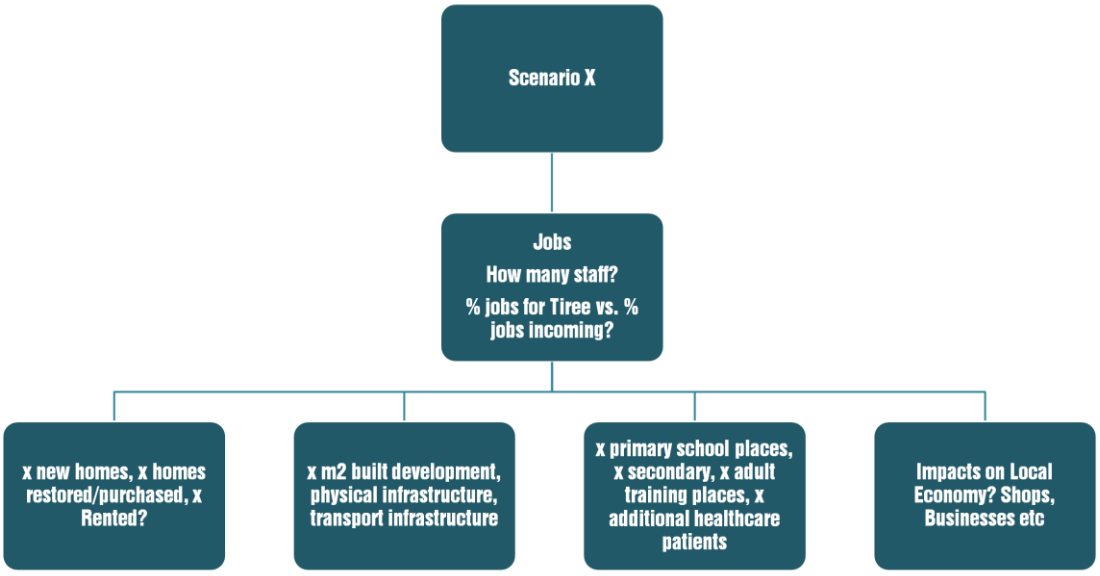
Jobs offer benefits and create impacts and have potential to provide employment for existing residents and young people. Employment and issues and opportunities arising from it were a key issue raised at Consultation Event No 1. The anticipated number of Tiree based jobs (FTE) ranges from 0 to 150 across the 4 O&M Scenarios.

Employment – Direct vs. Indirect

New employment will create direct and indirect jobs. The direct jobs are created through employment directly servicing the proposed offshore array. Indirect jobs are created from the ancillary support and demand for local goods and services e.g.

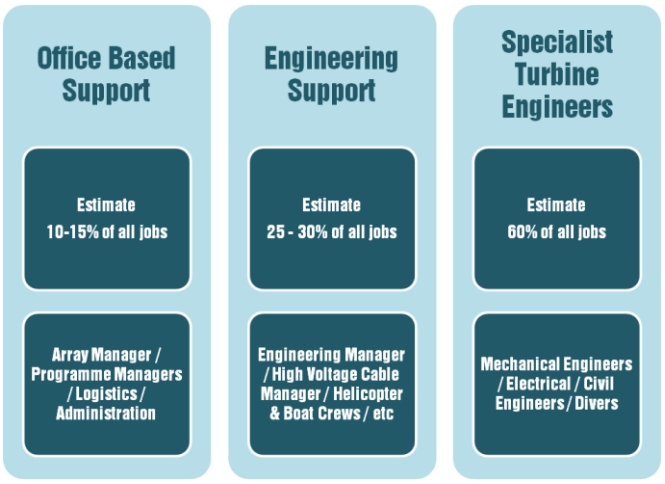
- Additional jobs in local shops / hotels
- Distribution

It might be estimated that indirect jobs are created within the order of 10% of direct jobs. The Economic Assessment will provide further detail.



Job Types

Recognising that new employment and the additional people this might bring to Tiree are one of the key factors that influences change we use profiles to look at likely job opportunities available. Job requirements have been estimated based on broadly comparable O&M facilities and can be broadly broken down as follows:



Job Profiles – Local vs. Non Local

In order to assess the likely implications on Tiree, we need to look at how many of the potential jobs that could be available in O&M may be filled by those already resident on Tiree vs. those coming to Tiree i.e. Local vs. Non Local Jobs. We have looked at 3 different profiles:

Profile 1 (Assumptions)	Profile 2 (Assumptions)	Profile 3 (Assumptions)
• 35% Local • 65% Non Local	• 25% Local • 75% Non Local	• 15% Local • 85% Non Local

Jobs are Full Time Job Equivalents (FTE) which means that some of these jobs will be part time or seasonal and offer flexible posts for both men and women. The Scenario Planning exercise only looks at assumptions of the direct jobs at this stage.

The Non-Local Jobs are those with greatest potential to bring change to Tiree – we have assumed 70% are single and 30% would bring a family. This allows a range of assessments to be presented in respect to housing provision requirements, school places, healthcare requirements and overall population growth.

We have applied the profiling to Scenarios 1, 2, 3 and 4 to provide and understanding of potential implications.

4.0 Scenario Development

4.1 Scenario 1 – O&M Base on Tiree

Profile 1 (35% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		150
% Local	35%	53
% Non Local (relocations)	65%	98
Employees (with families)	30%	29
Employees (without family)	70%	68
Socio Economic		
Family		
New Homes Built	40%	12
Existing Homes Restored / Purchased	30%	9
Other + Rented /PT Residents)	30%	9
Single Professional		
New Homes Built	20%	14
Existing Homes Restored / Purchased	30%	20
Other + Rented /PT Residents)	50%	34
Built Development		

Profile 2 (25% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		150
% Local	25%	38
% Non Local (relocations)	75%	113
Employees (with families)	30%	34
Employees (without family)	70%	79
Socio Economic		
Family		
New Homes Built	40%	14
Existing Homes Restored / Purchased	30%	10
Other + Rented /PT Residents)	30%	10
Single Professional		
New Homes Built	20%	16
Existing Homes Restored / Purchased	30%	24
Other + Rented /PT Residents)	50%	39
Built Development		

Profile 3 (15% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		150
% Local	15%	23
% Non Local (relocations)	85%	128
Employees (with families)	30%	38
Employees (without family)	70%	89
Socio Economic		
Family		
New Homes Built	40%	15
Existing Homes Restored / Purchased	30%	11
Other + Rented /PT Residents)	30%	11
Single Professional		
New Homes Built	20%	18
Existing Homes Restored / Purchased	30%	27
Other + Rented /PT Residents)	50%	45
Built Development		

Profile 1 (35% Local Jobs)		
Economic		
Offices (m2)	m2	600
Workshops / Support (m2)	m2	2500
Site (laydown+parking) (m2)	m2	2000
Community Infrastructure		
Primary School Places (0.27)		8
Secondary School Places (0.2)		6
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		124
Population Growth		124
Environment		
Major Infrastructure		New Harbour
Helicopter Return Flights Per Day		7 to 12
Building Land Take	m2	5100
Water (daily personal consumption - 200l per day)	l/day	24765
Water (O&M Consumption)	l/day	73440
Electicity (domestic) kVA	kVA	76
Electricity (O&M) kVA	kVA	233

Profile 2 (25% Local Jobs)		
Economic		
Offices (m2)	m2	600
Workshops / Support (m2)	m2	2500
Site (laydown+parking) (m2)	m2	2000
Community Infrastructure		
Primary School Places (0.27)		9
Secondary School Places (0.2)		7
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		143
Population Growth		143
Environment		
Major Infrastructure		New Harbour
Helicopter Return Flights Per Day		7 to 12
Building Land Take	m2	5100
Water (daily personal consumption - 200l per day)	l/day	28575
Water (O&M)	l/day	73440
Electicity (domestic) kVA	kVA	88
Electricity (O&M) kVA	kVA	233

Profile 3 (15% Local Jobs)		
Economic		
Offices (m2)	m2	600
Workshops / Support (m2)	m2	2500
Site (laydown+parking) (m2)	m2	2000
Community Infrastructure		
Primary School Places (0.27)		10
Secondary School Places (0.2)		8
Educational Bursaries		3
Adult Training / Apprenticeships		4
Additional Healthcare Patients		162
Population Growth		162
Environment		
Major Infrastructure		New Harbour
Helicopter Return Flights Per Day		7 to 12
Building Land Take	m2	5100
Water (daily personal consumption - 200l per day)	l/day	32385
Water (O&M Consumption)	l/day	73440
Electricity (domestic) kVA	kVA	99
Electricity (O&M) kVA	kVA	233

4.2 Scenario 2 – Offshore Platform

Profile 1 (35% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		0
% Local	35%	0
% Non Local (relocations)	65%	0
Employees (with families)	30%	0
Employees (without family)	70%	0
Socio Economic		
Family		
New Homes Built	40%	0
Existing Homes Restored / Purchased	30%	0
Other + Rented /PT Residents)	30%	0
Single Professional		
New Homes Built	20%	0
Existing Homes Restored / Purchased	30%	0
Other + Rented /PT Residents)	50%	0
Built Development		
Offices (m2)	m2	0
Workshops / Support (m2)	m2	0
Site (laydown+parking)	m2	0

Profile 2 (25% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		0
% Local	25%	0
% Non Local (relocations)	75%	0
Employees (with families)	30%	0
Employees (without family)	70%	0
Socio Economic		
Family		
New Homes Built	40%	0
Existing Homes Restored / Purchased	30%	0
Other + Rented /PT Residents)	30%	0
Single Professional		
New Homes Built	20%	0
Existing Homes Restored / Purchased	30%	0
Other + Rented /PT Residents)	50%	0
Built Development		
Offices (m2)	m2	0
Workshops / Support (m2)	m2	0
Site (laydown+parking)	m2	0

Profile 3 (15% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		0
% Local	15%	0
% Non Local (relocations)	85%	0
Employees (with families)	30%	0
Employees (without family)	70%	0
Socio Economic		
Family		
New Homes Built	40%	0
Existing Homes Restored / Purchased	30%	0
Other + Rented /PT Residents)	30%	0
Single Professional		
New Homes Built	20%	0
Existing Homes Restored / Purchased	30%	0
Other + Rented /PT Residents)	50%	0
Built Development		
Offices (m2)	m2	0
Workshops / Support (m2)	m2	0
Site (laydown+parking)	m2	0

Profile 1 (35% Local Jobs)		
Economic		
(m2)		
Community Infrastructure		
Primary School Places (0.27)		0
Secondary School Places (0.2)		0
Educational Bursaries		3
Adult Training / Apprenticeships		3
Additional Healthcare Patients		0
Population Growth		**0**
Environment		
Major Infrastructure		None
Helicopter Return Flights Per Day		occasional
Water (daily personal consumption - 200l per day)	l/day	0
Water (O&M Consumption)	l/day	0
Electicity (domestic) kVA	kVA	0
Electricity (O&M) kVA	kVA	0

Profile 2 (25% Local Jobs)		
Economic		
(m2)		
Community Infrastructure		
Primary School Places (0.27)		0
Secondary School Places (0.2)		0
Educational Bursaries		3
Adult Training / Apprenticeships		3
Additional Healthcare Patients		0
Population Growth		**0**
Environment		
Major Infrastructure		None
Helicopter Return Flights Per Day		occasional
Water (daily personal consumption - 200l per day)	l/day	0
Water (O&M Consumption)	l/day	0
Electicity (domestic) kVA	kVA	0
Electricity (O&M) kVA	kVA	0

Profile 3 (15% Local Jobs)		
Economic		
(m2)		
Community Infrastructure		
Primary School Places (0.27)		0
Secondary School Places (0.2)		0
Educational Bursaries		3
Adult Training / Apprenticeships		3
Additional Healthcare Patients		0
Population Growth		**0**
Environment		
Major Infrastructure		None
Helicopter Return Flights Per Day		occasional
Water (daily personal consumption - 200l per day)	l/day	0
Water (O&M Consumption)	l/day	0
Electricity (domestic) kVA	kVA	0
Electricity (O&M) kVA	kVA	0

4.3 Scenario 3 – Motherships

Profile 1 (35% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		25
% Local	35%	9
% Non Local (relocations)	65%	16
Employees (with families)	30%	5
Employees (without family)	70%	11
Socio Economic		
Family		
New Homes Built	40%	2
Existing Homes Restored / Purchased	30%	1
Other + Rented /PT Residents)	30%	1
Single Professional		
New Homes Built	20%	2
Existing Homes Restored / Purchased	30%	3
Other + Rented /PT Residents)	50%	6
Built Development		
Offices	m2	150
Workshops / Hangar	m2	500
Site Ancillary	m2	250
Community		

Profile 2 (25% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		25
% Local	25%	6
% Non Local (relocations)	75%	19
Employees (with families)	30%	6
Employees (without family)	70%	13
Socio Economic		
Family		
New Homes Built	40%	2
Existing Homes Restored / Purchased	30%	2
Other + Rented /PT Residents)	30%	2
Single Professional		
New Homes Built	20%	3
Existing Homes Restored / Purchased	30%	4
Other + Rented /PT Residents)	50%	7
Built Development		
Offices	m2	150
Workshops / Hangar	m2	500
Site Ancillary	m2	250
Community Infrastructure		

Profile 3 (15% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		25
% Local	15%	4
% Non Local (relocations)	85%	21
Employees (with families)	30%	6
Employees (without family)	70%	15
Socio Economic		
Family		
New Homes Built	40%	3
Existing Homes Restored / Purchased	30%	2
Other + Rented /PT Residents)	30%	2
Single Professional		
New Homes Built	20%	3
Existing Homes Restored / Purchased	30%	4
Other + Rented /PT Residents)	50%	7
Built Development		
Offices	m2	150
Workshops / Hangar	m2	500
Site Ancillary	m2	250
Community Infrastructure		

Profile 1 (35% Local Jobs)		
Economic		
Infrastructure		
Primary School Places (0.27)		1
Secondary School Places (0.2)		1
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		21
Population Growth		21
Environment		
Major Infrastructure		None
Helicopter Return Flights Per Day		between 1 and 5 per day
Water (daily personal consumption - 200l per day)	l/day	4128
Water (O&M Consumption)	l/day	12960
Electicity (domestic) kVA	kVA	13
Electricity (O&M) kVA	kVA	49

Profile 2 (25% Local Jobs)		
Economic		
Primary School Places (0.27)		2
Secondary School Places (0.2)		1
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		24
Population Growth		24
Environment		
Major Infrastructure		None
Helicopter Return Flights Per Day		between 1 and 5 per day
Water (daily personal consumption - 200l per day)	l/day	4763
Water (O&M Consumption)	l/day	12960
Electicity (domestic) kVA	kVA	15
Electricity (O&M) kVA	kVA	49

Profile 3 (15% Local Jobs)		
Economic		
Primary School Places (0.27)		2
Secondary School Places (0.2)		1
Educational Bursaries		3
Adult Training / Apprenticeships		4
Additional Healthcare Patients		27
Population Growth		27
Environment		
Major Infrastructure		None
Helicopter Return Flights Per Day		between 1 and 5 per day
Water (daily personal consumption - 200l per day)	l/day	5398
Water (O&M Consumption)	l/day	12960
Electricity (domestic) kVA	kVA	17
Electricity (O&M) kVA	kVA	49

4.4 Scenario 4 – Motherships

Profile 1 (35% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		59
% Local	35%	21
% Non Local (relocations)	65%	38
Employees (with families)	30%	12
Employees (without family)	70%	27
Implications		
Socio Economic		
Family		
New Homes Built	40%	5
Existing Homes Restored / Purchased	30%	3
Other + Rented /PT Residents)	30%	3
Single Professional		
New Homes Built	20%	5
Existing Homes Restored / Purchased	30%	8
Other + Rented /PT Residents)	50%	13
Built Development		
Offices	m2	300
Workshops / Support	m2	2500

Profile 2 (25% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		59
% Local	25%	15
% Non Local (relocations)	75%	44
Employees (with families)	30%	13
Employees (without family)	70%	31
Implications		
Socio Economic		
Family		
New Homes Built	40%	5
Existing Homes Restored / Purchased	30%	4
Other + Rented /PT Residents)	30%	4
Single Professional		
New Homes Built	20%	6
Existing Homes Restored / Purchased	30%	9
Other + Rented /PT Residents)	50%	15
Built Development		
Offices	m2	300
Workshops / Support	m2	2500

Profile 3 (15% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		59
% Local	15%	9
% Non Local (relocations)	85%	50
Employees (with families)	30%	15
Employees (without family)	70%	35
Implications		
Socio Economic		
Family		
New Homes Built	40%	6
Existing Homes Restored / Purchased	30%	5
Other + Rented /PT Residents)	30%	5
Single Professional		
New Homes Built	20%	7
Existing Homes Restored / Purchased	30%	11
Other + Rented /PT Residents)	50%	18
Built Development		
Offices	m2	300
Workshops / Support	m2	2500

Profile 1 (35% Local Jobs)		
Economic		
Site (laydown+parking)	m2	2000
Community Infrastructure		
Primary School Places (0.27)		3
Secondary School Places (0.2)		2
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		49
Population Growth		49
Environment		
Major Infrastructure		New Harbour
Helicopter Return Flights Per Day		1 to 5
Water (daily personal consumption - 200l per day)	l/day	9741
Water (O&M Consumption)	l/day	69120
Electicity (domestic) kVA	kVA	30
Electricity (O&M) kVA	kVA	210

Profile 2 (25% Local Jobs)		
Economic		
Site	m2	2000
Community Infrastructure		
Primary School Places (0.27)		4
Secondary School Places (0.2)		3
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		56
Population Growth		56
Environment		
Major Infrastructure		New Harbour
Helicopter Return Flights Per Day		1 to 5
Water (daily personal consumption - 200l per day)	l/day	11240
Water (O&M Consumption)	l/day	69120
Electicity (domestic) kVA	kVA	35
Electricity (O&M) kVA	kVA	210

Profile 3 (15% Local Jobs)		
Economic		
Site	m2	2000
Community Infrastructure		
Primary School Places (0.27)		4
Secondary School Places (0.2)		3
Educational Bursaries		3
Adult Training / Apprenticeships		4
Additional Healthcare Patients		64
Population Growth		64
Environment		
Major Infrastructure		New Harbour
Helicopter Return Flights Per Day		1 to 5
Water (daily personal consumption - 200l per day)	l/day	12738
Water (O&M Consumption)	l/day	69120
Electricity (domestic) kVA	kVA	39
Electricity (O&M) kVA	kVA	210

Appendix 4
Assessment Matrix & Methodology

Appendix 4 Assessment Matrices

1.0 Scenario 1

Scenario 1	
Summary Description	An onshore base on the island (office/warehouse/yard) with up to five workboats and one helicopter accessing the array. Requires a harbour or breakwater
Detailed Description	**Onshore O&M Base – On Tiree** • An onshore base would have a Tiree base operating between the O&M office and workshops, harbour and helipad. • Scenario 1 therefore has significant direct implications for Tiree in terms of O&M activity with impacts or benefits occurring at the O&M base, which is assumed to be at the harbour with possible facilities at the airport.

Scenario 1 – Onshore O&M Base – New Harbour/Breakwater Required				
Economic Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Economic Objective To ensure O&M helps to extend the wider aspiration of Scottish Government to create the conditions for sustainable economic growth and address regional and spatial disparities.	Scenario 1 offers the potential for significant employment that would support wider policies for sustainable economic development and build additional capacity and resilience within the island economy.	Partnership working between public and private sector around agreed target outcomes.	Strengthening clarity of O&M requirements and assurances around opportunities and mitigation	The community are aware of both opportunity and impact associated with the proposed array and are seeking early clarity around commitments.
Employment To seek to increase local employment opportunities that support skills and training and opportunities for young people whilst growing the locally employed population base and non-seasonal job opportunities.	Scenario 1 support increased local employment through direct and indirect jobs estimated at 150 of which 38 are anticipated to be local. The Challenge: • Making accessible local jobs • Developing skills • Avoiding substitution	Developing an Employment Charter with SPR promoting measures associated with: • Employment access • Apprenticeships • Adult skills training • Educational bursaries • Training/ Other	Advance skills programmes required developed through Renewable Energy Action Plan (REAP). Lead time 2-3 years. Undertaking to include Employment Charter elements within SPR procurement.	Employment benefits are a key local benefit of any future array. Assurances around building local capacity; local job access and flexibility of working arrangements are all important to the local communities.
Fishing To seek to maintain the fishing industry at current levels and/or support modest sustainable growth through improvements to infrastructure and secondary support for fishing incomes.	Scenario 1 offers the potential to support the fishing sector with the provision of a public access harbour / breakwater. The Challenge: • Creating new facilities of a scale that allows for multiple use / management • Access to employment would support	Early feasibility study advanced with CMAL to conclude feasibility of new harbour provision and mechanisms and programme for delivery. Feasibility study to inform detailed area masterplanning.	Wider fishing interests relative to the proposed array are addressed with Fishermen's Liaison Group	Fishing is a key local industry with sensitivities in an island community. Support for the fishing sector would offer an outcome with strong local support.

Scenario 1 – Onshore O&M Base – New Harbour/Breakwater Required				
Economic Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
	secondary fishing incomes • Developing skills • Avoiding employment substitution			
Agriculture To seek to maintain current land management practice and capacity including access to markets and sustaining agricultural / crofting employment	Scenario 1 offers the potential to support the crofting/agricultural sector with the provision of a harbour / breakwater and would therefore increase reliability of ferry services and access to markets, goods and services but there is a need to support this sector through: • Access to employment to support secondary crofting incomes • Developing skills • Avoiding employment substitution	Commitment through sensitive land use planning to ensure: • No significant loss of agricultural land • No loss of ferry capacity • No changes to existing land management practices • New employment that can support agricultural incomes • Improvements to ICT / Broadband – superfast connection	Need to maintain consultation and dialogue with Tiree Rural Development (TRD), Crofting Association and NFUS for any land based O&M facilities that may have a potential impact on agricultural practices	Agriculture is a key local industry with sensitivities in an island community.
Transport To seek to maintain and enhance transportation access within the modes of air, sea and road with appropriate improvements to infrastructure or service levels that recognise the needs of all sectors.	**Harbour** • A harbour facility created by a breakwater and offering pontoon / quay access will be required. • Offering safe haven for workboats all year round • Pontoon and Quay facilities • 150 (+10)m sheltered pontoon length • Marine fuel bunkering (200,000l capacity) serviced and refuelled by sea-barge. It is not anticipated that workboat fuelling would require fuel import by ferry. **Airport / Heliport** • The O&M operation could be supported by a helicopter base either at the harbour or potentially at the airport. Helicopter provision would include a hangar, helipad and fuel bunkering. Flight levels are currently under assessment but worst case numbers suggest 7-12 return flights per day.	• Infrastructure clearly needs to match any intensification of use whether this be associated with harbour/airport or roads. Local road upgrades may offer wider benefits as would development of the harbour. Issues requiring to be addressed would include: • Harbour improvements may offer wider support to existing local businesses e.g. • Creating access for fishing / recreational boats and improving ferry weather protection • Helicopter flights paths across defined sea routes could mitigate island over-flying. • Protecting existing air and sea	A growing population would introduce both opportunity and impacts with mitigation dependent on investment in local capacity. Discussions will be progressed with a number of key service providers to identify any specific measures or responses. • Discussions with CMAL / Calmac and HIAL regarding Lifeline services • Discussion with Argyll and Bute Council and relevant health providers • A harbour is a requirement to support this scenario	Transport is a hugely important issue for Tiree and Scenario 1 has greatest potential for impacts to existing capacities : • Need to maintain adequate service provision • Island communities are reliant on transport for goods and services, business connections, family connections and access to a range of services on the mainland including healthcare, employment and education and shopping etc

Scenario 1 – Onshore O&M Base – New Harbour/Breakwater Required				
Economic Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
	Local Roads • The O&M operation may require some local Road Network upgrading but only in the immediate local area of the O&M Base or between the base and the harbour. Access to the harbour / breakwater will be required for vehicles. If helipad facilities were located at the airport volumes of traffic are unlikely to be significant.	capacity Scenario 1 O&M operations by increasing island population will place additional demand on air and ferry connections. An increase in population will require a review of current air and ferry capacity. Vehicular ferry capacity at weekends & in the summer months is near or at capacity. Reducing ferry cancellations and any improvement to capacity would offer local benefits.		
Tourism To seek to maintain the 'special qualities of place' that support the tourism sector recognising the importance of sports / leisure / recreation and cultural heritage to the tourism economy.	Scenario 1 offers the potential to support the tourism sector with the provision of a harbour / breakwater and would therefore increase reliability of ferry services. Recognising Challenges re: • Access to employment to support tourism incomes • Developing skills • Avoiding employment substitution • Maintaining	Commitment through sensitive land use planning to ensure: • No significant loss of agricultural land • No loss of ferry capacity • No changes to existing land management practices • New employment that can support agricultural incomes • Improvements to ICT / Broadband	Need to maintain consultation and dialogue with Crofting Association and NFUS for any land based O&M facilities that may have a potential impact on agricultural practices	Tourism is a hugely important sector for Tiree and Scenario 1 has greatest potential for impacts to existing capacities : • Need to maintain ferry capacities particularly during the peak summer months • Need to forward plan for increased accommodations requirements such that O&M staff do not reduce tourism accommodation offering

Scenario 1 – Onshore O&M Base – New Harbour/Breakwater Required				
Social Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Social Objective To ensure O&M helps secure positive	Scenario 1 offers the potential for significant employment opportunity that would support	Further detailed appraisal of the O&M Scenario once a preferred	Commitment to Community Benefit Review in	Need to recognise potential scale of incremental change on island

Scenario 1 – Onshore O&M Base – New Harbour/Breakwater Required				
Social Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
benefits that will help to strengthen socio-economic conditions and add additional capacity linked to community needs and community infrastructure.	future economic growth and stability.	option has been identified and appropriate level of local engagement to inform service provision, capacity testing and infrastructure requirements.	consultation with key partners and the local community. Linkages to Tiree Community Growth Plan 2011 -2016	community and importance of maintaining quality and availability of services and infrastructure - special consideration required e.g. relative to Lifeline services.
Way of Life To seek to maintain a special 'way of life' that offers a diversity of community interests, opportunity for enterprise, for relaxation and amenity that support civic community capacity and health and avoids the loss of the things that make Tiree a special place to live, work and visit.	Scenario 1 is the option with the greatest level of 'change' to the island in terms of land based development and therefore needs careful consideration in relation to qualities that are valued by the community / visitors.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M that may impact on way of life and seek support e.g. for crofting / land management practices, Gaelic language.	Continued liaison during License/Planning process with community/stakeholders and partners.	Need to recognise that numerous small incremental changes equate to potentially large change on Tiree
Health To seek to maintain access to health facilities and ensure provision addresses future health needs	Scenario 1 has potential to increase the population by up to 20% (population growth of 143 people based on current resident population of 730), therefore increasing demand for health services.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified with local community / key stakeholders e.g. Cùram Thiriodh project / NHS.	Continued liaison during License/Planning process with community/stakeholders and partners.	Important to recognise current health service demands and peaks during summer months and that health service provision responds to demand. Need for timely review once O&M is better understood.
Heritage To seek to protect social, environmental and cultural heritage recognising a risk associated with de-population that impacts on a vibrant island cultural life.	Scenario 1 has the highest requirement for land based O&M development and therefore would represent a significant change from current levels of island development	Further detailed appraisal of the O&M Scenario once a preferred option has been identified. Ensure that local community and stakeholders continue to inform decision making for any land based O&M that may impact on way of life and seek support e.g. for crofting / land management practices, Gaelic language.	Continued liaison during License/Planning process with community/stakeholders and partners.	Need to recognise that numerous small incremental changes equate to potentially significant impacts on heritage of the island – important that character of Tiree is preserved recognising need for resilient population.
Education To seek to maintain access to education facilities and ensure educational provision addresses future	Based on the scenario mapping exercise completed and the assumptions therein, the additional population for Scenario 1 would equate to an additional 9 primary and 7	Developing an Employment Charter with SPR promoting measures associated with: • Employment access	Advance skills programmes required developed through Renewable Energy Action Plan (REAP)	Need to promote potential future career opportunities to current school pupils and leavers to support/enable those who wish to

Scenario 1 – Onshore O&M Base – New Harbour/Breakwater Required				
Social Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
needs including adult skills and training for future employment.	secondary school places with anticipated provision of adult training and apprenticeships available.	• Apprenticeships • Adult skills training • Educational bursaries • Training • Other	Lead time 2-3 years Undertaking to include Employment Charter elements within SPR procurement.	stay on the island long term.
Housing To seek to ensure any additional population growth associated with O&M provides housing complementary to the existing settlement structure and its distinctive place qualities.	Based on the scenario mapping exercise completed and the assumptions therein, the additional population for Scenario 1 would require between 26 and 33 new homes. The locations of any new housing provision would need to be fully assessed on basis of design and technical considerations.	Appropriate forward planning for provision of new housing including affordable housing provision for existing population. Further detailed appraisal of the O&M Scenario once a preferred option has been identified.	Identification of potential housing land within LDP and appropriate forward planning of requirements with commitment to high quality building design and construction.	Island already has shortage of properties available for sale and rent particularly affordable housing and limited available land for new housing – would need careful planning and design.
Design To seek to ensure place quality is enhanced, derelict and vacant land and buildings are utilised, sustainable design principles and local bespoke design guidance is adopted.	Scenario Planning is an early stage in the overall Licensing and consenting process and therefore design of any Tiree based O&M will be informed by Argyll and Bute Council Design Codes/Design Guidance for the island.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / use of local architects and skills	Importance of buildings to the overall character of the island and commitment to high quality design of any new development.

Scenario 1 – Onshore O&M Base – New Harbour/Breakwater Required				
Environmental Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Environmental Objective To ensure O&M activity avoids significant environmental impacts on the natural environment recognising the special quality and sensitivity of Tiree's natural environment.	Scenario Planning is an early stage in the overall Licensing and consenting process and therefore design of any Tiree based O&M will be subject to options appraisal in recognition of the environmental sensitivities.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / HRA.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / workshops and full and early consultation with Marine Scotland, SNH and RSPB on proposals.	Tiree benefits from high quality environment with significant level of protected habitats and species recognised in European and National designations – need to fully assess any O&M scenario with potential for impacts particularly on fragile machair. Need to recognise the links between natural environment /

Scenario 1 – Onshore O&M Base – New Harbour/Breakwater Required				
Environmental Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
				access and recreation / environmental quality and tourism.
Nature Conservation To seek to respect nature conservation designations and ensure any future planning and design take full account of environmental/ impacts and conservation of natural systems.	The Scenario Planning exercise has identified the dependencies for Scenario 1 e.g. spatial relationship between harbour, airport, potential industrial land etc. and proximity of these areas to protected habitats and species and need for further assessment once O&M proposals have been fixed.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / HRA.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / workshops and full and early consultation with Marine Scotland, SNH and RSPB on proposals.	Tiree benefits from high quality environment with significant level of protected habitats and species recognised in European and National designations – need to fully assess any O&M scenario with potential for impacts particularly on fragile machair. Need to recognise the links between natural environment / access and recreation / environmental quality and tourism.
Noise To seek to ensure that the noise environment is addressed with specific reference to helicopter access and servicing.	Scenario 1 includes an anticipated 7-12 daily return helicopter flights between Tiree and the Argyll Array. There is a commitment to further assessment once O&M proposals are more fully understood relative to servicing requirements informed by the EIA and technical studies currently underway for the Array itself.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / Noise impact assessment.	Ensure that local community and stakeholders continue to be consulted on decision making for helipad/helicopter design and flight paths informed by technical studies to minimise noise disturbance.	Background noise levels are low – Tiree benefits from peaceful environment without noise emissions associated with industry and transport etc. Helicopter noise is a significant issue for residents that would need to be fully assessed and measures to reduce disturbance implemented.
Visual To seek to ensure that the visual environment is addressed with specific reference to place quality, buildings and design.	Scenario 1 has the highest requirement for land based O&M development and therefore would represent a significant change from current levels of island development. Scenario Planning is an early stage in the overall Licensing and consenting process and therefore design of any Tiree based O&M will be informed by Argyll and Bute Council Design Codes/Design Guidance	Further detailed appraisal of the O&M Scenario once a preferred option has been identified. Early decision on the Convertor Station offshore or onshore will be important to the community. Assume that the convertor station will be assessed as part	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / use of local architects and skills. Additional consultation on convertor station	Importance of buildings to the overall character of the island and commitment to high quality design of any new development. Convertor Station is a significant issue for the local community given possible size, scale and location and needs to be fully

Scenario 1 – Onshore O&M Base – New Harbour/Breakwater Required				
Environmental Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
	for the island. The Convertor Station is a significant issue that needs further assessment	of Argyll Array Licensing process.	recommended.	addressed through Licensing/Consenting.

2.0 Scenario 2

Scenario 2	
Summary Description	**Offshore Platform**
Detailed Description	• An offshore platform servicing the offshore array with connections to the mainland base for staffing and equipment. • Scenario 2 has no or negligible direct implications for Tiree in terms of O&M activity. Any impacts or benefits would occur wherever the O&M mainland base operates from - e.g. a mainland Scottish port

Scenario 2 – Offshore Platform				
Economic Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Economic Objective To ensure O&M helps to extend the wider aspiration of Scottish Government to create the conditions for sustainable economic growth and address regional and spatial disparities.	Scenario 2 offers limited island based employment with limited opportunity to build additional capacity and resilience within the island economy.	Partnership working between public and private sector around agreed target outcomes.	Strengthening clarity of O&M requirements and assurances around opportunities and mitigation	The community are aware of both opportunity and impact associated with the proposed array and are seeking early clarity around commitments.
Employment To seek to increase local employment opportunities that support skills and training and opportunities for young people whilst growing the locally employed population base and non-seasonal job opportunities.	Scenario 2 provides very limited employment opportunity on Tiree although training and appropriate skills would ensure opportunity for employment based on the platform – linked to a mainland port/airport base.	Developing an Employment Charter with SPR promoting measures associated with: • Employment access • Apprenticeships • Adult skills training • Educational bursaries • Training/ Other	Advance skills programmes required developed through Renewable Energy Action Plan (REAP). Lead time 2-3 years. Undertaking to include Employment Charter elements within SPR procurement.	Employment benefits are a key local benefit of any future array. Assurances around building local capacity; local job access and flexibility of working arrangements are all important to the local communities.
Fishing To seek to maintain the fishing industry at current levels and/or support modest sustainable growth through improvements to infrastructure and secondary support for fishing incomes.	Scenario 2 would operate in similar way to north sea oil rig with no required development on Tiree apart from use of helipad at airport for emergencies therefore no infrastructure based benefits to local fishing fleet. Jobs likely to be mainland office/port/airport based with shifts on the platform which may not offer viable employment opportunity given seasonal nature of fishing.	Detailed assessment of O&M Scenario once 'fixed' to preferred option and continued consultation with fishermen during SPR Licensing and Consenting process to ensure that any potential issues are addressed early.	Wider fishing interests relative to the proposed array are addressed with Fishermen's Liaison Group - need for engagement with Argyll and Bute Renewable Energy Alliance (ABRA) re skills/opportunities.	Fishing is a key local industry with sensitivities in an island community. Support for the fishing sector would offer an outcome with strong local support. Need to maintain continued engagement around Community Benefits etc

Scenario 2 – Offshore Platform				
Economic Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Agriculture To seek to maintain current land management practice and capacity including access to markets and sustaining agricultural / crofting employment	Scenario 2 offers minimal island based employment although potential for opportunity but will be dependent on skills and 'fit' of shift type work with crofting land management – may not be compatible and would limit uptake	Detailed assessment of O&M Scenario once 'fixed' to preferred option and continued consultation with local community / Tiree Rural Development / Crofting Association and NFUS.	Need to maintain consultation and dialogue with Tiree Rural Development (TRD), Crofting Association and NFUS for any land based O&M facilities that may have a potential impact on agricultural practices	Agriculture is a key local industry with sensitivities in an island community. Need to maintain continued engagement around Community Benefits etc
Transport To seek to maintain and enhance transportation access within the modes of air, sea and road with appropriate improvements to infrastructure or service levels that recognise the needs of all sectors.	**Harbour** No anticipated impacts or opportunities. **Airport / Heliport** There may be a requirement for use of the airport at Tiree for crew to arrive by fixed wing airplane for onward helicopter transfer out to the offshore platform as per north sea operations. **Local Roads** No local road network upgrading anticipated	Helicopter flights paths across defined sea routes could mitigate island over-flying. Need to protecting existing air and sea capacity i.e. Lifeline Services	Discussions with O&M Operator and HIAL	Transport is a hugely important issue for Tiree and whilst Scenario 2 has minimal pressure on existing services, there is a need to ensure that transfer / emergency helicopter flight frequency and flight paths are fully assessed and addressed as part of detailed planning of O&M.
Tourism To seek to maintain the 'special qualities of place' that support the tourism sector recognising the importance of sports / leisure / recreation and cultural heritage to the tourism economy.	Scenario 2 requires no O&M infrastructure on Tiree and therefore there are both limited impacts and opportunities for ancillary benefits from harbour upgrade or breakwater e.g. marinas or pontoons. No land based O&M based impacts on natural/historical environment.	No anticipated land based infrastructure required and therefore limited issues associated with O&M and tourism. Potential impacts of the Array will be assessed by SPR through EIA / Licensing / Planning processes.	Need to maintain consultation and dialogue with local communities and businesses.	Tourism is a hugely important sector for Tiree and early consultation and maintained dialogue once O&M scenario is better understood will be important.

Scenario 2 – Offshore Platform				
Social Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Social Objective To ensure O&M helps secure positive benefits that will help to strengthen socio-economic conditions and add additional capacity linked to community needs and community infrastructure.	Scenario 2 provides very limited employment opportunity on Tiree although training and appropriate skills would ensure opportunity for employment based on the platform – linked to a mainland port/airport base.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified and appropriate level of local engagement to inform service provision, capacity testing and infrastructure requirements.	Commitment to Community Benefit Review in consultation with key partners and the local community. Linkages to Tiree Community Growth Plan 2011 -2016	Community Benefit review around future quality and availability of services and infrastructure - special consideration required e.g. relative to Lifeline services.
Way of Life To seek to maintain a special 'way of life' that offers a diversity of community interests, opportunity for enterprise, for relaxation and amenity that support civic community capacity and health and avoids the loss of the things that make Tiree a special place to live, work and visit.	Scenario 2 is the option requiring the least physical 'change' to the island in terms of land based development and minimal job creation therefore has minimal impacts on the island in terms of development intensification etc, population increase. Visual impacts of the platform will need to be addressed.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified and appropriate level of local engagement to inform Community Benefit options.	Continued liaison during License/Planning process with community/stakeholders and partners.	Community Benefit review around future quality and availability of services and infrastructure - special consideration required e.g. relative to Lifeline services.
Health To seek to maintain access to health facilities and ensure provision addresses future health needs	Scenario 2 does not introduce significant population change, if any given O&M staffing based on platform/from mainland port / airport.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified with local community / key stakeholders e.g. Cùram Thiriodh project / NHS.	Continued liaison during License/Planning process with community/stakeholders and partners.	Community Benefit review around future quality and availability of services and infrastructure.
Heritage To seek to protect social, environmental and cultural heritage recognising a risk associated with de-population that impacts on a vibrant island cultural life.	Scenario 2 is the option requiring the least physical 'change' to the island in terms of land based development. Scenario 2 does not introduce significant population change, if any given O&M staffing based on platform/from mainland port / airport.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified.	Continued liaison during License/Planning process with community/stakeholders and partners.	No island based employment therefore likely to limit opportunities for local community - Community Benefit review will be important to acceptability of Array on this basis.
Education To seek to maintain access to education facilities and ensure educational provision addresses future needs including adult skills and training	Scenario 2 does not require any additional load on community services however access to skills/training would be advanced.	Developing an Employment Charter with SPR promoting measures associated with: • Employment access • Apprenticeships	Advance skills programmes required developed through Renewable Energy Action Plan (REAP) Lead time 2-3 years	Need to promote potential future career opportunities to current school pupils and leavers to support/enable those who wish to stay on the island long term.

Scenario 2 – Offshore Platform				
Social Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
for future employment.		• Adult skills training • Educational bursaries • Training / Other	Undertaking to include Employment Charter elements within SPR procurement.	
Housing To seek to ensure any additional population growth associated with O&M provides housing complementary to the existing settlement structure and its distinctive place qualities.	Scenario 2 would require limited (if any) housing on Tiree based on assumptions made in scenario planning.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified and appropriate level of planning for housing numbers.	Continued liaison during License/Planning process with community/stakeholders and partners.	Island already has shortage of properties available for sale and rent particularly affordable housing and limited available land for new housing – would need careful planning and design.
Design To seek to ensure place quality is enhanced, derelict and vacant land and buildings are utilised, sustainable design principles and local bespoke design guidance is adopted.	Scenario Planning is an early stage in the overall Licensing and consenting process and therefore design of any Tiree based development (limited/minimal housing for Scenario 2) will be informed by Argyll and Bute Council Design Codes/Design Guidance for the island.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / use of local architects and skills	Importance of buildings to the overall character of the island and commitment to high quality design of any new development.

Scenario 2 – Offshore Platform				
Environmental Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Environmental Objective To ensure O&M activity avoids significant environmental impacts on the natural environment recognising the special quality and sensitivity of Tiree's natural environment.	Scenario 2 requires no O&M infrastructure on Tiree and therefore limited potential for environmental issues at marine/land interface.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / HRA.	Need for full and early consultation with Marine Scotland, SNH and RSPB on proposals.	Tiree benefits from high quality environment with significant level of protected habitats and species recognised in European and National designations – need to fully assess any O&M scenario with potential for impacts particularly on fragile machair. Need to recognise the links between natural environment / access and recreation /

Scenario 2 – Offshore Platform				
Environmental Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
				environmental quality and tourism.
Nature Conservation To seek to respect nature conservation designations and ensure any future planning and design take full account of environmental/ impacts and conservation of natural systems.	The Scenario Planning exercise has identified the dependencies for Scenario 2 e.g. spatial relationship between mainland harbour and airport (Glasgow/Oban/Prestwick/Tiree), potential industrial land etc. and proximity of these areas to protected habitats and species and need for further assessment once O&M proposals have been fixed.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / HRA.	Ensure that local community and stakeholders continue to inform decision making with workshops and full and early consultation with Marine Scotland, SNH and RSPB on proposals.	Tiree benefits from high quality environment with significant level of protected habitats and species recognised in European and National designations – need to fully assess any O&M scenario with potential for impacts
Noise To seek to ensure that the noise environment is addressed with specific reference to helicopter access and servicing.	Scenario 2 may seek to use Tiree airport to a limited degree for local O&M staff choosing to be resident on the island. Emergency access to helipad at airport for medical /technical purposes.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / Noise impact assessment.	Ensure that local community and stakeholders continue to be consulted on decision making for helipad/helicopter design and flight paths informed by technical studies to minimise noise disturbance.	Background noise levels are low – Tiree benefits from peaceful environment without noise emissions associated with industry and transport etc. Helicopter noise is a significant issue for residents that would need to be fully assessed and measures to reduce disturbance implemented.
Visual To seek to ensure that the visual environment is addressed with specific reference to place quality, buildings and design.	Scenario 2 requires no O&M infrastructure on Tiree and therefore limited potential for environmental issues at marine/land interface.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified. Early decision on the Convertor Station offshore or onshore will be important to the community. Assume that the convertor station will be assessed as part of Argyll Array Licensing process.	Consultation on location of offshore platform to minimise visual impacts. Additional consultation on convertor station recommended.	Importance of buildings to the overall character of the island and commitment to high quality design of any new development. Convertor Station is a significant issue for the local community given possible size, scale and location and needs to be fully addressed through Licensing/Consenting.

3.0 Scenario 3

Scenario 3	
Summary Description	**Offshore O&M Base – Mothership**
Detailed Description	• An offshore mothership arrangement for servicing the offshore array operating from a mainland port. • Scenario 3 has an Operational Control Centre and helicopter crew based on Tiree with all other O&M based on the Mothership. This Scenario therefore has minor direct implications for Tiree in terms of O&M activity. The main impacts or benefits would occur wherever the O&M mainland base operates from - e.g. a mainland Scottish port

Scenario 3 – Offshore O&M Base – Mothership with Operating Control Centre and Helicopter crew on Tiree				
Economic Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Economic Objective To ensure O&M helps to extend the wider aspiration of Scottish Government to create the conditions for sustainable economic growth and address regional and spatial disparities.	Offshore staffing limits the employment opportunities to those jobs based in the Operating Control Centre.	Partnership working between public and private sector around agreed target outcomes.	Strengthening clarity of O&M requirements and assurances around opportunities and mitigation	The community are aware of both opportunity and impact associated with the proposed array and are seeking early clarity around commitments.
Employment To seek to increase local employment opportunities that support skills and training and opportunities for young people whilst growing the locally employed population base and non-seasonal job opportunities.	Scenario 3 support increased local employment through direct and indirect jobs estimated at 25 array jobs of which 6 are anticipated to be local based on the scenario planning assumptions made to date. The Challenge: • Making accessible local jobs • Developing skills • Avoiding substitution	Developing an Employment Charter with SPR promoting measures associated with: • Employment access • Apprenticeships • Adult skills training • Educational bursaries • Training/ Other	Advance skills programmes required developed through Renewable Energy Action Plan (REAP). Lead time 2-3 years. Undertaking to include Employment Charter elements within SPR procurement.	Employment benefits are a key local benefit of any future array. Assurances around building local capacity; local job access and flexibility of working arrangements are all important to the local communities.
Fishing To seek to maintain the fishing industry at current levels and/or support modest sustainable growth through improvements to infrastructure and secondary support for fishing incomes.	In Scenario 3, the motherships and any daughter workboats are based within the Array /Mainland port and therefore there are no ancillary benefits to fishing fleet as no harbour/breakwater required. Opportunity for secondary employment/support to O&M operations on the island.	Detailed assessment of O&M Scenario once 'fixed' to preferred option and continued consultation with fishermen during SPR Licensing and Consenting process to ensure that any potential issues are addressed early.	Wider fishing interests relative to the proposed array are addressed with Fishermen's Liaison Group - need for engagement with Argyll and Bute Renewable Energy Alliance (ABRA) re skills/opportunities.	Fishing is a key local industry with sensitivities in an island community. Support for the fishing sector would offer an outcome with strong local support. Need to maintain continued engagement around Community Benefits etc
Agriculture To seek to maintain current land	Scenario 3 would have limited development requirements on the island – operating control	Commitment through sensitive land use planning to ensure:	Need to maintain consultation and dialogue	Agriculture is a key local industry with sensitivities in an island

Scenario 3 – Offshore O&M Base – Mothership with Operating Control Centre and Helicopter crew on Tiree				
Economic Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
management practice and capacity including access to markets and sustaining agricultural / crofting employment	centre and use of helipad. Locations of the O&M infrastructure would need to be agreed based on review of dependencies between the facilities and airport / harbour etc.	• No significant loss of agricultural land • No loss of ferry capacity • No changes to existing land management practices • New employment that can support agricultural incomes • Improvements to ICT / Broadband – superfast connection	with Tiree Rural Development (TRD), Crofting Association and NFUS for any land based O&M facilities that may have a potential impact on agricultural practices	community.
Transport To seek to maintain and enhance transportation access within the modes of air, sea and road with appropriate improvements to infrastructure or service levels that recognise the needs of all sectors.	**Harbour** • No harbour/breakwater required – motherships would operate from a mainland port **Airport / Heliport** • The O&M operation could be supported by a helicopter base either at the harbour or potentially at the airport. Helicopter provision would include a hangar, helipad and fuel bunkering. Flight levels are currently under assessment but worst case numbers suggest 1-5 return flights per day **Local Roads** • The O&M operation may require some local Road Network upgrading but only in the immediate local area of the O&M Operating Control Centre or between this and the helipad.. If helipad facilities were located at the airport volumes of traffic are unlikely to be significant.	• Infrastructure clearly needs to match any intensification of use whether this be associated with harbour/airport or roads. Local road upgrades may offer wider benefits as would development of the harbour. Issues requiring to be addressed would include: • Helicopter flights paths across defined sea routes could mitigate island over-flying. • Protecting existing air and sea capacity Scenario 3 O&M operations by increasing island population will place additional demand on air and ferry connections.	A growing population would introduce both opportunity and impacts with mitigation dependent on investment in local capacity. Discussions will be progressed with a number of key service providers to identify any specific measures or responses. • Discussions with CMAL / Calmac and HIAL regarding Lifeline services	Transport is a hugely important issue for Tiree and Scenario 1 has greatest potential for impacts to existing capacities : • Need to maintain adequate service provision • Island communities are reliant on transport for goods and services, business connections, family connections and access to a range of services on the mainland including healthcare, employment and education and shopping etc
Tourism To seek to maintain the 'special qualities of place' that support the tourism sector recognising the importance of sports / leisure /	Scenario 3 requires limited infrastructure on Tiree - need for this to be sensitively designed to support the objective.	Commitment through sensitive land use planning to ensure: • No significant loss of agricultural land • No loss of ferry capacity	Need to maintain consultation and dialogue with Crofting Association and NFUS for any land based O&M facilities that may have	Tourism is a hugely important sector for Tiree and Scenario 1 has greatest potential for impacts to existing capacities : • Need to maintain ferry

Scenario 3 – Offshore O&M Base – Mothership with Operating Control Centre and Helicopter crew on Tiree				
Economic Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
recreation and cultural heritage to the tourism economy.		• No changes to existing land management practices • New employment that can support agricultural incomes • Improvements to ICT / Broadband	a potential impact on agricultural practices	capacities particularly during the peak summer months • Need to forward plan for increased accommodations requirements such that O&M staff do not reduce tourism accommodation offering

Scenario 3 – Offshore O&M Base – Mothership with Operating Control Centre and Helicopter crew on Tiree				
Social Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Social Objective To ensure O&M helps secure positive benefits that will help to strengthen socio-economic conditions and add additional capacity linked to community needs and community infrastructure.	Scenario 3 offers the potential for a level of employment opportunity that would support future economic growth and stability (25 new posts on the island with c. 6 likely to be available to local community from outset with training)	Further detailed appraisal of the O&M Scenario once a preferred option has been identified and appropriate level of local engagement to inform service provision, capacity testing and infrastructure requirements.	Commitment to Community Benefit Review in consultation with key partners and the local community. Linkages to Tiree Community Growth Plan 2011 -2016	Need to recognise potential scale of incremental change on island community and importance of maintaining quality and availability of services and infrastructure - special consideration required e.g. relative to Lifeline services.
Way of Life To seek to maintain a special 'way of life' that offers a diversity of community interests, opportunity for enterprise, for relaxation and amenity that support civic community capacity and health and avoids the loss of the things that make Tiree a special place to live, work and visit.	Scenario 3 introduces a level of 'change' to the island in terms of land based development and therefore needs careful consideration in relation to qualities that are valued by the community / visitors.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M that may impact on way of life and seek support e.g. for crofting / land management practices, Gaelic language.	Continued liaison during License/Planning process with community/stakeholders and partners.	Need to recognise that numerous small incremental changes equate to potentially large change on Tiree – building type, size and location will all be important considerations in perception of the island to existing residents and visitors.
Health To seek to maintain access to health facilities and ensure provision addresses future health needs	Scenario 1 has potential to increase the population by around 24 people (current resident population of 730), therefore marginally increasing demand for health services.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified with local community / key stakeholders e.g. Cùram Thiriodh project / NHS.	Continued liaison during License/Planning process with community/stakeholders and partners.	Important to recognise current health service demands and peaks during summer months and that health service provision responds to demand. Need for timely review once O&M is better understood.

Scenario 3 – Offshore O&M Base – Mothership with Operating Control Centre and Helicopter crew on Tiree				
Social Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Heritage To seek to protect social, environmental and cultural heritage recognising a risk associated with de-population that impacts on a vibrant island cultural life.	Scenario 3 includes land based O&M development and therefore would represent a significant change from current levels of island development – design responses re scale, nature and location of new buildings and infrastructure will seek to maintain balance with existing island culture.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified. Ensure that local community and stakeholders continue to inform decision making for any land based O&M that may impact on way of life and seek support e.g. for crofting / land management practices, Gaelic language.	Continued liaison during License/Planning process with community/stakeholders and partners.	Need to recognise that numerous small incremental changes equate to potentially significant impacts on heritage of the island – important that character of Tiree is preserved recognising need for resilient population.
Education To seek to maintain access to education facilities and ensure educational provision addresses future needs including adult skills and training for future employment.	Based on the scenario mapping exercise completed and the assumptions therein, the additional population for Scenario 3 would equate to an additional 2 primary and 1 secondary school places with anticipated provision of adult training and apprenticeships available.	Developing an Employment Charter with SPR promoting measures associated with: • Employment access • Apprenticeships • Adult skills training • Educational bursaries • Training • Other	Advance skills programmes required developed through Renewable Energy Action Plan (REAP) Lead time 2-3 years Undertaking to include Employment Charter elements within SPR procurement.	Need to promote potential future career opportunities to current school pupils and leavers to support/enable those who wish to stay on the island long term.
Housing To seek to ensure any additional population growth associated with O&M provides housing complementary to the existing settlement structure and its distinctive place qualities.	Based on the scenario mapping exercise completed and the assumptions therein, the additional population for Scenario 3 would require between 4 and 6 new homes. The locations of any new housing provision would need to be fully assessed on basis of design and technical considerations.	Appropriate forward planning for provision of new housing including affordable housing provision for existing population. Further detailed appraisal of the O&M Scenario once a preferred option has been identified.	Identification of potential housing land within LDP and appropriate forward planning of requirements with commitment to high quality building design and construction.	Island already has shortage of properties available for sale and rent particularly affordable housing and limited available land for new housing – would need careful planning and design.
Design To seek to ensure place quality is enhanced, derelict and vacant land and buildings are utilised, sustainable design principles and local bespoke design guidance is adopted.	Scenario Planning is an early stage in the overall Licensing and consenting process and therefore design of any Tiree based O&M will be informed by Argyll and Bute Council Design Codes/Design Guidance for the island.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / use of local architects and skills	Importance of buildings to the overall character of the island and commitment to high quality design of any new development.

Scenario 3 – Offshore O&M Base – Mothership with Operating Control Centre and Helicopter crew on Tiree				
Environmental Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Environmental Objective To ensure O&M activity avoids significant environmental impacts on the natural environment recognising the special quality and sensitivity of Tiree's natural environment.	Scenario Planning is an early stage in the overall Licensing and consenting process and therefore design of any Tiree based O&M will be subject to options appraisal in recognition of the environmental sensitivities.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / HRA.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / workshops and full and early consultation with Marine Scotland, SNH and RSPB on proposals.	Tiree benefits from high quality environment with significant level of protected habitats and species recognised in European and National designations – need to fully assess any O&M scenario with potential for impacts particularly on fragile machair. Need to recognise the links between natural environment / access and recreation / environmental quality and tourism.
Nature Conservation To seek to respect nature conservation designations and ensure any future planning and design take full account of environmental/ impacts and conservation of natural systems.	The Scenario Planning exercise has identified the dependencies for Scenario 3 e.g. spatial relationship between harbour, airport, potential industrial land etc. and proximity of these areas to protected habitats and species and need for further assessment once O&M proposals have been fixed.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / HRA.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / workshops and full and early consultation with Marine Scotland, SNH and RSPB on proposals.	Tiree benefits from high quality environment with significant level of protected habitats and species recognised in European and National designations – need to fully assess any O&M scenario with potential for impacts particularly on fragile machair. Need to recognise the links between natural environment / access and recreation / environmental quality and tourism.
Noise To seek to ensure that the noise environment is addressed with specific reference to helicopter access and servicing.	Scenario 3 includes an anticipated 1-5 daily return helicopter flights between Tiree and the Argyll Array. There is a commitment to further assessment once O&M proposals are more fully understood relative to servicing requirements informed by the EIA and technical studies currently underway for the Array itself.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / Noise impact assessment.	Ensure that local community and stakeholders continue to be consulted on decision making for helipad/helicopter design and flight paths informed by technical studies to minimise noise	Background noise levels are low – Tiree benefits from peaceful environment without noise emissions associated with industry and transport etc. Helicopter noise is a significant issue for residents that would

Scenario 3 – Offshore O&M Base – Mothership with Operating Control Centre and Helicopter crew on Tiree				
Environmental Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
			disturbance.	need to be fully assessed and measures to reduce disturbance implemented.
Visual To seek to ensure that the visual environment is addressed with specific reference to place quality, buildings and design.	The design, layout and location of the Operating Control Centre will be informed by Argyll and Bute Council Design Codes/Design Guidance for the island. The Convertor Station is a significant issue that needs further assessment	Further detailed appraisal of the O&M Scenario once a preferred option has been identified. Early decision on the Convertor Station offshore or onshore will be important to the community. Assume that the convertor station will be assessed as part of Argyll Array Licensing process.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / use of local architects and skills. Additional consultation on convertor station recommended.	Importance of buildings to the overall character of the island and commitment to high quality design of any new development. Convertor Station is a significant issue for the local community given possible size, scale and location and needs to be fully addressed through Licensing/Consenting.

4.0 Scenario 4

Scenario 4	
Summary Description	**Onshore O&M Base & Mothership**
Detailed Description	• An onshore O&M base comprising O&M office, helipad and harbour/breakwater upgrade. • Two motherships would use the harbour for crew changes, re-fuelling and supplies. • Scenario 4 therefore has significant direct implications for Tiree in terms of O&M activity with impacts or benefits occurring at the O&M base which is assumed to be at the harbour with possible facilities at the airport.

Scenario 4 – Onshore O&M Base & Mothership – New Harbour/Breakwater Required				
Economic Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Economic Objective To ensure O&M helps to extend the wider aspiration of Scottish Government to create the conditions for sustainable economic growth and address regional and spatial disparities.	Scenario 4 offers the potential for moderate employment that would support wider policies for sustainable economic development and build additional capacity and resilience within the island economy.	Partnership working between public and private sector around agreed target outcomes.	Strengthening clarity of O&M requirements and assurances around opportunities and mitigation	The community are aware of both opportunity and impact associated with the proposed array and are seeking early clarity around commitments.
Employment To seek to increase local employment opportunities that support skills and training and opportunities for young people whilst growing the locally employed population base and non-seasonal job opportunities.	The scenario supports increased local employment through 59 direct jobs of which 15 are anticipated to be local. The Challenge: • Making accessible local jobs • Developing skills • Avoiding substitution	Developing an Employment Charter with SPR promoting measures associated with: • Employment access • Apprenticeships • Adult skills training • Educational bursaries • Training/ Other	Advance skills programmes required developed through Renewable Energy Action Plan (REAP). Lead time 2-3 years. Undertaking to include Employment Charter elements within SPR procurement.	Employment benefits are a key local benefit of any future array. Assurances around building local capacity; local job access and flexibility of working arrangements are all important to the local communities.
Fishing To seek to maintain the fishing industry at current levels and/or support modest sustainable growth through improvements to infrastructure and secondary support for fishing incomes.	Scenario 4 offers the potential to support the fishing sector with the provision of a public access harbour / breakwater. The Challenge: • Creating new facilities of a scale that allows for multiple use / management • Access to employment would support secondary fishing incomes • Developing skills • Avoiding employment substitution	Early feasibility study advanced with CMAL to conclude feasibility of new harbour provision and mechanisms and programme for delivery. Feasibility study to inform detailed area masterplanning.	Wider fishing interests relative to the proposed array are addressed with Fishermen's Liaison Group	Fishing is a key local industry with sensitivities in an island community. Support for the fishing sector would offer an outcome with strong local support.

Scenario 4 – Onshore O&M Base & Mothership – New Harbour/Breakwater Required				
Economic Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Agriculture To seek to maintain current land management practice and capacity including access to markets and sustaining agricultural / crofting employment	Scenario 4 offers the potential to support the crofting/agricultural sector with the provision of a harbour / breakwater and would therefore increase reliability of ferry services and access to markets, goods and services but there is a need to support this sector through: • Access to employment to support secondary crofting incomes • Developing skills • Avoiding employment substitution	Commitment through sensitive land use planning to ensure: • No significant loss of agricultural land • No loss of ferry capacity • No changes to existing land management practices • New employment that can support agricultural incomes • Improvements to ICT / Broadband – superfast connection	Need to maintain consultation and dialogue with Tiree Rural Development (TRD), Crofting Association and NFUS for any land based O&M facilities that may have a potential impact on agricultural practices	Agriculture is a key local industry with sensitivities in an island community.
Transport To seek to maintain and enhance transportation access within the modes of air, sea and road with appropriate improvements to infrastructure or service levels that recognise the needs of all sectors.	**Harbour** • 2 x motherships with daughter workboats - a harbour facility created by a breakwater and offering pontoon / quay access will be required. • Offering safe haven for workboats all year round • Pontoon and Quay facilities • 150 (+10)m sheltered pontoon length • Marine fuel bunkering (200,000l capacity) serviced and refuelled by sea-barge. It is not anticipated that workboat fuelling would require fuel import by ferry. **Airport / Heliport** • The O&M operation could be supported by a helicopter base either at the harbour or potentially at the airport. Helicopter provision would include a hangar, helipad and fuel bunkering. Flight levels are currently under assessment but worst case numbers suggest 1-5 return flights per day. **Local Roads** • The O&M operation may require some local	• Infrastructure clearly needs to match any intensification of use whether this be associated with harbour/airport or roads. Local road upgrades may offer wider benefits as would development of the harbour. Issues requiring to be addressed would include: • Harbour improvements may offer wider support to existing local businesses e.g. • Creating access for fishing / recreational boats and improving ferry weather protection • Helicopter flights paths across defined sea routes could mitigate island over-flying. • Protecting existing air and sea capacity Scenario 4 O&M operations by	A growing population would introduce both opportunity and impacts with mitigation dependent on investment in local capacity. Discussions will be progressed with a number of key service providers to identify any specific measures or responses. • Discussions with CMAL / Calmac and HIAL regarding Lifeline services • Discussion with Argyll and Bute Council and relevant health providers • A harbour is a requirement to support this scenario	Transport is a hugely important issue for Tiree and Scenario 1 has greatest potential for impacts to existing capacities : • Need to maintain adequate service provision • Island communities are reliant on transport for goods and services, business connections, family connections and access to a range of services on the mainland including healthcare, employment and education and shopping etc

Scenario 4 – Onshore O&M Base & Mothership – New Harbour/Breakwater Required				
Economic Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
	Road Network upgrading but only in the immediate local area of the O&M Base or between the base and the harbour. Access to the harbour / breakwater will be required for vehicles. If helipad facilities were located at the airport volumes of traffic are unlikely to be significant.	increasing island population will place additional demand on air and ferry connections. An increase in population will require a review of current air and ferry capacity. Vehicular ferry capacity at weekends & in the summer months is near or at capacity. Reducing ferry cancellations and any improvement to capacity would offer local benefits.		
Tourism To seek to maintain the 'special qualities of place' that support the tourism sector recognising the importance of sports / leisure / recreation and cultural heritage to the tourism economy.	Scenario 4 offers the potential to support the tourism sector with the provision of a harbour / breakwater and would therefore increase reliability of ferry services. Recognising Challenges re: • Access to employment to support tourism incomes • Developing skills • Avoiding employment substitution • Maintaining	Commitment through sensitive land use planning to ensure: • No significant loss of agricultural land • No loss of ferry capacity • No changes to existing land management practices • New employment that can support agricultural incomes • Improvements to ICT / Broadband	Need to maintain consultation and dialogue with Crofting Association and NFUS for any land based O&M facilities that may have a potential impact on agricultural practices	Tourism is a hugely important sector for Tiree – key considerations as follows: • Need to maintain ferry capacities particularly during the peak summer months • Need to forward plan for increased accommodations requirements such that O&M staff do not reduce tourism accommodation offering

Scenario 4 – Onshore O&M Base & Mothership – New Harbour/Breakwater Required				
Social Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Social Objective To ensure O&M helps secure positive benefits that will help to strengthen socio-economic conditions and add additional capacity linked to community needs and community infrastructure.	Scenario 4 offers the potential for moderate employment opportunity that would support future economic growth and stability.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified and appropriate level of local engagement to inform service provision, capacity testing and	Commitment to Community Benefit Review in consultation with key partners and the local community. Linkages to Tiree Community Growth	Need to recognise potential scale of incremental change on island community and importance of maintaining quality and availability of services and infrastructure - special consideration required

Scenario 4 – Onshore O&M Base & Mothership – New Harbour/Breakwater Required				
Social Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
		infrastructure requirements.	Plan 2011 -2016	e.g. relative to Lifeline services.
Way of Life To seek to maintain a special 'way of life' that offers a diversity of community interests, opportunity for enterprise, for relaxation and amenity that support civic community capacity and health and avoids the loss of the things that make Tiree a special place to live, work and visit.	Scenario 4 is the option with the greatest level of 'change' to the island in terms of land based development after Scenario 1and therefore future proposals needs careful consideration in relation to qualities that are valued by the community / visitors.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M that may impact on way of life and seek support e.g. for crofting / land management practices, Gaelic language.	Continued liaison during License/Planning process with community/stakeholders and partners.	Need to recognise that numerous small incremental changes equate to potentially large change on Tiree
Health To seek to maintain access to health facilities and ensure provision addresses future health needs	Scenario 4 has potential to increase the population by up to 7% (population growth of 56 people based on current resident population of 730), therefore increasing demand for health services.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified with local community / key stakeholders e.g. Cùram Thiriodh project / NHS.	Continued liaison during License/Planning process with community/stakeholders and partners.	Important to recognise current health service demands and peaks during summer months and that health service provision responds to demand. Need for timely review once O&M is better understood.
Heritage To seek to protect social, environmental and cultural heritage recognising a risk associated with de-population that impacts on a vibrant island cultural life.	Scenario 4 requires O&M base/helipad/harbour upgrade and therefore would represent a significant change from current levels of island development.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified. Ensure that local community and stakeholders continue to inform decision making for any land based O&M that may impact on way of life and seek support e.g. for crofting / land management practices, Gaelic language.	Continued liaison during License/Planning process with community/stakeholders and partners.	Need to recognise that numerous small incremental changes equate to potentially significant impacts on heritage of the island – important that character of Tiree is preserved recognising need for resilient population.
Education To seek to maintain access to education facilities and ensure educational provision addresses future needs including adult skills and training for future employment.	Based on the scenario mapping exercise completed and the assumptions therein, the additional population for Scenario 4 would equate to an additional 4 primary and 3 secondary school places with anticipated provision of adult training and apprenticeships available.	Developing an Employment Charter with SPR promoting measures associated with: • Employment access • Apprenticeships • Adult skills training • Educational bursaries • Training	Advance skills programmes required developed through Renewable Energy Action Plan (REAP) Lead time 2-3 years Undertaking to include Employment Charter elements within SPR	Need to promote potential future career opportunities to current school pupils and leavers to support/enable those who wish to stay on the island long term.

Scenario 4 – Onshore O&M Base & Mothership – New Harbour/Breakwater Required				
Social Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
		• Other	procurement.	
Housing To seek to ensure any additional population growth associated with O&M provides housing complementary to the existing settlement structure and its distinctive place qualities.	Based on the scenario mapping exercise completed and the assumptions therein, the additional population for Scenario 4 would require around 11 new homes. The locations of any new housing provision would need to be fully assessed on basis of design and technical considerations.	Appropriate forward planning for provision of new housing including affordable housing provision for existing population. Further detailed appraisal of the O&M Scenario once a preferred option has been identified.	Identification of potential housing land within LDP and appropriate forward planning of requirements with commitment to high quality building design and construction.	Island already has shortage of properties available for sale and rent particularly affordable housing and limited available land for new housing – would need careful planning and design.
Design To seek to ensure place quality is enhanced, derelict and vacant land and buildings are utilised, sustainable design principles and local bespoke design guidance is adopted.	Scenario Planning is an early stage in the overall Licensing and consenting process and therefore design of any Tiree based O&M will be informed by Argyll and Bute Council Design Codes/Design Guidance for the island.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / use of local architects and skills	Importance of buildings to the overall character of the island and commitment to high quality design of any new development.

Scenario 4 – Onshore O&M Base & Mothership – New Harbour/Breakwater Required				
Environmental Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Overall Environmental Objective To ensure O&M activity avoids significant environmental impacts on the natural environment recognising the special quality and sensitivity of Tiree's natural environment.	Scenario Planning is an early stage in the overall Licensing and consenting process and therefore design of any Tiree based O&M will be subject to options appraisal in recognition of the environmental sensitivities.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / HRA.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / workshops and full and early consultation with Marine Scotland, SNH and RSPB on proposals.	Tiree benefits from high quality environment with significant level of protected habitats and species recognised in European and National designations – need to fully assess any O&M scenario with potential for impacts particularly on fragile machair. Need to recognise the links between natural environment / access and recreation / environmental quality and tourism.

Scenario 4 – Onshore O&M Base & Mothership – New Harbour/Breakwater Required				
Environmental Objectives	**Scenario Supports the Objective?**	**Mechanism to secure Objective?**	**Requirement for Mitigation?**	**Issues and Comments Associated with Consultations**
Nature Conservation To seek to respect nature conservation designations and ensure any future planning and design take full account of environmental/ impacts and conservation of natural systems.	The Scenario Planning exercise has identified the dependencies for Scenario 4 e.g. spatial relationship between harbour, airport, potential industrial land etc. and proximity of these areas to protected habitats and species and need for further assessment once O&M proposals have been fixed.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / HRA.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / workshops and full and early consultation with Marine Scotland, SNH and RSPB on proposals.	Tiree benefits from high quality environment with significant level of protected habitats and species recognised in European and National designations – need to fully assess any O&M scenario with potential for impacts particularly on fragile machair. Need to recognise the links between natural environment / access and recreation / environmental quality and tourism.
Noise To seek to ensure that the noise environment is addressed with specific reference to helicopter access and servicing.	Scenario 1 includes an anticipated 1-5 daily return helicopter flights between Tiree and the Argyll Array. There is a commitment to further assessment once O&M proposals are more fully understood relative to servicing requirements informed by the EIA and technical studies currently underway for the Array itself.	Further detailed appraisal of the O&M Scenario once a preferred option has been identified – Masterplanning / EIA / Noise impact assessment.	Ensure that local community and stakeholders continue to be consulted on decision making for helipad/helicopter design and flight paths informed by technical studies to minimise noise disturbance.	Background noise levels are low – Tiree benefits from peaceful environment without noise emissions associated with industry and transport etc. Helicopter noise is a significant issue for residents that would need to be fully assessed and measures to reduce disturbance implemented.
Visual To seek to ensure that the visual environment is addressed with specific reference to place quality, buildings and design.	Scenario 4 has the second highest requirement for land based O&M development and therefore would represent a significant change from current levels of island development. Scenario Planning is an early stage in the overall Licensing and consenting process and therefore design of any Tiree based O&M will be informed by Argyll and Bute Council Design Codes/Design Guidance for the island. The Convertor Station is a significant issue that needs further assessment	Further detailed appraisal of the O&M Scenario once a preferred option has been identified. Early decision on the Convertor Station offshore or onshore will be important to the community. Assume that the convertor station will be assessed as part of Argyll Array Licensing process.	Ensure that local community and stakeholders continue to inform decision making for any land based O&M e.g. through design charrette / use of local architects and skills. Additional consultation on convertor station recommended.	Importance of buildings to the overall character of the island and commitment to high quality design of any new development. Convertor Station is a significant issue for the local community given possible size, scale and location and needs to be fully addressed through Licensing/Consenting.

Appendix 5
Planning Baseline & LDP

Appendix 5 Planning Baseline

PLANNING CONTEXT

Tiree is located within the Argyll and Bute Local Authority Area and is therefore covered by the Argyll and Bute Structure Plan (2002) and the Argyll and Bute Local Plan (2009).

A Local Development Plan (LDP) which will replace the existing Argyll and Bute Council Local Plan is currently being produced and is due to be adopted mid 2013.

Any development proposed within the Argyll and Bute Local Authority region will be to be assessed against the appropriate planning policies of both, the Structure and Local Plans, as well as all relevant national planning policy and supplementary guidance including those of the National Park where appropriate. National Planning Framework 2 (2009) and the new consolidated Scottish Planning Policy (2010) provide national planning guidance in Scotland.

The recently published Blue Seas Green Energy – Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters (2011) is also particularly relevant to the proposed Argyll Array as it represents the first spatial planning guidance for marine developments.

Given the scale and nature of the proposed development the consenting process is complex due to the differing off and on-shore aspects of the proposal. Consent for the offshore aspects of the development will be sought first. The appropriate consents and licenses will be applied for to the Scottish Government, whereas SPR will apply to Argyll and Bute Council for any onshore infrastructure such as O&M facilities which require planning permission.

CONSENT PROCESS

The procedure for gaining planning permission for offshore renewables has changed since the enactment of the Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009. The recent shift in focus towards the offshore energy potential around the Scottish Coastline has led to the requirement for up to date and concise marine guidance. Scottish Power Renewables (SPR) require the following licenses and consents in order to construct and operate the proposed Argyll Array:

Offshore – from Scottish Ministers

- A Marine License under Section 16 of the Marine (Scotland) Act 2010,
- Consent under Section 36 of the Electricity Act 1989 from the Scottish Government (Energy Consents Unit) for the construction and operation of an offshore windfarm.
- SPR will also be required to submit an Environmental Statement under the Electricity Works (Environmental Impact Assessment) Regulations 2000. The Environmental Statement should include all potential effects the proposal may have on protected sites, in particular sites designated under EU and UK legislation including the Conservation (Natural Habitats) Regulations 1994 and the RAMSAR Convention of Wetlands of International Importance (1971).
- A 'decommissioning plan' will also be required under the Energy Act 2004

Onshore – from Argyll and Bute Council

- Planning permission under Section 57 (2) of the Town and Country Planning (Scotland) Act 1997 with regard to any onshore infrastructure.
- Depending on the nature and scale of onshore built development, an EIA under The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 may be required in addition to a Habitats Regulation Assessment under the Conservation (Natural Habitats) Regulations 1994.

The Blue Sea Green Energy – Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters (2011) highlights the importance of effective engagement with communities at project level, an example of which is undertaking a scenario / masterplanning approach as a way of informing future

decisions with regard to onshore aspects of a proposal and positive engagement with communities in order to discuss options and seek public acceptability.

EXISTING LAND USE ALLOCATIONS - ARGYLL AND BUTE LOCAL PLAN, 2009

Industry / Business

Depending on which of the 4 potential O & M scenarios is chosen; a level of onshore infrastructure may be required on the island. At present there are 2 areas on the island that support a level of industrial / business land uses. Both are identified within the Argyll and Bute Local Plan as being 'areas for action' and could potentially hold further development.

SITE	LOCATION	USE
AFA 7/2	Crossapol / Airport	Business and industry - Local; redevelopment for residential, business, commercial and environmental enhancement.
AFA 7/1	Scarinish Pierhead	Local; business development and environmental enhancement.

Other than these two identified areas, there are very few areas on the island that have the capacity to accommodate substantial new industrial development, e.g. areas of brownfield land / land which does not protected by a statutory designation.

Housing

The only formal housing allocation on the island is located close to the ferry terminal at Scarinish – Pier road (*H-AL 7/1*). The site had an initial capacity for 20 units but 28 houses have been completed with 14 for social rent. At present there are no other housing land allocations on the island. Due to the scale and layout of the existing settlements on the island, integrating any level on new housing would have to be done sensitively and in style with existing housing where possible to reduce any negative impacts.

Potential Development Areas

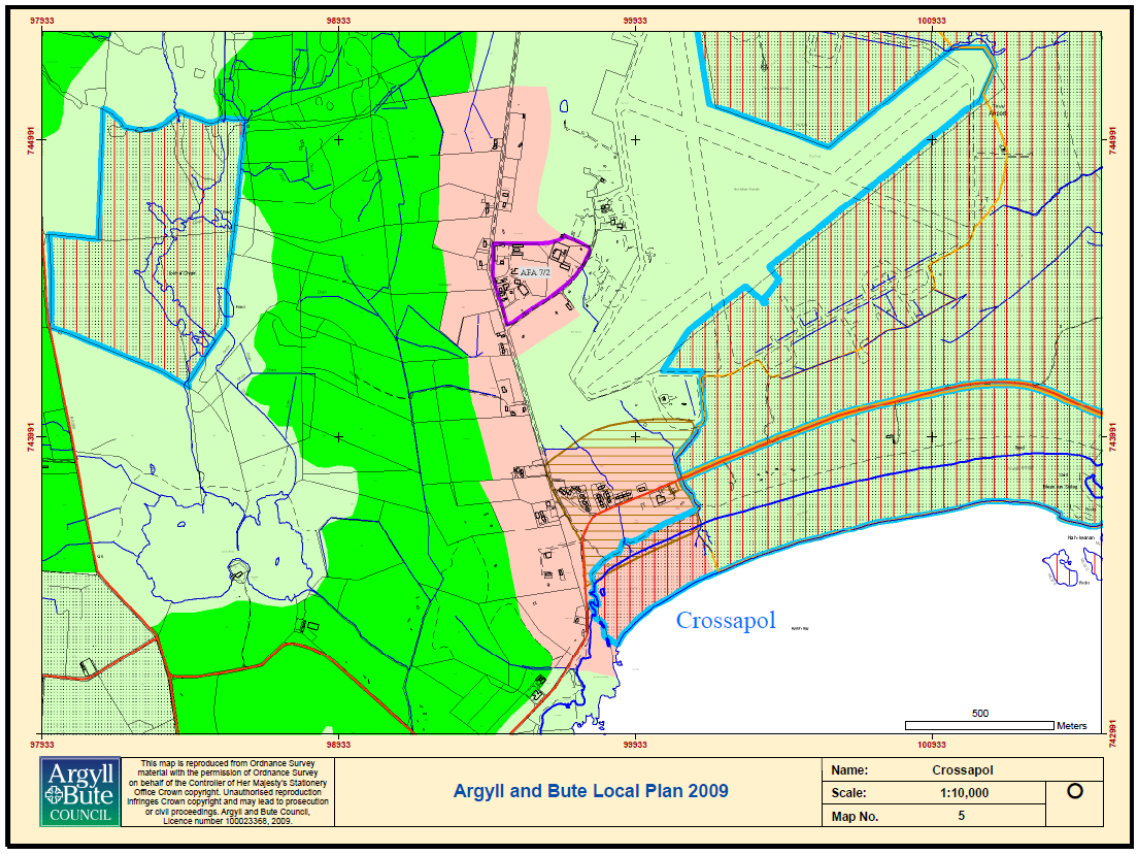
Within the Local Plan, a number of Potential Development Areas (PDA) have been identified. Although these areas do not form part of the development land provision, they may contribute towards land for additional housing supply or development land. There is one PDA on Tiree, PDA 7/2, located at Scarinish adjacent to the land allocated for housing.

FUTURE LAND USE ALLOCATIONS - ARGYLL AND BUTE LOCAL DEVELOPMENT PLAN, 2013

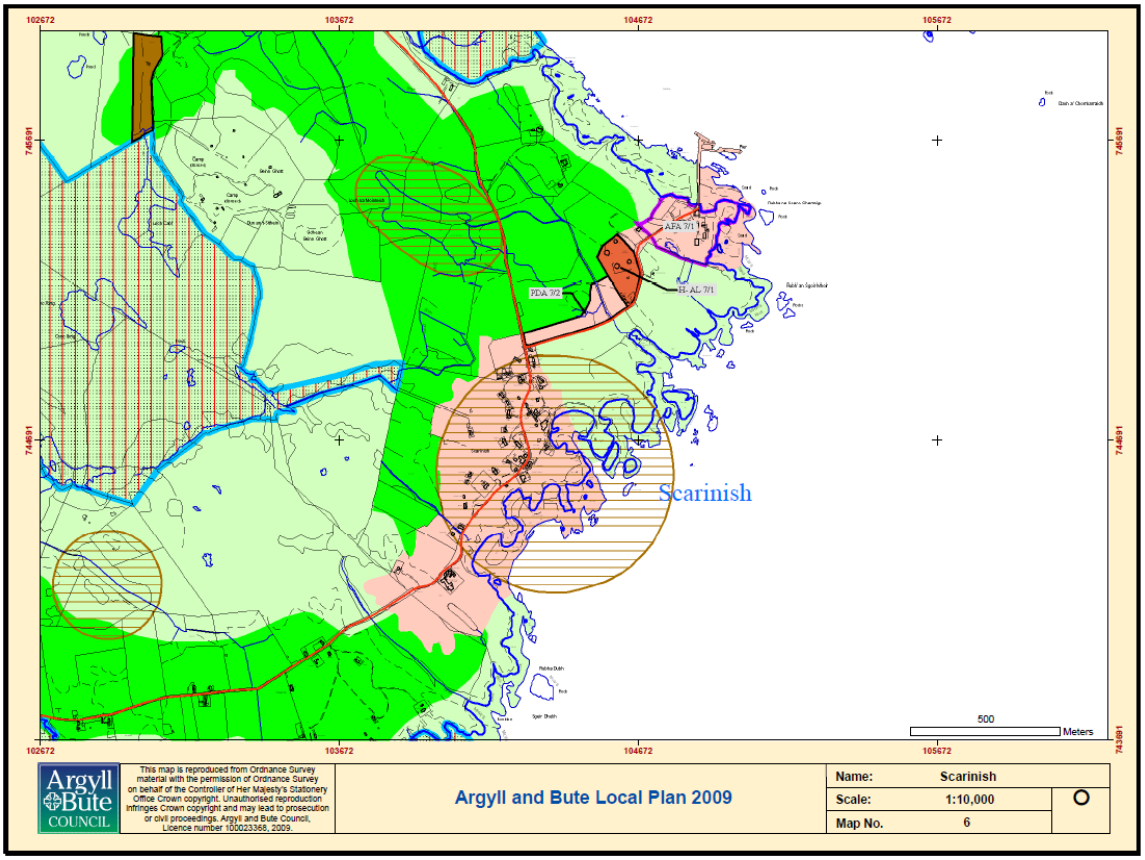
As discussed above, the current Local Plan and Structure Plan are currently being replaced by a single Local Development Plan scheduled to be adopted mid 2013.

The first formal stage of the new plan has been completed with the publication of the Main Issues Report on the 13th of May 2011 and subsequent public consultation. As part of the LDP Consultation an open day was held on Tiree on the 16th of June for local residents to attend. It is intended to publish a proposed Local Development Plan for Argyll and Bute in August 2012 and adopt the new plan by the middle of 2013. In addition to issue including access to affordable housing and adequate infrastructure to service development needs, the potential Argyll Array off-shore wind farm is the biggest development issue facing the island.

The LDP will be required to recognise potential land use requirements for onshore development associated with the potential Argyll Array including industrial land use zoning, housing allocations, infrastructure including harbour/breakwater etc.



Extracts from Argyll and Bute Local Plan, 2009 – Crossapol and Scarinish with existing Housing Allocation and Areas for Action (AFA)



Appendix 6
Communication Strategy

Tiree Onshore Scenario Mapping

Communications Strategy

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with

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July 2011 / 7702

1.0 Introduction – Tiree Onshore Scenario Mapping

The purpose of the study is to consider the onshore implications of the proposed offshore array for the community of Tiree. The study is being funded by Marine Scotland, Crown Estate, Argyll and Bute Council and Highlands and Islands Enterprise. Central to the study is community consultation.

Argyll and Bute Council is working in partnership with the Scottish Government, Marine Scotland, Highlands and Islands Enterprise, Tiree Community Development Trust, The Crown Estate, Caledonian Maritime Assets Limited, Scottish Natural Heritage and Scottish Power Renewables to examine and better understand potential onshore implications associated with the proposed Argyll Array off shore wind farm. Ironside Farrar has been commissioned to undertake an assessment of potential onshore implications.

Windfarms have operational and maintenance needs (O&M) that typically include a level of land based development. The study will help assist the Steering Group, community and stakeholders consider potential land based implications relating to the associated construction, operational and maintenance requirements of the offshore windfarm development and ensure early community consultation and input.

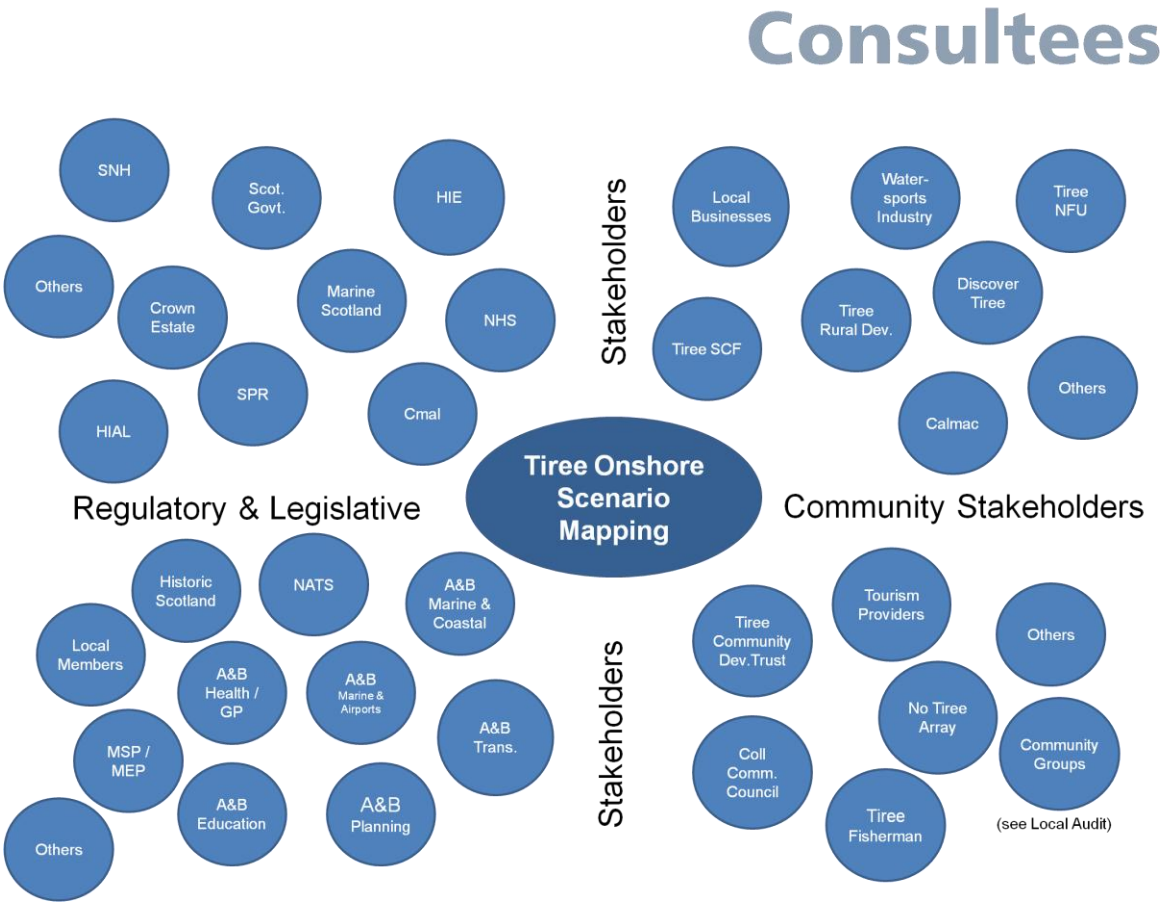
Scottish Power Renewables have indicated four possible scenarios relating to the operations and maintenance activity that may apply to the development of the off shore wind farm. These are as follows:

- An onshore base, local to the project, with workboats (circa 7) going daily to the site, backed up by one or more helicopters.
- A mother ship, stationed offshore within the project, backed up by one or more helicopters and using (circa 2) workboats.
- An offshore platform within the project, using workboats (circa 4) to get to the turbines, backed up by one or more helicopters.
- A mixture of the above three options.

Each of these scenarios may have varying implications for any associated onshore development. It is important that each scenario is analysed and the onshore implications identified and mapped to assess the environmental, socio economic and health/wellbeing impacts. The project will consider how socio-economic benefits might best be secured and how to address any negative consequences from any land based activities. The consideration of any wider community gains associated with the offshore array do not form part of this study.

2.0 Recognising Importance of Work Carried Out to Date

Tiree benefits from an existing network of community based organisations including the Tiree Community Development Trust and Forum, along with many other specialist groups and interests that provide a baseline of understanding of the island communities and the issues of importance to the community.



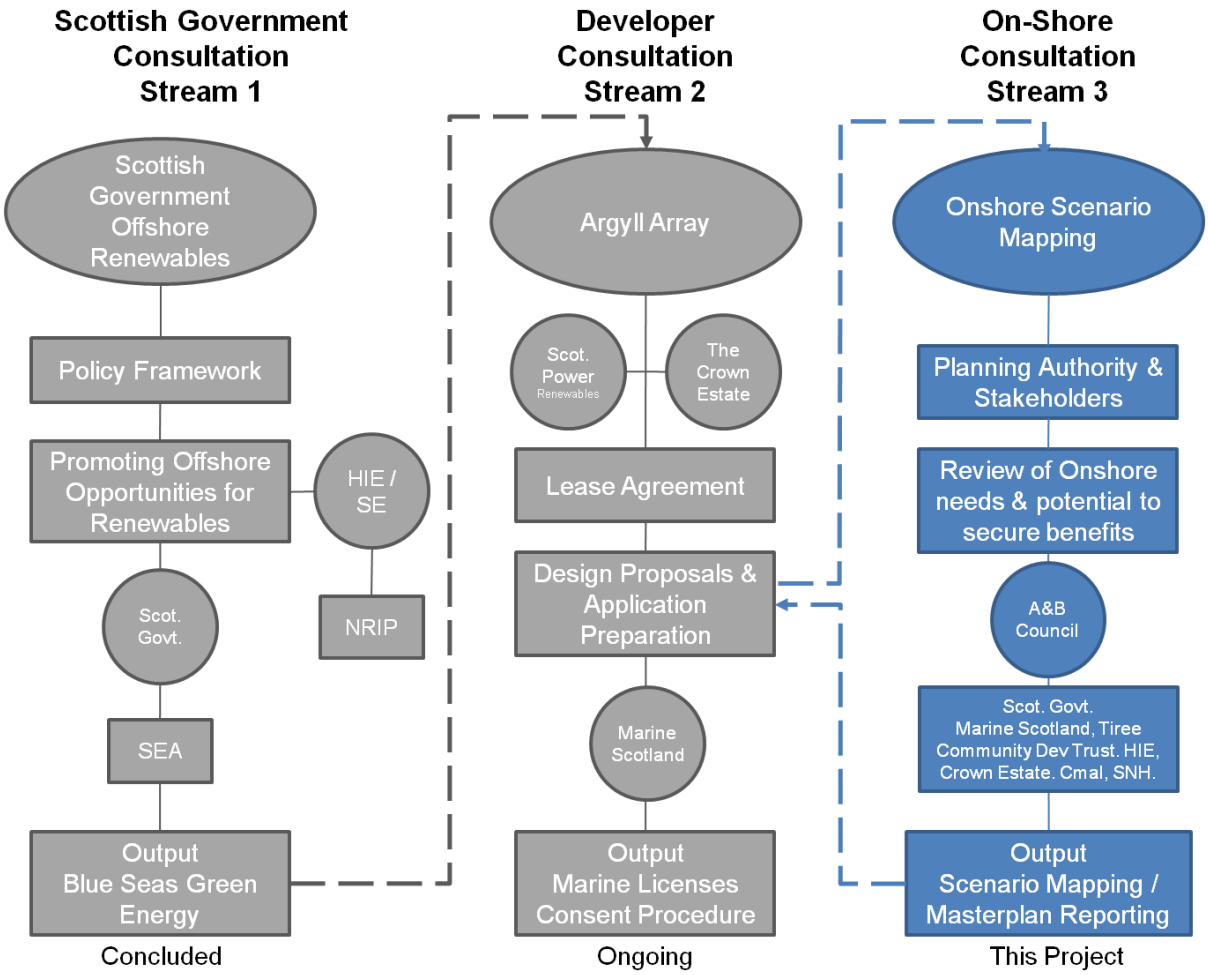
The Communications Strategy aims to explore with as many groups as possible the issues that the proposed offshore array could have on Tiree.

The Communications Strategy for the Tiree Onshore Scenario Mapping project needs to be tailored to promote a two way communication both understanding local issues, concerns and sensitivities and providing additional evidence and technical information to inform debate. This will develop the information provided to the community to date and will ensure there is a clear direction, purpose, objectives and outcomes.

3.0 Consultation Map

It is important to understand the various strands of consultation currently underway in relation to the Argyll Array and how these relate to the consultation we propose for the Tiree Onshore Scenario Mapping (this project).

To provide clarity we have produced a 'Communications Map' to show the roles of the key organisations involved:



We appreciate there are various consultation streams, some of which will proceed in parallel with this work. We seek consultees and communities support in recognising the very specific scope of this project with its focus on the onshore implications and potential benefits associated with any future operations and maintenance activity of the proposed offshore Array.

4.0 Content of this Communications Strategy

This section provides further detail of the proposed stages of Community Consultation:

- **What** type of event is proposed (presentation/drop-in/surgeries)
- **When** consultation will take place (i.e. likely dates for consultation periods)
- **Who** will be consulted (community, stakeholders, other interested parties)
- **Why** the consultation is being undertaken (purpose of consultation)
- **Outputs** from the consultation (i.e. what do we hope to gain/learn?)
- **How** this consultation will be done (methods used to consult with different groups)
- **Advertised** event or informal (if posters, adverts etc will be placed in advance)

4.1 Initial Fact Finding Visit

What	Scheduled meetings over a weekend plus team familiarisation with Tiree
When	5th – 6th August 2011
Who	IFL will meet with parties identified by the Tiree Community Development Trust and other members of the Steering Group
Why	Initial familiarisation visit to appreciate the local context and take early opportunity to introduce ourselves to the Trust and appreciate the likely issues and concerns as well as any opportunities. Will help to provide a context for our initial Community Event 1.
How	Informal meetings and discussions with consultees to maximise benefit of time on Tiree. IFL team will also use the visit to pull together additional information e.g. photographs, maps etc
Outputs	Familiarisation with local groups and issues
Advertised?	Not advertised. Informal meetings arranged by the Tiree Community Development Trust/ Steering Group. The team are happy to have additional informal discussions as they arise over the weekend.

4.2 Community Consultation Event 1

What	Drop-In / Cafe Style Event (flexibility to include other types following fact finding visit and discussions with Tiree Community Development Trust)
When	24th – 25th August 2011
Who	Community / Interested Parties.
Why	Team will provide information boards outlining the issues associated with Onshore Facilities and the 4 scenarios and seeking views from the community to inform the assessment. These initial consultations shall seek to understand the local issues and pressures on local resources, explore areas of potential impact and the potential to secure benefits for the Island community. The information boards and study team will help to clarify: • What the scope of the study covers • What typical Offshore Windfarm on-shore facilities include and the scale of these facilities, levels of jobs, types of buildings and level of support facilities required. • Key topic issues that help to explore views and invite submissions from stakeholders e.g. local issues (housing/ education/ port/agriculture/ etc) including perceptions, concerns and opportunities • Experience and lessons learned from other socio-economic change in Island communities (Oil – Shetland; Fish farming – Western Isles; Cruise Ships – Scotland) • Summarised in fortnightly report to Steering Group and Stakeholders
How	Drop-In Cafe Events with option for one to one discussions / group discussions and surgeries. Exhibition Boards will provide info on teams understanding of the 4 scenarios and what this may mean for Tiree – comment forms filled out on the day or emailed/posted back would be provided along with post-its to stick on boards etc. Questions Box provided to allow people to write down any questions they have with team providing answers to all questions provided.
Outputs	Comments forms and feedback - understanding of the key issues and how they might affect the different scenarios.
Advertised?	Yes - event locations and timings to be advertised likely to include the Argyll and Bute Council Website, Tiree Community Development Trust website, An Tirisdeach (website/publication), Tiree Online website, Oban Times (Tiree page), Scottish Power Renewables website, Posters (to be printed locally and circulated to community contacts in advance, circulated to key contacts.

The study team will be working closely with the Tiree Community Development Trust and looking to local representatives and groups to continue to support consultations following the event that will allow any group or individuals not available or able to attend at this initial consultation to be updated, review the information and respond with written comments.

4.3 Community Consultation Event 2

What	Drop-In / Cafe Style Event (flexibility to include other types following Community Event 1 Experience)
When	w/c 3rd October 2011 (TBC)
Who	Community / Interested Parties.
Why	Team will provide information boards with further details on the options and analysis of the four scenarios undertaken to date including how comments from Event 1 have been incorporated into options appraisal. The Consultation Event will look to make an initial report on the findings of the assessment in terms of the potential changes that an Argyll Array may have on Tiree under each of the four scenarios: • Onshore O&M base • O&M Mother ship • Offshore O&M rig/platform • A mixture of the above three options. This event will provide detail of the potential needs of each of the options; the anticipated level of demand on local services and infrastructure; the opportunities to secure local benefits and look to provide additional detail on the implications, programme and duration of activity and facilities.
How	Drop-In Cafe Event with options for one to one discussions / group discussions. Exhibition Boards will provide assessment thoughts to date including how feedback from the initial Community Event /other consultations have informed the review process – comment forms filled out on the day or emailed/posted back would be provided along with post-its to stick on boards etc.
Outputs	Comments forms and feedback - understanding of the key issues and how they might affect the different scenarios and scenario mapping
Advertised?	Yes - event locations and timings to be advertised likely to include the Argyll and Bute Council Website, Tiree Community Development Trust website, An Tirisdeach (website/publication), Tiree Online website, Oban Times (Tiree page), Scottish Power Renewables website, Posters (to be printed locally and circulated to community contacts in advance, circulated to key contacts.

The study team will be working closely with the Tiree Community Development Trust and looking to local representatives and groups to continue to support consultations following the event that will allow any group or individuals not available or able to attend at this initial consultation to be updated, review the information and respond with written comments.

4.4 Community Consultation Event 3

What	Presentation to Community/Stakeholders
When	w/c 14th November 2011 (TBC)
Who	Community / Interested Parties.
Why	Team will consult on the draft findings from the Study to the community advising of the best understanding of the implications of O&M facilities on Tiree and setting out the implications and impacts of each scenario and how these should be further developed. The draft report will be presented to the Steering Group and stakeholders by the consultancy team in a PowerPoint format that also allows for wider circulation and issue as CD ROM copies as appropriate and agreed by the client. The event will be substantially organised as a reporting and feedback consultation to ensure all those who have supported the consultations and inputted to the study are aware of the consultant's findings and the next steps in considering O&M Facilities. The presentation may require a series of events, subject to client and stakeholder requirements and additional presentations can be tailored to individual project needs with fees agreed with the client.
How	Presentation plus information boards. Discussions after presentation etc.
Outputs	Comment and feedback on the findings of the study and understanding of outstanding issues.
Advertised?	Yes - event locations and timings to be advertised likely to include the Argyll and Bute Council Website, Tiree Community Development Trust website, An Tirisdeach (website/publication), Tiree Online website, Oban Times (Tiree page), Scottish Power Renewables website, Posters (to be printed locally and circulated to community contacts in advance, circulated to key contacts.

4.5 Other Consultation

Other consultation will run parallel to the above 'events' and will include:

- Fortnightly updates to the Steering Group with separate update (when required) for wider circulation to keep the community informed. This may include update for Tiree Community Development Trust Website and An Tirisdeach.
- Briefings to Tiree Development Trust, An Tirisdeach and other local/wider media (as appropriate) - Oban Times & West Highland Times
- Consultations / Briefings / Written Representations - Seek views from stakeholders – businesses, community, tourist bodies, local government, developer's team, etc
- Briefings to Elected Members (Alan Reid MP, Mike Russell MSP and Argyll & Bute ward councillors for Oban South and the Isles)
- Socio-Economic Assessment will include consultation with effected groups and interests via baseline and benchmark survey data, Consultation events (as above), Telephone interviews/ one-to-one interviews
- Others – key to consultation is flexibility to identify any additional groups that need to be consulted and how this is best approached.

5.0 Tiree Onshore Scenario Mapping – Project Timescales

The Tiree Onshore Scenario Mapping study will run over a 6 month period until December 2011. Engagement with the community and key stakeholders will be at the heart of the process, with consultation planned throughout the study period.

Item	Timescale
Initial Fact Finding Visit	5th – 6th August 2011
Community Consultation Event 1	24th – 25th August 2011
Community Consultation Event 2	Anticipated w/c 3rd October - TBC
Community Consultation Event 3	Anticipated w/c 14th November 2011 - TBC

Ironside Farrar are visiting Tiree between Friday 5th and Sunday 7th August to familiarise themselves with the island and the community.

The first formal community consultation event on Tiree is anticipated to be on Wednesday 24th and Thursday 25th August. Anyone interested in participating in this community event should contact Andy or Lynne at the Tiree Community Development Trust on Tel: 220074

Appendix 7
Consultation Boards Events 1-3

Consultation Boards Event 1

Tiree Onshore Scenario Mapping Project

Welcome

Tiree Onshore Scenario Mapping Project

Any future offshore windfarm consent, if granted, will have an operational and maintenance (O&M) need which may have implications for a level of land-based development on Tiree.

The aim of this first consultation event is to better understand local issues, provide information on the potential O&M scenarios and to seek your views.

Please feel free to comment on as many issues as you feel are important and write your comments on post-it-notes or on the comments form. Members of the Ironside Farrar team are also here to discuss any issues you may have or would wish to be considered as part of the study.

The Brief

Tiree Onshore Scenario Mapping Project

The purpose of the study is to consider the onshore implications of the proposed offshore array for the community of Tiree. The study is being funded by Marine Scotland, The Crown Estate, Argyll and Bute Council and Highlands and Islands Enterprise. Central to the study is community consultation

Offshore windfarms have operational and maintenance (O&M) needs which typically include a level of land-based development.

This study will help assist the Steering Group, community and stakeholders in considering any potential land-based implications associated with the proposed offshore array and allow early community input and consultation.

Ironside Farrar, Environmental Consultants, has been appointed to help the project Steering Group take forward the study over the next six months.

Consultation is critical to the process—this is the first of 3 events planned:

- Consultation Event 1 Understanding Local Issues & Concerns
- Consultation Event 2 Initial assessment of potential O&M scenarios
- Consultation Event 3 Reporting on the Draft Findings

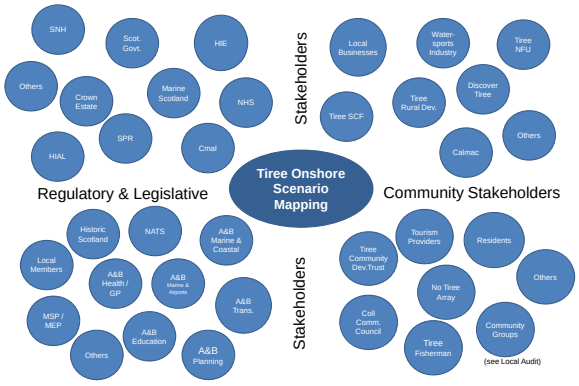
The Steering Group

Argyll and Bute Council is working in partnership with a number of organisations together referred to as the project Steering Group. Argyll and Bute Council are the chair of the Steering Group. The project funders are: Argyll & Bute Council, The Crown Estate, Highlands & Islands Enterprise and Marine Scotland.

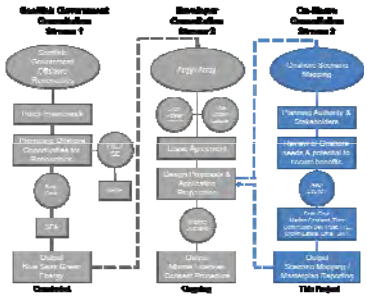
Argyll & Bute Council · The Scottish Government · The Crown Estate · CMAL · marinescotland · Scottish Natural Heritage · Tiree Trust · HIE Highlands and Islands Enterprise · ScottishPower Renewables

* SPR's main input is advisory providing information on the possible options for onshore developments if the offshore array were to be granted a license.

Consultees



Consultation Strategy



A Consultation Strategy was produced to ensure consultation and community engagement is an integral part of this project.

Recognise that other consultations are taking place on Tiree associated with Scottish Government, the windfarm developer (SPR) and other groups.

This consultation process is addressing the Tiree Onshore Scenario Mapping only.

Consultation

The Consultation Strategy includes 3 consultation events at various stages in the project.

This is the first formal consultation event on Tiree looking at the potential onshore implications of the Operations and Maintenance (O&M) associated with the potential array.

Consultation Event 1 (This Event)	These initial consultations will help us to understand the local issues and pressures on local resources, explore areas of potential impact and the potential to secure benefits for the Island community.
Consultation Event 2 w/c 3rd October 2011 (TBC)	We will come back to consult on our initial assessment of potential O&M scenarios and review, through consultation, potential implications for Tiree. Comments from Event 1 will be incorporated into this assessment.
Consultation Event 3 w/c 14th November 2011 (TBC)	The team will consult on the draft findings from the Study advising of the best understanding of the implications of O&M facilities on Tiree and setting out the implications and impacts of each scenario and how these should be further explored.

O&M Scenarios

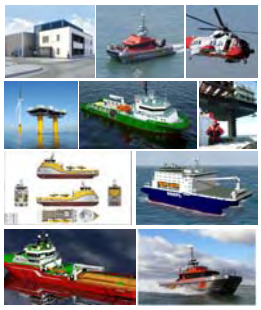
The offshore array developer has identified four separate scenarios relating to the Operations and Maintenance (O&M) that may apply to the development of the offshore wind farm. These are as follows:

Scenario 1
- An onshore base on the Island (office/warehouse/yard) with up to seven workboats and one helicopter accessing the array. Requires a harbour.

Scenario 2
- An offshore platform, located within the array, with up to four workboats and one helicopter stationed on the platform.

Scenario 3
- A mothership, stationed within the array, with up to two workboats and one helicopter stationed on the mothership.

Scenario 4
- A combination of the other three scenarios with perhaps a platform or mothership offshore and a limited presence onshore.



Recognising the Special Qualities of Tiree

Heritage.....

Tiree has a rich history dating from around 9000 years ago that strongly influences the Island today.

Tiree has played a key role in Scottish history due to its location at the centre of trading routes (Ireland, Outer Hebrides, Orkney, Norway) for the west coast economy.

Sites of historical importance include stone circles at Hough, Iron Age fort Dùn na Cleite, Broch Dùn Mòr a' Chaolais and Dùn Mòr Bhalla.

Heritage influences all aspects of the islands place quality including it's landscape, language, land management and communities.

Cultural.....

The Gaelic culture and language, the way of life, the pace of life, architecture, crofting, the scenery and the people themselves. These are all factors that combine to make Tiree what it is - a unique living historical and environmentally important landscape that supports an isolated and proud community.

Strong music, poetry, story-telling and dance

Community spirit events

Island stewardship and self sufficiency

Culture and Gaelic language

International Watersports

World class beaches

Seafaring heritage

Way of Life

Tiree is valued for its quality of place and way of life by both residents and visitors alike.

The unique and special qualities of people and place have created a community that is seeking to both protect traditional values and island stewardship with the recognition of the need to act sustainably and address and meet the needs of future generations.

Tiree retains a strong island community and identity.

Landscape & Environment

Tiree benefits from a high quality environment and natural resources. In recognition of the special qualities, large areas of the island are protected by statutory designations.

Tiree is therefore internationally recognised for its flora (including machair) and fauna (particularly bird interest) and beaches.

Some 4,753ha hectares on Tiree have benefited from the Environmentally Sensitive Area (ESA) scheme to ensure appropriate management of the machair.

There are important links between natural resources and:

- Sustainable crofting
- Agriculture
- Tourism
- Recreation & access
- Place quality
- Local enterprise


Machair


Corncrake!


Distinctive settlement pattern


Quality of Tiree's Beaches

Consultation Issues

Agriculture

Any other concerns?

Your Concerns *

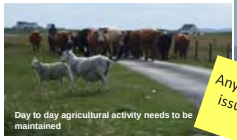
- Loss of land and access rights for agricultural activities
- Increased difficulty in booking space on the ferry to transport essential feedstuffs, etc.
- Disturbance to livestock caused by increase in noise, pets and leisure activities.
- Increased difficulty and danger when moving livestock in faster/heavier traffic and for unfenced livestock.
- Risk of theft or damage to agricultural equipment.
- Risk of wind farm job opportunities drawing young crofters/farmers away from agriculture, leading to croft abandonment.
- Slight reduction in sales leading to loss of United Auctions support and increased freight costs: vicious circle.

Strategic Issue

- Fragile agricultural economy
- Maintaining crofting and agricultural land management

*expressed within the 'Tiree Today and for the Future' Brochure


The importance of protecting agricultural land is recognised


Day to day agricultural activity needs to be maintained

Any other issues?


The protection of the farm and crofting economy is important

Please comment!

Operations & Maintenance

Agriculture

Do you agree?

Proposed Objective:
To seek to maintain current land management practice and capacity including access to markets and sustaining agricultural / crofting employment

Examples of Policy and Guidance

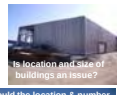
- Scottish Government - A Vision for Scottish Agriculture
- Argyll and Bute Structure Plan – Agriculture and Crofting (STAT AC1)
- Argyll and Bute Local Plan – Sustainable Siting
- A Charter for Crofting (Crofting Association)
- Tiree Community Development Plan (Draft)

Are there other outcomes?

Desirable Scenario Outcomes

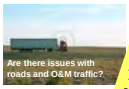
- No significant loss of agricultural land
- No loss of ferry capacity
- No changes to existing land management practices
- New employment that can support agricultural incomes
- Improvements to ICT / Broadband


Are you concerned for the Agricultural economy ?


Is location and size of buildings an issue?


Could the location & number of helicopter flights be disruptive?

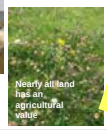

Will the location of any Lay-down space be important?


Are there issues with roads and O&M traffic?

Your Thoughts & Issues?


Is there potential for impacts on agricultural labour?


Will O&M need ferry space?


Nearly all land has an agricultural value

Please comment!

In 2009 nine boats operated out of Tiree (and 3 from Coll), employing 30 crew directly, and producing £1,450,000 of fish for export. All boats were less than 11 metres length overall and used static gear only. Main exports were lobster, velvet crabs and brown crabs.

Fishing

Any other concerns?

Your Concerns*

- During construction of the Array too much of the best fishing grounds will be off limits to allow the local vessels to remain viable, so losing boats, personnel and customers.
- During construction the local fisheries habitats will be permanently damaged, so preventing recovery.
- Following construction the Array site will remain out of bounds due to the restriction to fishing grounds imposed by the turbines, cable and other operational reasons.
- Harbour facilities will be monopolised by Array traffic during and after construction, leading to the physical or financial exclusion of fishing boats.
- Pollution and other disturbances will lead to temporary or permanent loss of commercial fisheries.

Strategic Issue

- Sustaining local fishing industry
- Protecting infrastructure and moorings

*expressed within the 'Tiree Today and for the Future' Brochure


The importance of protecting the fishing industry to the Tiree economy is recognised


Fishing industry needs should be taken into account

Any other concerns?


Protecting assets forming part of the fishing economy is important

Please comment!

Operations & Maintenance

Fishing

Do you agree?

Proposed Objective:
To seek to maintain the fishing industry at current levels and/or support modest sustainable growth through improvements to infrastructure and secondary support for fishing incomes.

Examples of Policy and Guidance

- Common Fisheries Policy (CFP)
- The Marine (Scotland) Act 2010
- Scottish Government, A Strategic Framework for Inshore Fisheries Management in Scotland
- DEFRA, Safeguarding Our Seas
- Inshore Fishing (Scotland) Act, 1984.
- Sea Fish (Conservation) Act 1967

Are there other outcomes?

Desirable Scenario Outcomes

- Discussion of O&M options to limit impacts on fishing activities – need for Fishing Liaison Group?
- Need to include measures to support existing fishing activities e.g. dedicated harbour space, improved fisheries facilities
- Opportunity to promote more produce sold locally?
- New employment to support fishing incomes
- Land based O&M facilities need to avoid impact or offer support for fishing fleet
- Improvements to ICT / Broadband


Conflict with O&M Vessels?

Your Thoughts & Issues?


Restricted access to fishing grounds during O&M

Please comment!

Design & Construction

Tiree is a dispersed community with over 20 separate townships and no specific or defined centre. Almost every building on the island is single storey or 1.5 storeys high. Tiree has a clearly recognisable architectural style, as defined in the Argyll and Bute Council Design Guide. The existing local construction industry is mostly small-scale but has experience of gearing up for big projects, and includes one international contractor.

Any other concerns?

Your Concerns*

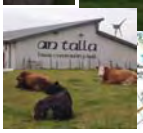
- Developers will be allowed to get away with least cost, fastest completed buildings, leaving Tiree with a poor, ugly legacy.
- No consideration of long-term uses for buildings will be taken at the design stage.
- Local builders & contractors will be excluded from bidding for work by bundling several developments into large contracts.
- A temporary work-camp for the construction phase will be allowed to become a permanent encampment for the operation and maintenance phase.
- The planning process will be compromised by the "need" to get things done quickly at the last minute, rather than starting the planning process early so that we can have considered all the consequences in good time.
- New buildings will be clustered at one or a few sites, leading to large scale industrialisation and urbanisation in a few places, rather than a dispersed development.
- There will be an increase in the number and size of overhead cables, instead of buried cable.
- New building would take in-bye land and the better grazing, which would hamper crofting.

Strategic Issues

- Need to protect place quality and secure quality of design
- Need for consultation relative to land use planning

*expressed within the 'Tiree Today and for the Future' Brochure



Any other concerns?

Please comment!

Operations & Maintenance

Design & Construction

Do you agree?

Proposed Objective:

To seek to ensure place quality is enhanced, derelict and vacant land and buildings are utilised, sustainable design principles and local bespoke design guidance is adopted.

Examples of Policy and Guidance

- Argyll and Bute Structure Plan – STRAT HO 1
- Argyll and Bute Local Plan - LP HOU 1 / LP HOU 2
- Isle of Tiree Sustainable Design Guidance
- Argyll and Bute Local Plan – Rural Land Policy
- Tiree Community Development Plan (Draft)

Are there other outcomes?

Desirable Scenario Outcomes

- Any land based O&M facilities should be sensitively located and be of high quality design in accordance with established policy

Your Thoughts & Issues?

Please comment!

Education

Tiree has 90 students at school, taught by 16.8 teachers (full-time equivalent) supported by 7.8 ancillary staff with a thriving Gaelic medium unit in primary. The school's results are usually above the national average. The viability of the secondary school is currently under threat by budget restrictions. The number of pre-school children on Tiree has been rising for several consecutive years. Argyll College/UHI provides further and higher education through local short courses and guided distance learning.

Any other concerns?

Your Concerns*

- School buildings are old and limited; an increase in numbers would require significant investment in infrastructure.
- Without increases in pupil numbers there will be no increases in staff numbers or the range of subjects.
- Sports facilities are very limited, and would require improvement.
- The current curriculum offered does not align with the job opportunities that the Array might offer.
- Without increased numbers of pupils, the Council may close the school.

Strategic Issue

- Avoiding impact on education services
- Developing skills & training for any future employment opportunity

*expressed within the 'Tiree Today and for the Future' Brochure



Any other concerns?

Please comment!

Operations & Maintenance

Education

Do you agree?

Proposed Objective:

To seek to ensure any additional population growth associated with O&M supports educational provision on the island.

Examples of Policy and Guidance

- Scottish Government Curriculum for Excellence
- Scottish Government 'Our Rural Future' (Consultation)
- Scottish Government Renewables Action Plan - delivered through Scottish Renewables Energy Skills Group (RESG)
- Skills Development Scotland's "The PATH IS Green"
- Highlands and Islands, HIE's "The Big Green Challenge"
- Tiree Community Development Plan (Draft)

Modern Apprenticeships

Are there other outcomes?

Desirable Scenario Outcomes

- Land based O&M staff and families support schools on Tiree
- Improvements to ICT / Broadband supporting links to other educational facilities e.g. Higher Education Colleges
- O&M operators provide work experience and training opportunities to Tiree pupils and support for school leavers.

Your Thoughts & Issues?

Please comment!

Employment

Tiree has relatively low unemployment rate, but a high proportion of low-paid, part-time and seasonal jobs. There is a reliance on subsidised fixed-term employment. Average incomes on Tiree are significantly below national averages. The main sectors on the island are Public Service (health, education, the Council, etc) Crofting, Fishing, Construction and Tourism.

Any other concerns?

Your Concerns*

Lack of assurances from developers about the following:

- New jobs not being made available to local people.
- Loss of employment in tourism, fishing and crofting.
- No local training opportunities for people wanting to find work in the Renewables sector.
- Poor quality of any new jobs.
- Small local businesses will suffer.

Strategic Issues

- Can O&M deliver local employment benefits
- Need to continue to support existing local businesses

*expressed within the 'Tiree Today and for the Future' Brochure




Modern Apprenticeships


Any other concerns?

Please comment!

Operations & Maintenance

Employment

Do you agree?

Proposed Objective:
To seek to increase local employment opportunities that support skills and training and opportunities for young people whilst growing the locally employed population base and non-seasonal job opportunities.

Examples of Policy and Guidance

- National Planning Framework 2
- Scottish Government Economic Strategy
- Scottish Government 'Our Rural Future' (Consultation)
- Argyll and Bute Structure Plan
- Argyll and Bute Local Plan
- HIE's 'Growth at the Edge'
- Tiree Community Development Plan (Draft)
- Skills Development Scotland's "The PATH IS Green"




Are there other outcomes?

Desirable Scenario Outcomes

- O&M supports a more diverse economy and active communities where rural prosperity will continue to grow due to employment opportunities that support existing activities
- Young people will have the opportunity to build careers on Tiree
- Support to economic growth through ICT / Broadband
- O&M will support existing transport infrastructure.
- Local businesses will have an opportunity to contribute to O&M requirements

Your Thoughts & Issues?

Please comment!

Heritage

People have lived on Tiree for thousands of years, each generation leaves its mark on the land, on the language and on the culture.

Any other concerns?

Your Concerns*

- People coming to work on Tiree will not want to become part of the Community or understand its heritage.
- Development will take place rapidly and without due care so that important historical sites will be missed or destroyed.
- Celtic traditions of music, poetry, story-telling and dance will be submerged.
- There will be a decline in the use of the Gaelic language which is widely spoken across the island.
- Planning the location of buildings and cables will not include sufficient research into local historical sites.

Strategic Issues

- Impact on cultural heritage

Any other concerns?

Please comment!

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Heritage

Do you agree?

Proposed Objective:
To seek to protect social, environmental and cultural heritage recognising a risk associated with de-population that impacts on a vibrant island cultural life.

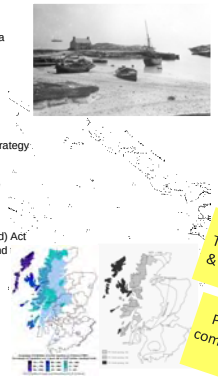
Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- National Planning Framework 2
- Gaelic Language (Scotland) Act 2005
- Choosing our future: Scotland's Sustainable Development Strategy
- Scottish Historic Environment Policy (SHEP) 2009, Planning Advice Note (PAN) 2/2011: Planning and Historic Scotland's Managing Change in the Historic Environment guidance note series
- The Historic Buildings and Ancient Monuments Act 1953, the Ancient Monuments and Archaeological Areas Act 1979, the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997, the Town and Country Planning (Scotland) Act 1997 and Planning etc (Scotland) Act 2006, Historic Environment (Amendment) (Scotland) Act 2011

Are there other outcomes?

Desirable Scenario Outcomes

- Maintain special qualities of Tiree and cultural identities



Your Thoughts & Issues?

Please comment!

Nature Conservation

Tiree has a unique high quality environment that needs to be protected

Potential Concerns*

- Pollution and other disturbances during O&M operations will lead to environmental impacts on:
  - Landscape and Visual Impacts – perception of industrialisation of Island?
  - Impacts on Beaches – pollution from O&M operations?
  - Impacts on Ecology – O&M displacing flora and fauna including impacts on designated sites?
  - Land Use – land take for O&M encroaching on sensitive areas
  - Water – O&M increasing stress on water supply and groundwater?

Strategic Issue

- Potential for temporary and long term environmental impacts arising from O&M requirements of proposed array.

Any other concerns?

Please comment!

*Nature Conservation not a specific topic within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Nature Conservation

Do you agree?

Proposed Objective:
To seek to respect nature conservation designations and ensure any future planning and design take full account of environmental/ impacts and conservation of natural systems.

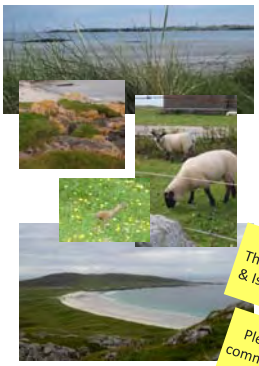
Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- Nature Conservation (Scotland) Act 2004
- Habitats and Birds Directive - Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland)
- Argyll and Bute Council Structure Plan / Local Plan Environmental Policy

Are there other outcomes?

Desirable Scenario Outcomes

- Any land based O&M facilities should be sensitively located to avoid adverse impacts on protected sites or species
- Consultation will be advanced with environmental agencies / bodies including SNH, RSPB, SEPA should there be a requirement for land based O&M facilities



Your Thoughts & Issues?

Please comment!

Housing

The total housing stock on Tiree is 522. Of these, 340 are permanently occupied, 146 are holiday/second homes and 36 are vacant (some now beyond being habitable). There are about 80 housholds on Tiree currently facing some level of housing need. There is currently a shortage of adequate housing for Tiree households, and public sector provision of affordable housing will meet less than 25% of the need.

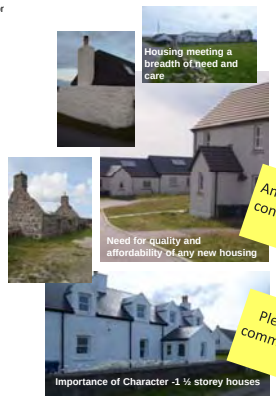
Any other concerns?

Your Concerns*

- An increased population on Tiree will push house prices up even higher and increase the housing need faced by the poorest.
- House prices will drop.
- If the Array goes ahead, new houses will be planned and built too late to assist with meeting overall housing needs.
- New houses will be built in inappropriate styles not sympathetic to Tiree.
- Water supply, domestic electricity and sewerage systems will become stretched with extra development.
- Best quality croft land will be used for new housing.

Strategic Issue

- Can O&M deliver local housing benefits



Any other concerns?

Please comment!

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Housing

Do you agree?

Proposed Objective:
To seek to ensure any additional population growth associated with O&M provides housing complementary to the existing settlement structure and its distinctive place qualities.

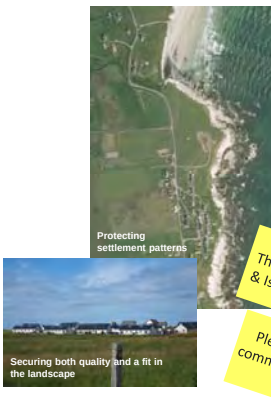
Examples of Policy and Guidance

- Argyll and Bute Structure Plan – STRAT HO 1
- Argyll and Bute Local Plan - LP HOU 1 / LP HOU 2
- Isle of Tiree Sustainable Design Guidance
- Argyll and Bute Local Plan – Rural Land Policy
- Tiree Community Development Plan (Draft)

Are there other outcomes?

Desirable Scenario Outcomes

- Any residential accommodation advanced through the O&M requirements should include provision of affordable homes



Your Thoughts & Issues?

Please comment!

Noise

Tiree has plenty of natural noise and only intermittent man-made noise. For most of the time, in most parts of the island, any discernable noise is of natural origin.

Any other concerns?

Your Concerns*

- Frequent helicopter noise.
- Construction noise associated with O&M.
- Disturbance early in the day, at night and at weekends.
- Increased traffic numbers and noise to all parts of the island
- Harmful effects of inaudible sound (eg infrasound).
- Out of date guidance on control of noise during construction, operation and maintenance of offshore windfarms.
- Disruption to mobile phones and television reception.

Strategic Issue

- Rural environment with low background noise and high sensitivity to changes in noise environment

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Noise

Do you agree?

Proposed Objective:
To seek to ensure that the noise environment is addressed with specific reference to helicopter access and servicing.

Examples of Policy and Guidance

- PAN 01/2011 Noise and Vibration
- Control of Pollution Act 1974
- BS 5228: Noise and Vibration Control on Construction and Open Sites

Are there other outcomes?

Desirable Scenario Outcomes

- Any proposed siting of an O&M Helicopter Landing Area must take into consideration the noise and vibrations which may result from helicopter landings and take offs.
- Routeing of O&M flights will be carefully designed to reduce impacts on residents
- Commitment to use of modern helicopter fleet with lower noise ratings for all O&M operations
- A detailed assessment of any proposed onshore O&M helicopter base will be undertaken

Tourism

Tourism is one of the largest employers on Tiree. It is very closely linked to the natural heritage (wildlife, landscape and wind/water sports) of the island, and hence the land-management patterns. Tourism is highly seasonal on Tiree.

Any other concerns?

Your Concerns*

- During construction of the Array many potential visitors will be put off coming to Tiree.
- Any increases in custom from the Array development will be insufficient to fully replace lost tourism.
- Damage to natural resources, particularly views, beaches, wildlife and quality of wind, will keep tourists away.
- Reduced wave height, due to turbine positioning, could affect water sports tourism, possibly the future of Tiree Wave Classic.
- Small, independent self-catering accommodation providers and water sports activity providers will suffer particularly.
- Many small local businesses will be adversely affected.

Strategic Issue

- Critical to local economy. Actual and perceived impacts important and protection of natural & cultural resources.

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Tourism

Do you agree?

Proposed Objective:
To seek to maintain the 'special qualities of place' that support the tourism sector recognising the importance of sports / leisure / recreation and cultural heritage to the tourism economy.

Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- Scottish Tourism: The Next Decade - A Tourism Framework for Change, 2006
- Argyll and Bute Structure Plan – TOUR 1
- Argyll and Bute Local Plan - TRAN 1, Tran 4, Tran 5, Tran 7, TRAN 8

Are there other outcomes?

Desirable Scenario Outcomes

- No loss of ferry capacity to ensure tourism sector is maintained
- Potential land based O&M facilities sensitively located to minimise land take
- Improvements to ICT / Broadband to support local tourism businesses

Transport

Tiree's transport is dominated by an inflexible ferry service which is oversubscribed in high summer and infrequent in winter, and a lifeline air service of 1 flight per day
Monday - Saturday. Roads are a perennial concern for residents, particularly the rate at which the road surfaces deteriorate.

Any other concerns?

Your Concerns*

- Tiree's roads are already failing to cope with existing traffic levels: increased traffic will cause further significant damage.
- The existing oversubscribed ferry service will not be able to cope with the additional demand.
- The existing oversubscribed air service will not be able to cope with the additional demand.
- Local businesses and residents will find it even harder to access ferry and air services.
- Roads will become congested or blocked by increased traffic.
- The danger increased traffic poses for cyclists and walkers.
- It must still be possible to move livestock on foot by road.
- Roads with passing places will be replaced by 2 lane roads.

Strategic Issue

- Transportation needs may overwhelm scale and capacity of local roads.

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Transport

Do you agree?

Proposed Objective:
To seek to maintain and enhance transportation access within the modes of air, sea and road with appropriate improvements to infrastructure or service levels that recognise the needs of all sectors.

Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- Argyll and Bute Structure Plan – TRANS 1
- Argyll and Bute Local Plan – TRAN 1, 2, 4, 5, 7, 8
- Local Transport Strategy
- Scottish Ferries Review (Draft)
- TCDT Community Development Plan

Are there other outcomes?

Desirable Scenario Outcomes

- Any proposed land based O&M would be located in areas of existing industrial land use zoning close to existing infrastructure to reduce wider impacts on existing road network
- O&M requirements would not reduce existing ferry capacity for community / essential freight / tourism (recognising seasonality)

Visual Impact

Tiree is blessed with stunning natural views, dark night skies, and a predominantly horizontal horizon. There are almost no structures taller than 15m on the island and none, apart from Skerryvore lighthouse, in the inshore (within 12 nm) waters.

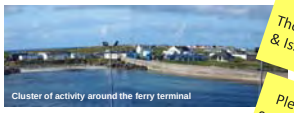
Any other concerns?

Your Concerns*

- Beauty of views will be spoilt by O&M facilities.
- Onshore buildings will be temporary and ugly, leaving no legacy.
- Infrastructure will be utilitarian and brutal.
- Inadequate provision is made for restoration, after decommissioning of O&M facilities.
- Increased pollution on our beaches caused by O&M.


Scale of buildings is important in the landscape


Importance of local character and existing settlement pattern


Cluster of activity around the ferry terminal

Strategic Issue

- Scenic quality and expectation of visitors important as are local views and local amenity and place quality

Your Thoughts & Issues?

Please comment!

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Visual Impact

Do you agree?

Proposed Objective:
To seek to ensure that the visual environment is addressed with specific reference to place quality, buildings and design.

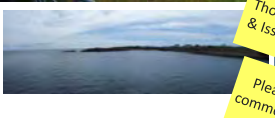
Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- Argyll and Bute Structure Plan – STRAT 1 Sustainable Development, Objective S1 and Objective S2.
- Argyll and Bute Local Plan –Land Use Zone Maps, ENV 1, ENV 9, ENV 10, ENV 16, ENV 17, ENV 18, ENV 19, CST 1, CST2, CST3, CST4.
- Guidelines for Landscape and Visual Impact Assessment, Second Edition, 2002

Are there other outcomes?

Desirable Scenario Outcomes

- Any land based O&M facilities should be sensitively located and be of high quality design in accordance with established policy to reduce potential landscape and visual impacts
- Important to avoid perception of industrialisation of the Island



Your Thoughts & Issues?

Please comment!

Way of Life

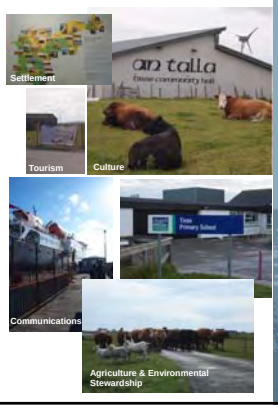
Tiree's largely agricultural landscape, its sense of community and security are the most important aspects of the Tiree way-of-life, according to residents, second home-owners and visitors. Young residents (aged 11-28) consider fishing and traditional music of more importance than other respondents.

Any other concerns?

Your Concerns*

- Sudden influx of lots of new people who will not value or respect, and therefore erode, the Tiree way-of-life.
- Loss of community identity and community spirit.
- Loss of fishing industry and the families that it supports.
- Increase in crime and loss of sense of security.
- Faster, heavier traffic leading to disruption and injury to people and animals.
- Strain on resources and services, e.g. water, accommodation, transport, health services, refuse collection.
- Noise pollution from increased air and road traffic, and from construction works both off and on island.
- Industrialisation of the landscape & seascapes.
- Increased litter and debris.
- Less relaxed and less peaceful.
- Reduced value to tourists.
- Loss of many of the things that make Tiree a unique place to live and visit.

Strategic Issues
Tiree offers a special quality of place / quality of life and even modest or minor change can disproportionately impact on place quality and lifestyle activities and perceptions.



*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Way of Life

Do you agree?

Proposed Objective:
To seek to maintain a special 'way of life' that offers a diversity of community interests, opportunity for enterprise, for relaxation and amenity that support civic community capacity and avoids the loss of the things that make Tiree a special place to live, work and visit.

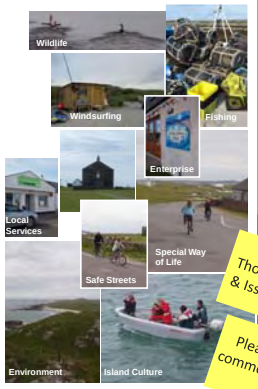
Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- National Planning Framework 2
- Gaelic Language (Scotland) Act 2005
- Choosing our future: Scotland's Sustainable Development Strategy
- Local Transport Strategy
- TCDT Community Development Plan (Draft)

Are there other outcomes?

Desirable Scenario Outcomes

- The O&M facility and any staff levels are of a scale that integrates into existing island life and supports the special qualities of place.



Your Thoughts & Issues?

Please comment!

What Next?

Thank You

The purpose of this initial consultation has been to better understand local issues and concerns and to start a process of assessment of any future onshore implications of the proposed offshore array for the community of Tiree.

Moving forward and incorporating views and information gathered through the consultation we will be developing, with the Steering Group, our analysis of the four operations and maintenance scenarios.

The next step will be to consult with you on our initial thoughts on each scenario and its implications for Tiree. The scenarios are as follows:-

- **Scenario 1**
  An onshore base on the Island (office/warehouse/yard) with helicopter access
- **Scenario 2**
  An offshore platform, located within the array, including helicopter stationed on the platform.
- **Scenario 3**
  A mothership, stationed within the array, with helicopter stationed on the mothership.
- **Scenario 4**
  A combination of the other three scenarios with perhaps a platform/ mothership and limited presence onshore.

Your Thoughts & Issues?

Please comment!

What Next?

The Consultation Strategy includes 3 consultation events at various stages in the project.

This is the first formal consultation event on Tiree looking at the potential onshore implications of the Operations and Maintenance (O&M) associated with the potential array.

Consultation Event 1
consider points raised at consultation
⇨ These initial consultations will help us to understand the local issues and pressures on local resources, explore areas of potential impact and the potential for benefits to the Island community.

Consultation Event 2
5th and 6th October 2011
⇨ We will come back to consult on our initial assessment of potential O&M scenarios and review, through consultation, potential implications for Tiree. Comments from Event 1 will be incorporated into this assessment.

Consultation Event 3
16th and 17th November 2011 (TBC)
⇨ The team will consult on the draft findings from the Study advising of the best understanding of the implications of O&M facilities on Tiree and setting out the implications and impacts of each scenario and how these should be further explored.

Ongoing Consultation
August / September 2011
⇨ The team will continue to consult with a range of stakeholders and community interests. Andy Wright and Lynne MacKinnon from Tiree Community Development Trust are available on the island to collect any further consultation responses as necessary.

Your Thoughts & Issues?

Please comment!

Consultation Boards Event 2

Tiree Onshore Scenario Mapping Project

Welcome

Tiree Onshore Scenario Mapping Project
Consultation Event No.2 – O& M Scenarios

Any future offshore windfarm consent, if granted, will have an Operational and Maintenance (O&M) need which may have implications for land-based development on Tiree. The aim of this second consultation event is to provide a better understanding each of the four potential Operations & Maintenance Scenarios advised by the developer and to consider the potential implications for Tiree.

This is early and advance consultation well ahead of any decision on the Offshore Array but it is considered important at the earliest date to consider onshore implications in parallel with the wider consultation on the Offshore Array itself.

Please comment on as many issues as you feel are important and write your comments on post-it notes or on the comments form. The Consultants are also here to discuss any issues you may have as part of the study and explain current assumptions and information on the O&M scenarios.

The Brief

Tiree Onshore Scenario Mapping Project

The purpose of the study is to consider the onshore implications of the proposed offshore array for the community of Tiree. The study is being funded by Marine Scotland, The Crown Estate, Argyll and Bute Council & Highlands and Islands Enterprise. Central to the study is community consultation

Offshore windfarms have Operational and Maintenance (O&M) needs which typically include a level of land-based development. This study will help assist the community, stakeholders and Steering Group in considering any potential land-based O&M implications associated with the proposed offshore array and allow early community input and consultation based on the scenarios.

This Scenario Mapping Project is not part of the formal consenting process for the proposed array and Scottish Power Renewables has still to submit formal applications for both the offshore and onshore elements of the project. Ironside Farrar has been appointed to help the project Steering Group take forward the study over the next few months anticipating reporting in December. The findings of the study will be presented to the community early in 2012.

Consultation is a key element of the Brief and has been organised around 3 main consultation events:

Consultation Event 1 – Understanding the Issues	24th and 25th August 2011
Consultation Event 2 – Interim Consultation	3rd and 4th October 2011
Consultation Event 3 – Draft Reporting	Mid - late November 2011

Consultation Event 1

Feedback

Consultation Event No.1. - Key issues and areas of concern

- **Confirmation TCDT / Forum issues**
  - 12 Key Topic Issues and initial concerns raised from consultation
  - Jobs, Housing and implications for Education/Health /Life Style are key topic areas
  - Breadth of views from clear objection to positive support with most attendees reserving position
- **Objectives and Outcomes broadly supported**
  - Draft Objectives and Outcomes addressed key areas of concern
- **New and additional key issues advised at the consultation included:**
  - Need more detailed information on the O&M Scenarios and Tiree benefits
  - Better understanding of any proposed development scale relative to way of life
  - Need to understand job opportunities; employment and skill sets required for jobs
  - Lack of clarity in any information on the scale of change and infrastructure needs
  - Lack of clarity on potential for disruption and impacts on transport (air/ferry/roads)
  - Re-iterated more strongly concerns regarding light pollution and helicopter noise
  - Recognition that Tiree has successfully accommodated change in the past
  - Need to consider wider opportunity for developer contributions to community benefits

Scenario Planning & Mapping Understanding Implications

Scenario Mapping

What is Scenario Mapping?

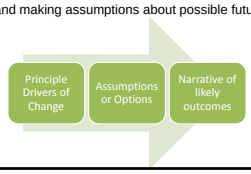
What is Scenario Mapping / Planning?

Scenario Planning is a tool to help stakeholders and others better understand the implications of change and assist consultation on how to manage potential futures more effectively.

We are at an interim stage in developing the scenarios and the figures used are provisional and still being developed. The scenario planning process can be used to highlight:

- Principal factors that create or drive change e.g. jobs, people, demand for services
- Provides based on percentage assumptions a better understanding of the range of change that might occur e.g. population growth / proportion of local versus new jobs
- Provides an explanation of likely outcomes based on understanding of existing baseline

Scenarios are widely used by various organisations and groups to assess change and help to inform views and future decisions. The information can inform debate by looking at existing facilities or experience and making assumptions about possible futures.



Scenario Mapping

Key Drivers and Outcomes

Key Issues influencing Benefits & Impacts

The key factors influencing change relative to the Onshore O&M Scenario Mapping include:

1. **Nature of O&M Scenario**
   Onshore, Offshore Platform, Offshore Mothership, Onshore plus Mothership
2. **People required for each O&M Scenario**
   Onshore, Offshore - Tiree based Staff / Local jobs / Incoming workers
3. **Employment Profile for each O&M Scenario**
   Job Description / Skills Required / Training Support / Commitment to Local Job access
4. **Need & Implications for Community Infrastructure**
   Housing, Education and Healthcare and Lifeline service provision and Way of Life
5. **Need and Implications for Transport Infrastructure**
   Harbour upgrading , road access, ferry capacity, workboat facilities, helicopter access
6. **Need and Implications for Physical Infrastructure**
   Office, Workshop, Land Area, Maintenance Space, Harbour, ICT.

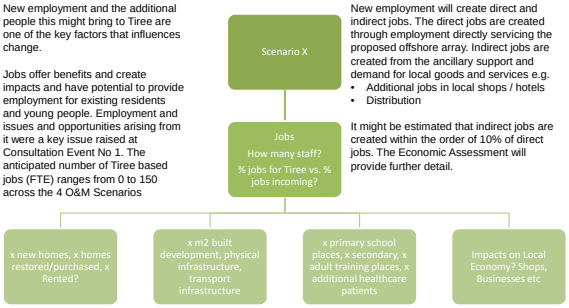
Scenario Mapping

Scenario Development

Scenario Development

New employment and the additional people this might bring to Tiree are one of the key factors that influences change.

Jobs offer benefits and create impacts and have potential to provide employment for existing residents and young people. Employment and issues and opportunities arising from it were a key issue raised at Consultation Event No 1. The anticipated number of Tiree based jobs (FTE) ranges from 0 to 150 across the 4 O&M Scenarios



Employment – Direct vs. Indirect

New employment will create direct and indirect jobs. The direct jobs are created through employment directly servicing the proposed offshore array. Indirect jobs are created from the ancillary support and demand for local goods and services e.g.

- Additional jobs in local shops / hotels
- Distribution

It might be estimated that indirect jobs are created within the order of 10% of direct jobs. The Economic Assessment will provide further detail.

Scenario Mapping

Use of Profiles

Use of Profiles in Scenario Planning / Mapping

Job Types

Recognising that new employment and the additional people this might bring to Tiree are one of the key factors that influences change we use profiles to look at likely job opportunities available. Job requirements have been estimated based on broadly comparable O&M facilities and can be broadly broken down as follows:

Office Based Support	Engineering Support	Specialist Turbine Engineers
Estimate 10-15% of all jobs	Estimate 25 - 30% of all jobs	Estimate 60% of all jobs
Array Manager / Programme Managers / Logistics / Administration	Engineering Manager / High Voltage Cable Manager / Helicopter & Boat Crews / etc	Mechanical Engineers / Electrical / Civil Engineers / Divers

Job Profiles – Local vs. Non Local

In order to assess the likely implications on Tiree, we need to look at how many of the potential jobs that could be available in O&M may be filled by those already resident on Tiree vs. those coming to Tiree i.e. Local vs. Non Local Jobs. We have looked at 3 different profiles:

Profile 1 (Assumptions)	Profile 2 (Assumptions)	Profile 3 (Assumptions)
• 35% Local • 65% Non Local	• 25% Local • 75% Non Local	• 15% Local • 85% Non Local

The Non-Local Jobs are those with greatest potential to bring change to Tiree – we have assumed 60% bring families and 40% are single. This allows a range of assessments to be presented in respect to housing provision requirements, school places, healthcare requirements and overall population growth.

We have used profiling only for Scenarios 1 and 4 i.e. those with potential O&M jobs on Tiree.

Jobs are Full Time Job Equivalents (FTE) which means that some of these jobs will be part time or seasonal and offer flexible posts for both men and women. The Scenario Planning exercise only looks at assumptions of the direct jobs at this stage.

Scenarios 1-4 Assessment of O&M

The 4 O&M Scenarios

Scenario Descriptions

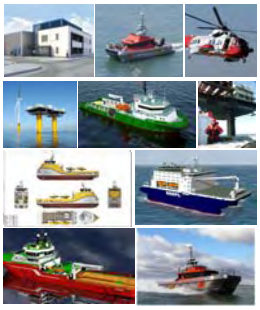
The offshore array developer has identified four separate scenarios relating to the Operations and Maintenance (O&M) that may apply to the development of the offshore wind farm. These are as follows:

Scenario 1 – Onshore O&M Base
- An onshore base on the island (office/warehouse/yard) with up to five workboats and one helicopter accessing the array. Requires a harbour or breakwater

Scenario 2 – Offshore O&M Base (Platform)
- An offshore platform, located within the array, with workboats and one helicopter stationed on the platform.

Scenario 3 – Offshore O&M Base (Mothership)
- Two motherships, stationed within the array, with daughter workboats and one helicopter stationed on the motherships with the mothership working from a mainland port .

Scenario 4 – Onshore O&M Base / Mothership
- A combination of scenarios 1 and 3 with an arrangement based on motherships /daughter workboats working within the array , with the motherships and helicopter working from a Tiree base.



Your Thoughts ?

Local Benefit or Impact?

Scenario Mapping

Interactions with Tiree?

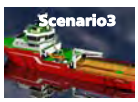
The Community Consultation Event No 1. highlighted a general concern to better understand impacts/benefits on: Jobs / Skills / Training / Built Development / Housing / Harbour / Airport / Roads / Ferry / Education / Healthcare In addition, the consultation event highlighted some of the softer or secondary impacts/benefits that may arise from change and highlighted a desire to better understand the level of assurance the community could secure about local opportunity and impacts on: Local Economy, Businesses, Enterprise and opportunity for young people etc Way of Life, Culture, Crofting and Land Management Environment and place quality.

Onshore O&M Base – On Tiree
An onshore base would have a Tiree base operating between the O&M office and workshops, harbour and helipad.

Scenario 1 therefore has significant direct implications for Tiree in terms of O&M activity with impacts or benefits occurring at the O&M base, which is assumed to be at the harbour with possible facilities at the airport.

Offshore O&M Base - Platform
An offshore platform servicing the offshore array with connections to the mainland base for staffing and equipment.

Scenario 2 has no or negligible direct implications for Tiree in terms of O&M activity. Any impacts or benefits would occur wherever the O&M mainland base operates from - e.g. a mainland Scottish port.



Offshore O&M Base – Mothership
An offshore mothership arrangement for servicing the offshore array operating from a mainland port.

Scenario 3 has an Operational Control Centre and helicopter crew based on Tiree with all other O&M based on the Mothership. This Scenario therefore has minor direct implications for Tiree in terms of O&M activity. The main impacts or benefits would occur wherever the O&M mainland base operates from - e.g. a mainland Scottish port

Onshore O&M Base & Mothership
An onshore O&M base comprising O&M office, harbour and helipad. Two motherships would use the harbour for crew changes, re-fuelling and supplies.

Scenario 4 therefore has significant direct implications for Tiree in terms of O&M activity with impacts or benefits occurring at the O&M base which is assumed to be at the harbour with possible facilities at the airport.

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Description

Scenario 1 - O&M Base on Tiree

An onshore base would have a Tiree base operating between the O&M office and workshops, harbour and helipad.

- Full O&M base including Office space, Maintenance and Workshop and Laydown space
- Helicopter pilot office within O&M base
- SCADA control room not on Tiree (utilise existing mainland facility)
- 5 no. Workboat
- Helipad (1 x helicopter Eurocopter 135)
- Harbour upgrade would be required including breakwater


London Array onshore O&M Base design

The proposed offshore array would be managed from O&M operational and maintenance base on Tiree.

Key Implications for Tiree

Onshore staffing would mean direct impacts and benefits to Tiree coupled with a requirement for a built facility or development of facilities on the island.
The harbour would need to be upgraded to provide facilities for workboats and helipad would be stationed at either the harbour or the airport.

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Scenario Development

O&M Base on Tiree - Jobs / Skills / Training

SPR estimate that an onshore O&M base on Tiree would generate up to 150 FTE jobs on Tiree. Using the 3 Profiles (Local vs. Non Local uptake for these jobs) we can generate some outcomes for Tiree in terms of numbers of new people coming to Tiree during operation and maintenance of the proposed array (and how many incoming workers bring families or are single).

Profile 1		
Jobs	Assumption	Estimate
Number Jobs (FTE)		150
% Local	35%	53
% Non Local	65%	98
Employee with Families	60%	59
Employees (single)	40%	39

Profile 2		
Jobs	Assumption	Estimate
Number Jobs (FTE)		150
% Local	25%	38
% Non Local (relocations)	75%	113
Employees (with families)	60%	68
Employees (without family)	40%	45

Profile 3		
Jobs	Assumption	Estimate
Number Jobs (FTE)		150
% Local	15%	23
% Non Local	85%	128
Employee with Families	60%	77
Employees (single)	40%	51

Opportunities & Mitigation

The level and range of local job opportunity and training support for young people is an important local issue around which the community is seeking assurance. Types of assurance which could be helpful could include:

Offshore Array Employment Charter e.g.
- Commitment for local employment within O&M service contract

Education Charter e.g.
- Commitment to higher and further education bursaries

Public & Private Sector collaboration for advance skills training and career guidance e.g.
- Advance skills training programmes

Commitment to Apprenticeships e.g.
- Commitment to adult and youth apprenticeships for technical support jobs

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Scenario Development

O&M Base on Tiree - Built Development

The employment predictions establish office and workspace requirements and all supporting external space. The O&M operator will require a modern fully equipped facility with all normal servicing. The development will be expected to meet all Planning and Sustainable Design Guidance. Space requirements could be anticipated as follows:

- Office space 600m2 – 2 storey building with 9m eaves height
  - Modern open plan with all ancillary services for boat and helicopter crews
  - Full Broadband / ICT
- Workshop space 2500m2 – single storey with 9m eaves height
  - Stores and warehouse facility for spares and maintenance consumables
- External space - 1000m2 - secure yardage
  - Car & vehicular parking; fuel bunkering; external storage
- Helipad facility (if located with O&M base)
  - Hangar (500m2); Helipad Space (360m2)

Opportunities & Mitigation

The scale of built development compares broadly with larger agricultural buildings on the island. These typically are of 800-1200m2. Opportunity and Mitigation may be achieved by:

Addressing needs with regard to A&BC Local Plan Industrial Land Allocation e.g.
- Developing brown field land and minimising land take of land under agriculture

Compliance with A&BC Sustainable Design Policy and Guidance e.g.
- Limiting main building heights to maximum 9m to eaves
- Considering scaling buildings to reflect current island scale
- Employment of local architects / trades

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Scenario Development

O&M Base on Tiree - Housing

Housing provision will be in part dependent on the level of local employment uptake (e.g. level of existing residents taking up jobs). In the Scenario Mapping we have assumed potential levels of local job uptake of between 15–25–35%. Assumptions on new build, locally purchased, restored and rented properties allow levels of new build housing to be estimated.

Profile 1		
Housing		
New Homes Built	50%	49
Existing Homes Restored / Purchased	30%	29
Other+ Rented	20%	20

Profile 2		
Housing		
New Homes Built	50%	66
Existing Homes Restored / Purchased	30%	34
Other + Rented (PT Residents)	20%	23

Profile 3		
Housing		
New Homes Built	50%	64
Existing Homes Restored / Purchased	30%	38
Other+ Rented	20%	26

Opportunities & Mitigation

New housing needs to be developed in a manner sensitive to the settlement patterns of the island and seek to support local access to housing for young people from the island taking up employment in O&M. A number of housing scenarios could be envisaged including:

- Growth of a single Township e.g.
  - Settlement extension providing between 49 and 64 new homes
- Extension to a number of Townships across the island e.g.
  - Assuming 6 townships equates to 11 houses per township
- Dispersed housing e.g.
  - New housing throughout the island on Brownfield land wherever possible

Housing is an important local issue around which the community is seeking assurance about quality and urban design. Opportunity exists for housing refurbishment alongside contemporary new build in a manner that builds on community infrastructure and supports demand for goods, services & indirect jobs.

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Scenario Development

O&M Base on Tiree – Transport Infrastructure

Harbour

The O&M operations will be operated by 5 workboats typically of 28m in length providing the service support and personnel access to the turbines in combination with the helicopter. A harbour facility created by a breakwater and offering pontoon / quay access will be required.

- Harbour Breakwater
  - Offering safe haven for workboats all year round
- Pontoon and Quay facilities
  - 150 (+10)m sheltered pontoon length
  - Marine fuel bunkering (200,000l capacity) serviced and refuelled by sea-barge. It is not anticipated that workboat fuelling would require fuel import by ferry.

Airport / Heliport

The O&M operation could be supported by a helicopter base either at the harbour or potentially at the airport. Helicopter provision would include a hangar, helipad and fuel bunkering. Flight levels are currently under assessment but worst case numbers suggest 7-12 return flights per day.

Local Roads

The O&M operation may require some local Road Network upgrading but only in the immediate local area of the O&M Base or between the base and the harbour. Access to the harbour / breakwater will be required for vehicles. If helipad facilities were located at the airport volumes of traffic are unlikely to be significant.

Opportunities & Mitigation

Infrastructure clearly needs to match any intensification of use whether this be associated with harbour/airport or roads. Local road upgrades may offer wider benefits as would development of the harbour. Issues requiring to be addressed would include:

- Harbour improvements may offer wider support to existing local businesses e.g.
  - Creating access for fishing / recreational boats and improving ferry weather protection
- Helicopter flights paths across defined sea routes could mitigate island over-flying.
- Protecting existing air and sea capacity

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Scenario Development

O&M Base on Tiree – Community Infrastructure

Education

Scenario 1 O&M operations would increase the resident population and increase the school roll. Base on a multiplier of 0.27 primary pupils per household and 0.2 secondary pupils per household the additional educational needs would include:

- 24 Primary Pupil places
- 18 High School places

The existing Tiree Primary School has a roll of 62 (including nursery roll of 15) and Secondary School Roll of 44. Higher and further Education is provided on the mainland.

Health

O&M operations would potentially add between 185 and 242. The resident population is currently estimated at around 850. On the basis of new resident assumptions this could create additional demand on healthcare and community infrastructure. Health provision is responsive to demand / population with particular need however to address community care.

Profile 1		
Community Infrastructure		
Primary School Places (0.27)		21
Secondary School Places (0.2)		18
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		185
Population Growth		185

Profile 2		
Community Infrastructure		
Primary School Places (0.27)		24
Secondary School Places (0.2)		18
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		214
Population Growth		214

Profile 3		
Community Infrastructure		
Primary School Places (0.27)		29
Secondary School Places (0.2)		20
Educational Bursaries		3
Adult Training / Apprenticeships		4
Additional Healthcare Patients		242
Population Growth		242

Lifeline Services – Air and Ferry connections

Scenario 1 O&M operations by increasing island population will place additional demand on air and ferry connections. A 20% increase in population will require a review of current air and ferry capacity. Vehicular ferry capacity at weekends & in the summer months is near or at capacity. Reducing ferry cancellations and any improvement to capacity would offer local benefits.

Opportunities & Mitigation

A growing population would introduce both opportunity and impacts with mitigation dependent on investment in local capacity. Discussions are being progressed with a number of key service providers to identify any specific measures or responses.

- Discussions with CMAL / Calmac and HIAL regarding Lifeline services
- Discussion with Argyll and Bute Council and relevant health providers

Your Thoughts ?

Local Benefit or Impact?

Scenario 2

Description

Scenario 2

An offshore platform, located within the array, with workboats and one helicopter stationed on the platform.

- No O&M base on Tiree
- No SCADA control room (utilise existing mainland facility)
- Helicopter Station provided on mainland but with some limited use of Tiree Airport and offering a potential link for local employees
- No O&M Support infrastructure required on Tiree

The proposed offshore array would be managed from a main land base with O&M operational and maintenance activity operated from the platform.
The platform would operate similar to oil and gas developments with O&M staff recruited nationally and flown/transported to the platform by air or boat from a mainland airport/port. No daily contact with Tiree would be required but fortnightly employment flights to the platform may be possible.

Key Implications for Tiree

Offshore staffing would mean no direct impacts or benefits to Tiree and no requirement for a built facility or development of facilities. Employment opportunity may exist at a minimal scale.

Your Thoughts ?

Local Benefit or Impact?

Scenario 2

O&M Base on Offshore Platform

Jobs /Skills/Training

Job requirements are broadly comparable to onshore facilities but none of the jobs would be based on Tiree. A wider opportunity would exist as part of the Argyll and Bute Renewable Energy Action Plan (REAP) to participate in wider skills and training programmes aimed at developing skills/competencies for the Renewable Energy Sector.

Built Development

Built development on Tiree would be limited to a potential converter station onshore.
No O&M workshop / office or other facilities would be proposed on Tiree.
All supplies would be sourced from a mainland base and delivered by air/sea.

Housing

No housing requirement on Tiree. Employment would be typically nationally recruited and access to the platform coordinated from the mainland O&M Base airport/port facility.

Your Thoughts ?

Local Benefit or Impact?

Scenario 2

O&M Base on Offshore Platform

Harbour / Airport / Roads

No harbour works required
No airport works required albeit that helicopter access to the existing airport may be used to a limited degree (e.g. for taking any locally employed people to and from the platform)
No road works required associated with O&M

Community Infrastructure

No additional load on community infrastructure except perhaps a potential requirement for medical support for non-surgical accidents / medical attention not provided by platform staffing, on a very limited basis.

Lifeline Services – Air and Ferry connections

No additional air or ferry requirements.

Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Description

Scenario 3 – Offshore Motherships

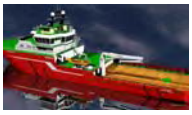
Two motherships, stationed within the array, with daughter workboats and one helicopter stationed on the motherships with the mothership working from a mainland port.

- Operational control centre on Tiree but limited to office based functions, with no wider O&M support infrastructure (e.g. motherships) required on Tiree
- No SCADA control room (utilise existing mainland facility)
- No workshop facility
- Helicopter Station provided on Tiree

The proposed offshore array would be managed from a local Operational Control Centre based on Tiree and potentially located at the airport alongside helipad facilities. All physical operations and maintenance activity will be managed from the motherships with the vessels acting as a mobile platform. O&M staff would return to the mainland operating port, based on a shift pattern arrangement. No daily contact with Tiree would be required but fortnightly employment flights for local employees to the mothership may be possible.

Key Implications for Tiree

Offshore staffing would limit the impacts or benefits to Tiree with these limited to the operation control centre. Offshore employment opportunity may exist but would not be locally connected and access to opportunity may be more restricted than in other scenarios.



Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Scenario Development

O&M Offshore Motherships - Jobs / Skills / Training

SPR estimate that O&M from Offshore Motherships with only the operations control centre and helipad on Tiree would generate up to 25 FTE jobs on Tiree. Using the 3 Profiles (Local vs. Non Local uptake for these jobs) we can generate some outcomes for Tiree in terms of numbers of new people coming to Tiree during operation and maintenance of the proposed array (and how many incoming workers bring families or are single).

Profile 1		
Jobs	Assumption	Estimate
Number Jobs (FTE)		25
% Local	35%	9
% Non Local (relocations)	65%	16
Employees (with families)	60%	10
Employees (without family)	40%	7

Profile 2		
Jobs	Assumption	Estimate
Number Jobs (FTE)		25
% Local	25%	6
% Non Local (relocations)	75%	19
Employees (with families)	60%	11
Employees (without family)	40%	8

Profile 3		
Jobs	Assumption	Estimate
Number Jobs (FTE)		25
% Local	15%	4
% Non Local (relocations)	85%	21
Employees (with families)	60%	13
Employees (without family)	40%	9

Opportunities & Mitigation

Job requirements for the project are broadly comparable with those in scenario 1 with the difference being the majority of jobs would not be based on Tiree. A wider opportunity would exist as part of Argyll and Bute Renewable Energy Action Plan (REAP) to participate in wider skills and training programmes aimed at developing skills/competencies for the Renewable Energy Sector. Opportunities could include:

Offshore Array Employment Charter e.g.
- Commitment for local employment within O&M service contract

Education Charter e.g.
- Commitment to higher and further education bursaries

Public & Private Sector collaboration for advance skills training and career guidance e.g.
- Advance skills training programmes

Commitment to Apprenticeships e.g.
- Commitment to adult and youth apprenticeships for technical support jobs

Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Scenario Development

O&M Offshore Motherships - Built Development

Built development on Tiree would be limited to a potential converter station onshore and an operational control centre. The converter station could be proposed for either offshore or onshore – no decision has yet been made. No O&M workshop on the island would be required. Typically all supplies would be sourced from a mainland base and delivered by air/sea.

The employment predictions establish office and workspace requirements that should also allow for expansion and all supporting external space. The O&M operator will require a modern fully equipped facility with all normal servicing. The development will be expected to meet all Planning and Sustainable Design Guidance. Space requirements are as follows:

- Operations Control Centre 150m2
  - Modern open plan with all ancillary services for helicopter crews
  - Full Broadband / ICT
- Mixed / Multi-function Workshop 500m2 – single storey with 9m eaves height
  - Stores and warehouse facility for spares and maintenance consumables
- External space - 250m2 - secure yardage
  - Car & vehicular parking; fuel bunkering; external storage
- Helipad facility
  - Hangar (500m2); Helipad Space (360m2)

Opportunities & Mitigation

The scale of built development compares broadly with larger agricultural buildings on the island. These typically are of 800-1200m2. Opportunity and Mitigation may be achieved by:

- Addressing needs with regard to A&BC Local Plan Industrial Land Allocation e.g.
  - Developing brown field land and minimising land take of land under agriculture
- Compliance with A&BC Sustainable Design Policy and Guidance e.g.
  - Limiting main building heights to maximum 9m to eaves
  - Considering scaling buildings to reflect current island scale
- Employment of local architects / trades

Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Scenario Development

O&M Offshore Motherships – Housing

Housing provision will be in part dependent on the level of local employment uptake (e.g. level of existing residents taking up jobs). In the Scenario Mapping we have assumed a level of local job uptake of between 15% -35%. Assumptions on new build, locally purchased, restored and rented properties allow new build housing to be estimated. Any local needs associated with the operation centre would be limited.

Profile 1		
Housing		
New Homes Built	50%	8
Existing Homes Restored / Purchased	30%	5
Other + Rented	20%	3

Profile 2		
Housing		
New Homes Built	50%	9
Existing Homes Restored / Purchased	30%	6
Other + Rented (PT Residents)	20%	4

Profile 3		
Housing		
New Homes Built	50%	11
Existing Homes Restored / Purchased	30%	6
Other + Rented	20%	4

Opportunities & Mitigation

New housing needs to be developed in a manner sensitive to the settlement patterns of the island and seek to support local access to housing for young people from the island taking up employment in O&M. A number of housing scenarios could be envisaged including:

- Growth of a single Township e.g.
  - Settlement extension providing between 8 and 11 new homes
- Extension to a number of Townships across the island e.g.
  - Assuming 6 townships equates to approx 2 houses per township
- Dispersed housing e.g.
  - New housing throughout the island on Brownfield land wherever possible

Housing is an important local issue around which the community is seeking assurance about quality and urban design. Opportunity exists for housing refurbishment alongside contemporary new build in a manner that builds on community infrastructure and supports demand for goods, services & indirect jobs.

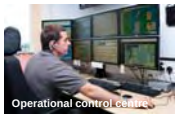
Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Scenario Development

O&M Offshore Motherships - Transport Infrastructure



Operational control centre

Harbour

No harbour works required.

Airport / Heliport

O&M helicopter base on Tiree operating from the airport or harbour with new hangar/fuel bunker and support facility (Operational Control Centre) and linking to offshore motherships. Flight levels are currently under assessment but worst case numbers suggest 1-5 return flights per day.

Local Roads

No road works required associated with O&M
If Operational Control Centre and helipad facilities were located at the airport volumes of traffic are unlikely to be significant.

Opportunities & Mitigation

There is no anticipated intensification of use whether this be associated with harbour/airport or roads. Issues requiring to be addressed would include:

- Helicopter flights paths across defined sea routes could mitigate island over-flying.
- Protecting existing air and sea capacity

Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Scenario Development

O&M Offshore Motherships - Community Infrastructure

Education

Scenario 3 O&M operations would increase the resident population and therefore the school roll. Base on a multiplier of 0.27 primary pupils per household and 0.2 secondary pupils per household the additional educational needs would include:

- 4 Primary Pupil places
- 3 High School places

The existing Tiree Primary School has a roll of 62 (including nursery roll of 15) and Secondary School Roll of 44. Higher and further Education is provided on the mainland.

Health

O&M operations would potentially add between 31 and 40 to the resident population creating additional demand on healthcare and community infrastructure. Health provision is responsive to demand / population with particular need however to address any community care requirements.

Profile 1		
Community Infrastructure		
Primary School Places (0.27)		4
Secondary School Places (0.2)		3
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		31
Population Growth		31

Profile 2		
Community Infrastructure		
Primary School Places (0.27)		4
Secondary School Places (0.2)		3
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		36
Population Growth		36

Profile 3		
Community Infrastructure		
Primary School Places (0.27)		5
Secondary School Places (0.2)		3
Educational Bursaries		3
Adult Training / Apprenticeships		4
Additional Healthcare Patients		40
Population Growth		40

Lifeline Services – Air and Ferry connections

Limited additional ferry requirements would arise from Scenario 3.

Opportunities & Mitigation

Whilst the O&M Operational Control Centre and helipad would have limited impacts on community infrastructure, opportunities would include discussion with Argyll and Bute Council and relevant health providers relative to service provision.

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree

London Array O&M Base

A combination of scenarios 1 and 3 with an arrangement based on motherships /daughter workboats working within the array, with the motherships and helicopter working from a Tiree base.

- O&M Office space, Maintenance and Workshop, Laydown space on Tiree
- Helicopter pilot office within O&M base
- SCADA control room not on Tiree (utilise existing mainland facility)
- 2 Motherships
- Helipad (1 x helicopter Eurocopter 135)
- Harbour upgrade would be required including breakwater

The proposed offshore array would be managed from Tiree including all operational and maintenance activity excluding SCADA /off-site monitoring control. The motherships would operate from an enhanced harbour but would be stationed on-field returning to Tiree for re-supply, crew changeovers and parts on a regular cycle – probably fortnightly, with one mothership returning to Tiree each week. Helicopter flights would support the motherships and would work in combination with the motherships in deliver technical engineers to the turbines. It would not be envisaged that turbine towers, nacelles or blades would be stored on the island. Key activities would include operational management, marine & flight logistics, programme management and engineering support.

Key Implications for Tiree

The numbers of O&M staff living on Tiree is anticipated to be 59 people but the potential catchment would be wider allowing mainland and Coll resident employees to access Tiree for the shift changes moderating the likely demands for local services, housing and community infrastructure. Critical to this scenario is development of harbour facilities.

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree - Jobs / Skills / Training

Local Jobs & Training Opportunity

SPR estimate that an O&M Motherships & Base on Tiree would generate up to 59 FTE jobs on Tiree. Using the 3 Profiles (Local vs. Non Local uptake for these jobs) we can generate some outcomes for Tiree in terms of numbers of new people coming to Tiree during operation and maintenance of the proposed array (and how many incoming workers bring families or are single).

Profile 1		
Jobs	Assumption	Estimate
Number Jobs (FTE)		59
% Local	35%	21
% Non Local (relocations)	65%	38
Employees (with families)	60%	23
Employees (without family)	40%	15

Profile 2		
Jobs	Assumption	Estimate
Number Jobs (FTE)		59
% Local	25%	15
% Non Local (relocations)	75%	44
Employees (with families)	60%	22
Employees (without family)	40%	18

Profile 3		
Jobs	Assumption	Estimate
Number Jobs (FTE)		59
% Local	15%	9
% Non Local (relocations)	85%	50
Employees (with families)	60%	30
Employees (without family)	40%	20

Opportunities & Mitigation

The level and range of local job opportunity and training support for young people is an important local issue around which the community is seeking assurance. Types of assurance which could be helpful could include:

- Offshore Array Employment Charter e.g.
  - Commitment for local employment within O&M service contract
- Education Charter e.g.
  - Commitment to higher and further education bursaries
- Public & Private Sector collaboration for advance skills training and career guidance e.g.
  - Advance skills training programmes
- Commitment to Apprenticeships e.g.
  - Commitment to adult and youth apprenticeships for technical support jobs

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree - Built Development

The employment predictions establish office and workspace requirements that should also allow for expansion and all supporting external space. The O&M operator will require a modern fully equipped facility with all normal servicing. The development will be expected to meet all Planning and Sustainable Design Guidance. Space requirements are as follows:

- Office space 300m2 – 2 storey building with 9m eaves height
  - Modern open plan with all ancillary services for boat and helicopter crews
  - Full Broadband / ICT
- Mixed / Multi-function Workshop 2500m2 – single storey with 9m eaves height
  - Stores and warehouse facility for spares and maintenance consumables
- External space - 1000m2 - secure yardage
  - Car & vehicular parking; fuel bunkering; external storage
- Helipad facility (if located with O&M base)
  - Hangar (500m2); Helipad Space (360m2)

Opportunities & Mitigation

The scale of built development compares broadly with larger agricultural buildings on the island. These typically are of 800-1200m2. Opportunity and Mitigation may be achieved by:

- Addressing needs with regard to A&BC Local Plan Industrial Land Allocation e.g.
  - Developing brown field land and minimising land take of land under agriculture
- Compliance with A&BC Sustainable Design Policy and Guidance e.g.
  - Limiting main building heights to maximum 9m to eaves
  - Considering scaling buildings to reflect current island scale
- Employment of local architects / trades

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree – Housing

Housing provision will be in part dependent on the level of local employment uptake (e.g. level of existing residents taking up jobs). In the Scenario Mapping we have assumed a level of local job uptake of between 15% -35%. Assumptions on new build, locally purchased, restored and rented properties allow new build housing to be estimated.

Profile 1		
Housing		
New Homes Built	50%	19
Existing Homes Restored / Purchased	30%	12
Other - Rented	20%	8

Profile 2		
Housing		
New Homes Built	50%	22
Existing Homes Restored / Purchased	30%	13
Other - Rented (PT Residents)	20%	9

Profile 3		
Housing		
New Homes Built	50%	25
Existing Homes Restored / Purchased	30%	15
Other - Rented	20%	10

Opportunities & Mitigation

New housing needs to be developed in a manner sensitive to the settlement patterns of the island and seek to support local access to housing for young people from the island taking up employment in O&M. A number of housing scenarios could be envisaged including:

- Growth of a single Township e.g.
  - Settlement extension providing between 19 and 25 new homes
- Extension to a number of Townships across the island e.g.
  - Assuming 6 townships equates to approx 4 houses per township
- Dispersed housing e.g.
  - New housing throughout the island on Brownfield land wherever possible

Housing is an important local issue around which the community is seeking assurance about quality and urban design. Opportunity exists for housing refurbishment alongside contemporary new build in a manner that builds on community infrastructure and supports demand for goods, services & indirect jobs.

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree - Transport Infrastructure

Harbour

The O&M operations will be operated by 2 motherships providing the service support and personnel access to the turbines in combination with the helicopter. A harbour facility created by a breakwater and offering quay access will be required.

- Harbour Breakwater
  - Offering safe haven for mothership(s) all year round
- Pontoon and Quay facilities
  - 140m of alongside space- quay wall or breakwater
  - Marine fuel bunkering serviced and refuelled by sea-barge. It is not anticipated that workboat fuelling would require fuel import by ferry.

Airport / Heliport

The O&M operation could be supported by a helicopter base either at the harbour or at the airport. Helicopter provision would include a hangar, helipad and fuel bunkering. Flight levels are currently under assessment but worst case numbers suggest 1-5 return flights per day.

Local Roads

The O&M operation may require some local Road Network upgrading but only in the immediate local area of the O&M Base or between the base and the harbour. Access to the harbour / breakwater will be required for vehicles. If helipad facilities were located at the airport volumes of road traffic are unlikely to be significant.

Opportunities & Mitigation

Infrastructure clearly needs to match any intensification of use whether this be associated with harbour/airport or roads. Local road upgrades may offer wider benefits as would development of the harbour. Issues requiring to be addressed would include:

- Harbour improvements may offer wider support to existing local businesses e.g.
  - Creating access for fishing / recreational boats and improving ferry weather protection
- Helicopter flights paths across defined sea routes could mitigate island over-flying.
- Protecting existing air and sea capacity

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree - Community Infrastructure

Education

Scenario 4 O&M operations would increase the resident population and the school roll. Base on a multiplier of 0.27 primary pupils per household and 0.2 secondary pupils per household the additional educational needs would include:

- 10 Primary Pupil places
- 7 High School places

The existing Tiree Primary School has a roll of 62 (including nursery roll of 15) and Secondary School Roll of 44. Higher and further Education is provided on the mainland.

Health

O&M operations would potentially add between 73 and 95 to the resident population creating additional demand on healthcare and community infrastructure. Health provision is responsive to demand / population with particular need however to address community care.

Profile 1		
Community Infrastructure		
Primary School Places (0.27)		8
Secondary School Places (0.2)		6
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		73
Population Growth		73

Profile 2		
Community Infrastructure		
Primary School Places (0.27)		10
Secondary School Places (0.2)		7
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		84
Population Growth		84

Profile 3		
Community Infrastructure		
Primary School Places (0.27)		11
Secondary School Places (0.2)		8
Educational Bursaries		3
Adult Training / Apprenticeships		4
Additional Healthcare Patients		95
Population Growth		95

Lifeline Services – Air and Ferry connections

Scenario 4 O&M operations by increasing island population will place additional demand on air and ferry connections. A 10% increase in population will require a review of current air and ferry capacity. Vehicular ferry capacity at weekends & in the summer months is near or at capacity. Reducing ferry cancellations and any improvement to capacity would offer local benefits.

Opportunities & Mitigation

A growing population would introduce both opportunity and impacts with mitigation dependent on investment in local capacity. Discussions are progressing with a number of key service providers to identify any specific measures or responses.

- Discussions with CMAL / Calmac and HIAL regarding Lifeline services
- Discussion with Argyll and Bute Council and relevant health providers

Your Thoughts ?

Local Benefit or Impact?

Summary
Scenarios 1-4 Summary

Initial Scenario Mapping 1-4

Scenario 1 - O&M Base

Scenario 2 - Offshore Platform

Scenario 3 - Offshore Mothership

Scenario 4 - O&M Base / Mothership

Your Thoughts ?

Local Benefit or Impact?

Summary Scenario 1-4

Jobs on Tiree				
Houses on Tiree new build				
School Pupils primary & secondary				
Built Development				
Helicopter Flights per day return flights				
Population Growth				

Provisional Assessment to Assist Consultation. All numbers to be verified.

Your Thoughts ?

Local Benefit or Impact?

Scenario Mapping

Opportunity and Impact?

Consultations have highlighted a breadth of issues with consultees seeking more information on which to asses the O&M implications for Tiree. Development introduces change that may have implications and these may be perceived as benefits or impacts depending on ones perspective. We are keen to better understand the balance of opportunity and impact (benefits and dis-benefits) of each of the 4 Scenarios. A view is summarised below but we would appreciate your comments and thoughts.

Strengths
- O&M base on Tiree
- Significant job opportunities
- Investment in harbour facilities
- Population growth supports community facilities

Weaknesses
- O&M base on Tiree
- Built development
- Additional loads to transportation connections

Opportunities
- Employment opportunity
- Retention young people
- Developing new skills
- Investment in island infrastructure

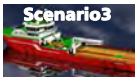
Threats
- Changes impacts on way of life

Strengths
- O&M change limited to offshore
- No additional load on island infrastructure / transport

Weaknesses
- Limited job opportunities all based offshore
- No required investment in island infrastructure
- Limited economic gain

Opportunities

Threats



Strengths
- Operating Centre on Tiree
- Some job opportunities onshore and offshore

Weaknesses
- Limited employment opportunity
- Limited required investment in island infrastructure
- Limited economic gain

Opportunities
- Some employment opportunity
- Some training opportunity

Threats

Strengths
- O&M base on Tiree
- Moderate job opportunities
- Investment in harbour facilities
- Population growth supports community facilities

Weaknesses
- O&M base on Tiree
- Built development
- Additional loads to transportation connections

Opportunities
- Employment opportunity
- Retention young people
- Developing new skills
- Investment in island infrastructure

Threats
- Changes impacts on way of life

Your Thoughts ?

Local Benefit or Impact?

Array Construction

Offshore Construction

The construction of the proposed offshore array would involve a major sea based construction programme following all pre-construction surveys and agreement on method statements.

Offshore windfarms are-constructed from a principal installation port base and / or manufacturing centre using offshore construction craft (barges, cranes etc). Construction activity to date in the UK has included Harland & Wolfe in Belfast, BiFab in Methil and ports on Teeside, Tyneside and Hull.

The developer is not proposing that any construction activities related to the wind turbines be based on Tiree. Array construction camps, construction lay-down space, turbine assembly or fabrication would all take place elsewhere in the UK or abroad.

Current construction practice for offshore wind turbines involves specialist vessels either:

- delivering completed turbines to site
- delivering major component parts to site, with assembly then taking place offshore

Detailed discussions are currently being progressed within the industry by SPR to identify manufacturer and contractor requirements.

Your Thoughts ?

Changing Technology

Unknowns in O&M

Offshore Renewables are relatively new developments and therefore the technology to deliver these developments is constantly changing.

The Scenario Mapping exercise and development of the 4 Scenarios has been based on:

- Discussions with the Promoter (Scottish Power Renewables) of the scheme,
- Discussions and information sourced from turbine manufacturers, engineers and O&M specialists
- Benchmarking against existing offshore wind developments and facilities planned or under consideration in more challenging environments
- Understanding of the local environment - limitations and opportunities

The scenarios therefore represent our current best understanding of the key components of the 4 O&M Scenarios and typically would be altered/amended as technology and O&M practice develops.

Your Thoughts ?

Challenging Environments

Marine Environment

Offshore O&M often means working in challenging environments:

- Wave heights and swell and frequency of storms
- Increased maintenance of turbines in harsh environments
- Challenges of remote working and additional HSE requirements

The Scenarios are being developed in parallel with detailed marine and climatic surveys to allow the Operations and Maintenance (O&M) needs for the proposed array to reflect the unique conditions of Tiree. Significant wave heights and windspeeds during the winter months need to be addressed in developing O&M solutions. Discussions are ongoing with operators and manufacturers to match operational specifications with these conditions. The scenarios give an impression of the scale of activities, types of impacts and benefits and allow early consideration of how opportunities may be secured and mitigation addressed. New innovations can be anticipated to influence future O&M activity and impacts upon the levels and provision of:

- Mothership / Workboat size, crews, support, maintenance
- Helicopter type, size, crews, support, maintenance
- Technical support staff requirements and shift patterns
- Corresponding facilities requirement (size of onshore base, mothership(s), platform

Your Thoughts ?

O&M Procurement

Procurement Variables

The O&M Procurement Process will influence the exact nature of the way that O&M is implemented. It will be informed by:

- The O&M should the proposed array go ahead will be tendered and therefore will be open to variation based on appointed O&M operators approach to the proposed development
- New technology as it becomes available will influence O&M e.g. more reliable turbine components fitted, workboats able to work in poor weather conditions, increased telemetry etc
- Changes in response to HSE requirements and offshore working practices

Preparing boat landing at site

Different operators will bring different experience and innovation to the O&M activity with SPR specifying the standards and any pre-requisites for operations. This study process is seeking to help understand future requirements for O&M.

SPR are looking to apply for permission to build the windfarm in 2013 with an ambition to move to construction and operation in 2017-18. Innovation in technology and new experience from existing sites may impact on O&M procurement.

Your Thoughts ?

Associated Infrastructure

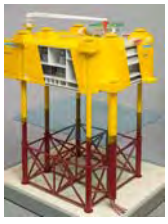
Converter Station

Converter Station

The proposed Array will include a requirement for a Converter Station.

Whilst not part of the brief for this study, we are aware that there have been discussions about the need, location and size of a Converter Station either onshore on Tiree or offshore.

The converter station will form part of the associated development of the windfarm. This means the electrical infrastructure required for the windfarm – including export cabling (to take electricity to the national grid), substations and converter stations. Cabling would be underground and not on overhead lines.



A decision has not yet been taken on whether to propose that the converter station be offshore or onshore. If onshore, a building of dimensions 100 x 50metres may be proposed.

Your Thoughts ?

What Next?

The Consultation Strategy includes 3 consultation events at various stages in the project.

This is the second consultation event on Tiree looking at the initial assessment of the Operations and Maintenance (O&M) associated with the potential array.

Consultation Event 1 consider points raised at consultation	These initial consultations provided feedback on local issues, pressures on local resources, areas of potential impact and the potential to secure benefits for the island community.
Consultation Event 2 3rd and 4th October 2011	We are now consulting on our initial assessment of the potential O&M scenarios to allow us to review in more detail, through consultation, potential implications for Tiree. Comments from Event 1 have been incorporated into this assessment.
Consultation Event 3 Mid/late November 2011 (TBC)	The team will consult on the draft findings of the Study and advising of the best understanding of the implications of O&M facilities on Tiree and setting out the implications and impacts of each scenario and how these might be taken forward.
Ongoing Consultation September /October 2011	The team will continue to consult with a range of stakeholders and community interests. Andy Wright and Lynne MacKinnon from Tiree Community Development Trust are available on the island to collect any further consultation responses as necessary.

Your Thoughts ?

What Next?

Thank You

The purpose of this second consultation has been to communicate with further detail what the four scenarios might mean in terms of implications for the community of Tiree.

The four scenarios outlined here have quite different implications for Tiree. The benefits or dis-benefits of each needs to be carefully assessed in terms of identifying how Tiree might benefit from renewable energy proposals and how impacts might be addressed or mitigated. This study is intended to provide an early assessment of land based O&M implications without presumption as to the outcome of the proposed offshore array Licensing application, or SPR's final procurement of O&M services.

This consultation will help us continue to develop the detail on the four scenarios and initiate the economic, social and environmental assessment of the possible implications.

Consultation Boards Event 3

Tiree Onshore Scenario Mapping Project

Consultation Event 3
O&M Scenario Reporting

These boards were used at Consultation Event 3 held at An Talla, Tiree on the 29th and 30th of November 2011. It is important to recognise that this continues to be interim reporting and represents the findings of Ironside Farrar. Consultation and details will continue to evolve as the study is developed and finalised.

Welcome

Tiree Onshore Scenario Mapping Project
Consultation Event No.3 – O& M Scenarios Reporting

Any future offshore windfarm consent, if granted, will have an Operational and Maintenance (O&M) need which may have implications for land-based development on Tiree. The aim of this third consultation event is to provide a better understanding each of the four potential Operations & Maintenance Scenarios advised by the developer and to consider in more detail the potential implications for Tiree.

This is early and advance consultation well ahead of any decision on the Offshore Array but it is considered important at the earliest date to consider onshore implications in parallel with the wider consultation on the Offshore Array itself.


Please comment on as many issues as you feel are important and write your comments on post-it notes or on the comments form. Boards with 'Your Thoughts?' include new information and/or revisions to information previously presented. The Consultants are also here to discuss any issues you may have as part of the study and explain current assumptions and information on the O&M scenarios.

The Brief

Tiree Onshore Scenario Mapping Project

The purpose of the study is to consider the onshore implications of the proposed offshore array for the community of Tiree. The study is being funded by Marine Scotland, The Crown Estate, Argyll and Bute Council and Highlands and Islands Enterprise. Central to the study is community consultation

Offshore windfarms have operational and maintenance (O&M) needs which typically include a level of land-based development.

This study will help assist the Steering Group, community and stakeholders in considering any potential land-based implications associated with the proposed offshore array and allow early community input and consultation.

Ironside Farrar, Environmental Consultants, has been appointed to help the project Steering Group take forward the during 2011.

Consultation is critical to the process—this is the third of the 3 events planned:

- Consultation Event 1 Understanding Local Issues & Concerns
- Consultation Event 2 Initial assessment of potential O&M scenarios
- Consultation Event 3 Reporting on the Draft Findings

Consultation Event 1 – Key Issues

- **Confirmation TCDT / Forum issues**
  - 12 Key Topic Issues and initial concerns raised from consultation
  - Jobs, Housing and implications for Education/Health /Life Style are key topic areas
  - Breadth of views from clear objection to positive support with most attendees reserving position
- **Objectives and Outcomes broadly supported**
  - Draft Objectives and Outcomes addressed key areas of concern
- **New and additional key issues advised at the consultation included:**
  - Need more detailed information on the O&M Scenarios and Tiree benefits
  - Better understanding of any proposed development scale relative to way of life
  - Need to understand job opportunities; employment and skill sets required for jobs
  - Lack of clarity in any information on the scale of change and infrastructure needs
  - Lack of clarity on potential for disruption and impacts on transport (air/ferry/roads)
  - Re-iterated more strongly concerns regarding light pollution and helicopter noise
  - Recognition that Tiree has successfully accommodated change in the past
  - Need to consider wider opportunity for developer contributions to community benefits

FOCUS

Seeking to understand Scenarios and Implications on Education / Health / Community Lifestyle

Consultation Event 2 – Key Issues

- **Review of Scenarios 1-4**
  - Detail presented on the key elements within 4 alternative scenarios
  - Detail presented on Changing Technology / Converter Station / O&M Procurement / Challenging Environments
  - Summary Mapping presented showing possible relationships between O&M base, helicopter facility, ferry terminal
- **Key Issues Raised through consultation included:**
  - Presentation well received in terms of additional levels of information – but more detail & on-going dialogue sought
  - Key opportunities recognised as including:
    - Local jobs & access to jobs
    - Local employment and training /apprenticeships for young people
    - Population growth with additional support for local goods and services
    - Long term economic benefit to island from investment
  - Key concerns remain associated with:
    - Level and Timing of Assurances in terms of commitment to delivery of local benefits
    - Environmental impact associated with Helicopter Movements / Converter Station / Harbour Requirements / Place Quality
    - Impacts of Array on tourism /environment and communities and O&M employment leading to displacement of local jobs/job-shares
  - Interest in how wider community issues might be addressed – Community Benefit Fund

FOCUS

Benefits and Disbenefits and the balance of impact. Critical to understand actual benefit include, jobs, and community fund.

Consultation Feedback

Positive

- The project will provide the island with more investment, opportunities and financial benefit; economic growth is essential on a small island like Tiree.
- Tiree needs this, the windfarm = jobs + people = the island's future.
- Funded training will enable local people to take jobs.
- Local building industry will benefit through the creation of indirect employment.
- Local infrastructure will be improved.
- Tiree is going backwards and it should be going forwards; the development will bring more families / people to the island.
- Effects of the development, i.e. a growing population, more jobs, more children in the school, align with Tiree's Growth Plan.
- A broad range of jobs will be created.
- A 'sovereign wealth fund' could be created which would benefit the island over the next 20 years, providing a long term resource for the community.
- Choosing a scenario with island involvement will provide local benefits.
- Dispersing new housing across the island will reduce the impacts.
- Recognition that the school requires help and the development offers the opportunity for this to happen.

Negative

- Shift workers using Tiree as a hub would have a negative impact.
- Noise pollution by the helicopter flights as the island is down wind from the development site, residents will hear a lot of 'air traffic' to and from the site due to the amount of flights.
- The ferry is already at capacity during much of the year, additional passengers will worsen this problem.
- Loss of croft land will have a negative effect on the island.
- An offshore converter would be very large and unsightly; however an onshore converter will also have a negative impact on the island.
- The development would create a lot of light pollution on and offshore.
- The suggestion that 60% of the workforce will have families seems too high.
- Concern over who will buy new housing and whether houses will become even less affordable for local residents.
- Concern the island will become a 'hub' for other offshore wind developments on the west coast.
- Concern that Gaelic will be diluted.
- Worry that the sense of community will be lost on the island as a result of the proposed development.
- Concern over the negative impact the development will have on tourism.
- Fear that the development may drive people to move off the island.

Scenario Mapping

What is Scenario Mapping / Planning?
Scenario Planning is a tool to help stakeholders and others better understand the implications of change and assist consultation on how to manage potential futures more effectively.

We are at draft reporting stage in developing the scenarios and the figures used are provisional and continue to be developed. The scenario planning process can be used to highlight:

- Principal factors that create or drive change e.g. jobs, people, demand for services
- Provides based on percentage assumptions a better understanding of the range of change that might occur e.g. population growth / proportion of local versus new jobs
- Provides an explanation of likely outcomes based on understanding of existing baseline

Scenarios are widely used by various organisations and groups to assess change and help to inform views and future decisions. The information can inform debate by looking at existing facilities or experience and making assumptions about possible futures.

Scenario Mapping

Key Issues influencing Benefits & Impacts
The key factors influencing change relative to the Onshore O&M Scenario Mapping include:

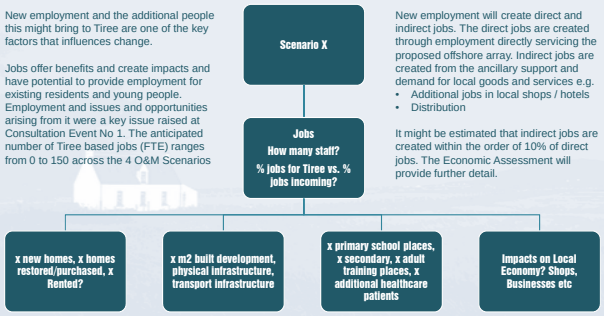
1. **Nature of O&M Scenario**
   Onshore, Offshore Platform, Offshore Mothership, Onshore plus Mothership
2. **People required for each O&M Scenario**
   Onshore, Offshore - Tiree based Staff / Local jobs / Incoming workers
3. **Employment Profile for each O&M Scenario**
   Job Description / Skills Required / Training Support / Commitment to Local Job access
4. **Need & Implications for Community Infrastructure**
   Housing, Education and Healthcare and Lifeline service provision and Way of Life
5. **Need and Implications for Transport Infrastructure**
   Harbour upgrading , road access, ferry capacity, workboat facilities, helicopter access
6. **Need and Implications for Physical Infrastructure**
   Office, Workshop, Land Area, Maintenance Space, Harbour, ICT

Scenario Mapping

Scenario Development

New employment and the additional people this might bring to Tiree are one of the key factors that influences change.

Jobs offer benefits and create impacts and have potential to provide employment for existing residents and young people. Employment and issues and opportunities arising from it were a key issue raised at Consultation Event No 1. The anticipated number of Tiree based jobs (FTE) ranges from 0 to 150 across the 4 O&M Scenarios



Employment – Direct vs. Indirect

New employment will create direct and indirect jobs. The direct jobs are created through employment directly servicing the proposed offshore array. Indirect jobs are created from the ancillary support and demand for local goods and services e.g.

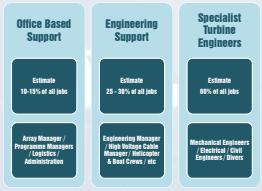
- Additional jobs in local shops / hotels
- Distribution

It might be estimated that indirect jobs are created within the order of 10% of direct jobs. The Economic Assessment will provide further detail.

Scenario Mapping

Use of Profiles in Scenario Planning / Mapping

Job Types
Recognising that new employment and the additional people this might bring to Tiree are one of the key factors that influences change we use profiles to look at likely job opportunities available. Job requirements have been estimated based on broadly comparable O&M facilities and can be broadly broken down as follows:



Job Profiles – Local vs. Non Local
In order to assess the likely implications on Tiree, we need to look at how many of the potential jobs that could be available in O&M may be filled by those already resident on Tiree vs. those coming to Tiree i.e. Local vs. Non Local Jobs. We have looked at 3 different profiles:

Profile 1 (Assumptions)	Profile 2 (Assumptions)	Profile 3 (Assumptions)
• 35% Local • 65% Non Local	• 25% Local • 75% Non Local	• 15% Local • 85% Non Local

The Non-Local Jobs are those with greatest potential to bring change to Tiree – we have assumed 70% are single and 30% would bring a family. This allows a range of assessments to be presented in respect to housing provision requirements, school places, healthcare requirements and overall population growth.

We have applied the profiling to Scenarios 1, 2, 3 and 4 to provide and understanding of potential implications.

Jobs are Full Time Job Equivalents (FTE) which means that some of these jobs will be part time or seasonal and offer flexible posts for both men and women. The Scenario Planning exercise only looks at assumptions of the direct jobs at this stage.

Scenario Mapping

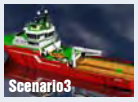
The Community Consultation Event No 1. highlighted a general concern to better understand impacts/benefits on: Jobs / Skills / Training / Built Development / Housing / Harbour / Airport / Roads / Ferry / Education / Healthcare In addition, the consultation event highlighted some of the softer or secondary impacts/benefits that may arise from change and highlighted a desire to better understand the level of assurance the community could secure about local opportunity and impacts on: Local Economy, Businesses, Enterprise and opportunity for young people etc Way of Life, Culture, Crofting and Land Management Environment and place quality.

Onshore O&M Base – On Tiree
An onshore base would have a Tiree base operating between the O&M office and workshops, harbour and helipad.

Scenario 1 therefore has significant direct implications for Tiree in terms of O&M activity with impacts or benefits occurring at the O&M base, which is assumed to be at the harbour with possible facilities at the airport.

Offshore O&M Base - Platform
An offshore platform servicing the offshore array with connections to the mainland base for staffing and equipment.

Scenario 2 has no or negligible direct implications for Tiree in terms of O&M activity. Any impacts or benefits would occur wherever the O&M mainland base operates from – e.g. a mainland Scottish port.



Offshore O&M Base – Mothership
An offshore mothership arrangement for servicing the offshore array operating from a mainland port.

Scenario 3 has an Operational Control Centre and helicopter crew based on Tiree with all other O&M based on the Mothership. This Scenario therefore has minor direct implications for Tiree in terms of O&M activity. The main impacts or benefits would occur wherever the O&M mainland base operates from - e.g. a mainland Scottish port

Onshore O&M Base & Mothership
An onshore O&M base comprising O&M office, harbour and helipad. Two motherships would use the harbour for crew changes, re-fuelling and supplies.

Scenario 4 therefore has significant direct implications for Tiree in terms of O&M activity with impacts or benefits occurring at the O&M base which is assumed to be at the harbour with possible facilities at the airport.

Scenario 1

Your Thoughts ?

Onshore O&M Base

An onshore base would have a Tiree base operating between the O&M office and workshops, harbour and helipad.

- Full O&M base including Office space, Maintenance and Workshop and Laydown space
- Helicopter pilot office within O&M base
- SCADA control room not on Tiree (utilise existing mainland facility)
- 5 no. Workboat
- Helipad (1 x helicopter Eurocopter 135)
- Harbour upgrade would be required including breakwater

The proposed offshore array would be managed from O&M operational and maintenance base on Tiree.


London Array onshore O&M Base design

Key Implications for Tiree
Onshore staffing would mean direct impacts and benefits to Tiree coupled with a requirement for a built facility or development of facilities on the island.
The harbour would need to be upgraded to provide facilities for workboats and helipad would be stationed at either the harbour or the airport.

Scenario 1

Your Thoughts ?

Assessment
Economic

- Direct Employment - 150 Array jobs (50% increase in current jobs base of island)
- Indirect Employment - 50 net additional jobs
- Approx £6.7 million net additional GVA per annum from all additional economic activity
- Substitution - Around 30-50 existing jobs would need to be back-filled as a result of residents choosing to work on proposed Array (50/50 between full and part-time jobs)
- 20-25 new residents seeking work on Tiree (outwith Array) with 5 new residents establishing new businesses on Tiree (assume home workers)
- 26-33 new houses needed with one-off construction impacts from housing development equivalent to 20 one-off annual jobs and £600,000 GVA
- New harbour – assume 15 new marina berths for leisure purposes
- Tourists (marina) + visiting friends + relatives generating local spending of £630,000 per annum less £100,000 per annum lost from holiday homes becoming permanent residences.

Assessment
Socio-Economic

- Increased population supports community infrastructure / resilience
- Supports more balanced demographic – age structure /social environment
- Increased population supports argument for improved ferry/air - lifeline services
- Greater demand for local goods and services
- Increased demand in sectors Hotels /Leisure/Retail sector

Assessment
Environment

- New harbour would need to be designed to ensure that there are no impacts on bird assemblages within SPA, SSSI and Ramsar site – Information to Inform an Appropriate Assessment will be required.
- Any development proposed at the airport would need to consider potential for impacts on the Tiree Machair SAC.
- Noise associated with helicopter flights – commitment to flight paths to avoid residential areas.
- Construction Method Statements for development

Profile 2 (25% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		150
% Local	25%	38
% Non Local (relocations)	75%	113
Employees (with families)	30%	34
Employees (without family)	70%	79
Socio Economic		
Family		
New Homes Built	40%	14
Existing Homes Restored / Purchased	20%	10
Other + Rented (PT Residents)	30%	10
Single Professional		
New Homes Built	30%	24
Existing Homes Restored / Purchased	20%	16
Other + Rented (PT Residents)	50%	38
Built Development		
Offices (m2)	m2	600
Workshops / Support (m2)	m2	3500
Site (laydown+parking) (m2)	m2	2000
Community Infrastructure		
Primary School Places (0.27)		9
Secondary School Places (0.2)		7
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		143
Population Growth		143
Environment		
Major Infrastructure		New Harbour
Helicopter Return Flights Per Day		7 to 12
Building Land Take	m2	5100
Water (daily personal consumption - 200 per day)	l/day	28575
Water (O&M)	l/day	73440
Electricity (domestic) kVA	kVA	111
Electricity (O&M) kVA	kVA	233

Scenario 2

Your Thoughts ?

Offshore O&M Base (Platform)

An offshore platform, located within the array, with workboats and one helicopter stationed on the platform.

- No O&M base on Tiree
- No SCADA control room (utilise existing mainland facility)
- Helicopter Station provided on mainland but with some limited use of Tiree Airport and offering a potential link for local employees
- No O&M Support infrastructure required on Tiree

The proposed offshore array would be managed from a main land base with O&M operational and maintenance activity operated from the platform.
The platform would operate similar to oil and gas developments with O&M staff recruited nationally and flown/transported to the platform by air or boat from a mainland airport/port. No daily contact with Tiree would be required but fortnightly employment flights to the platform may be possible.

Key Implications for Tiree
Offshore staffing would mean no direct impacts or benefits to Tiree and no requirement for a built facility or development of facilities. Employment opportunity may exist at a minimal scale.

Scenario 2

Your Thoughts ?

Assessment
Economic

- Direct Employment - 5 Array jobs, equating to 2% increase in current jobs base of Tiree (None of these jobs are likely to be for local residents)
- Indirect Employment - very limited additional jobs or GVA for island
- Substitution - No substitution issues over existing jobs needing to be back-filled
- 1 new residents seeking work on Tiree (outwith Array) with no new residents establishing new businesses on Tiree
- 2-3 new resident houses needed, of which all assumed to be new build with one-off construction impacts from housing development equivalent to 2-3 one-off annual jobs and £0.1m GVA
- Visiting friends + relatives generating very limited local spending of c. £1,000 per annum
- no negative impact on existing visitor numbers through lost holiday homes

Assessment
Socio-Economic

- No O&M based change to population on Tiree - any population structure changes will be in relation to existing factors i.e. availability of local jobs and employment
- No potential for improved ICT infrastructure etc through O&M activity
- There will still be opportunity for access to training through for example Education Charters, Bursaries and Apprenticeships associated with the proposed array.

Assessment
Environment

- No harbour/breakwater would be required, nor any built development on the island and therefore no anticipated environmental considerations or protection requirements
- Visual effects of the proposed offshore rig may need to be addressed in consultation with Marine Scotland
- Occasional helicopter flights associated with this Scenario and therefore noise associated with helicopter flights should be addressed through commitment to flight paths minimising impacts on residential areas.

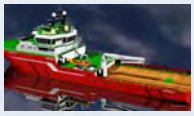
Profile 2 (25% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		0
% Local	25%	0
% Non Local (relocations)	75%	0
Employees (with families)	30%	0
Employees (without family)	70%	0
Socio Economic		
Family		
New Homes Built	40%	0
Existing Homes Restored / Purchased	30%	0
Other + Rented (PT Residents)	30%	0
Single Professional		
New Homes Built	30%	0
Existing Homes Restored / Purchased	20%	0
Other + Rented (PT Residents)	50%	0
Built Development		
Offices (m2)	m2	0
Workshops / Support (m2)	m2	0
Site (laydown+parking) (m2)	m2	0
Community Infrastructure		
Primary School Places (0.27)		0
Secondary School Places (0.2)		0
Educational Bursaries		3
Adult Training / Apprenticeships		3
Additional Healthcare Patients		0
Population Growth		0
Environment		
Major Infrastructure		None
Helicopter Return Flights Per Day		occasional
Water (daily personal consumption - 200 per day)	l/day	0
Water (O&M Consumption)	l/day	0
Electricity (domestic) kVA	kVA	0
Electricity (O&M) kVA	kVA	0

Scenario 3

Your Thoughts ?

Offshore O&M Base (Mothership)

Two motherships, stationed within the array, with daughter workboats and one helicopter stationed on the motherships with the mothership working from a mainland port.



- Operational control centre on Tiree but limited to office based functions, with no wider O&M support infrastructure (e.g. motherships) required on Tiree
- No SCADA control room (utilise existing mainland facility)
- No workshop facility
- Helicopter Station provided on Tiree

The proposed offshore array would be managed from a local Operational Control Centre based on Tiree and potentially located at the airport alongside helipad facilities. All physical operations and maintenance activity will be managed from the motherships with the vessels acting as a mobile platform. O&M staff would return to the mainland operating port, based on a shift pattern arrangement. No daily contact with Tiree would be required but fortnightly employment flights for local employees to the mothership may be possible.

Key Implications for Tiree
Offshore staffing would limit the impacts or benefits to Tiree with these limited to the operation control centre. Offshore employment opportunity may exist but would not be locally connected and access to opportunity may be more restricted than in other scenarios.

Scenario 3

Your Thoughts ?

Assessment
Economic

- Direct Employment - 25 Array jobs, (8% increase in current jobs base of island)
- Indirect Employment - 5 net additional jobs on Tiree
- Approx £1.1 million net additional GVA per annum from all additional economic activity
- Substitution - 5-10 existing jobs would need to be back-filled as a result of residents choosing to work on proposed Array (split 50/50 between full and part-time positions)
- 5-10 new residents seeking work on Tiree (outwith Array) assume 1 new resident establishing new businesses on Tiree;
- 4-6 new houses needed for new residents, of which one-off construction impacts from housing development equivalent to 5-6 one-off annual jobs and £0.2m GVA
- Visiting friends + relatives generating limited additional local spending of £7,000 per annum with lost spend of £10,000 per annum from holiday homes becoming permanent residences.

Assessment
Socio-Economic

- No O&M based change to population on Tiree or resulting change to island services or businesses - any population structure changes will be in relation to existing factors i.e. availability of local jobs and employment
- No potential for improved ICT infrastructure etc through O&M activity
- There will still be opportunity for access to training through for example Education Charters, Bursaries and Apprenticeships associated with the proposed array.

Assessment
Environment

- No harbour/breakwater would be required on the island so no potential impacts.
- Environmental design of any buildings would minimise potential impacts e.g. visual in line with Tiree Design Guide
- Any development proposed at the airport would need to consider potential for impacts on the Tiree Machair SAC.
- Noise associated with helicopter flights – commitment to flight paths to avoid residential areas.
- Construction Method Statements for development

Profile 2 (25% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		25
% Local	25%	6
% Non Local (relocations)	75%	19
Employees (with families)	30%	6
Employees (without family)	70%	13
Socio Economic		
Family		
New Homes Built	40%	2
Existing Homes Restored / Purchased	30%	2
Other + Rented (PT Residents)	30%	2
Single Professional		
New Homes Built	20%	3
Existing Homes Restored / Purchased	30%	4
Other + Rented (PT Residents)	50%	7
Built Development		
Offices	m2	150
Workshops / Hangar	m2	500
Site Ancillary	m2	250
Community Infrastructure		
Primary School Places (0.27)		2
Secondary School Places (0.2)		1
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		24
Population Growth		24
Environment		
Major Infrastructure		None
Helicopter Return Flights Per Day		between 1 and 5 per day
Water (daily personal consumption - 200 per day)	l/day	4763
Water (O&M Consumption)	l/day	12960
Electricity (domestic) kVA	kVA	15
Electricity (O&M) kVA	kVA	49

Scenario 4

Your Thoughts ?

Onshore O&M Base / Mothership

A combination of scenarios 1 and 3 with an arrangement based on motherships /daughter workboats working within the array, with the motherships and helicopter working from a Tiree base.

- O&M Office space, Maintenance and Workshop, Laydown space on Tiree
- Helicopter pilot office within O&M base
- SCADA control room not on Tiree (utilise existing mainland facility)
- 2 Motherships
- Helipad (1 x helicopter Eurocopter 135)
- Harbour upgrade would be required including breakwater

The proposed offshore array would be managed from Tiree including all operational and maintenance activity excluding SCADA /off-site monitoring control. The motherships would operate from an enhanced harbour but would be stationed on-field returning to Tiree for re-supply, crew changeovers and parts on a regular cycle – probably fortnightly, with one mothership returning to Tiree each week. Helicopter flights would support the motherships and would work in combination with the motherships in deliver technical engineers to the turbines. It would not be envisaged that turbine towers, nacelles or blades would be stored on the island. Key activities would include operational management, marine & flight logistics, programme management and engineering support.

Key Implications for Tiree
The numbers of O&M staff living on Tiree is anticipated to be 59 people but the potential catchment would be wider allowing mainland and Coll resident employees to access Tiree for the shift changes moderating the likely demands for local services, housing and community infrastructure. Critical to this scenario is development of harbour facilities.

Scenario 4

Assessment
Economic

- Direct Employment - 59 Array jobs (19% increase in current jobs base of island)
- Indirect Employment - 30 net additional jobs
- Approx £2.8 million net additional GVA per annum from all additional economic activity
- Substitution - 10-20 existing jobs would need to be back-filled as a result of residents choosing to work at Array (split 50/50 between full and part-time positions)
- 10 new residents seeking work on Tiree (outwith Array) and assume 2 new residents establishing new businesses on Tiree
- 10-13 new houses needed for new residents with one-off construction impacts from housing development equivalent to 10 one-off annual jobs and £0.3m GVA
- 15 new marina berths, of which 6 permanent/5 visitor (attracting new visitors)
- Tourists (marina) + visiting friends + relatives generating local spending of £600,000 per annum less £20,000 per annum lost from holiday homes becoming permanent residences.

Assessment
Socio-Economic

- Level of population increase would support community infrastructure / resilience and more balanced demographic – age structure /social environment
- O&M based change to population on Tiree would support island services – need to ensure that demand is accommodated without affecting Lifeline Services (airferry)

Assessment
Environment

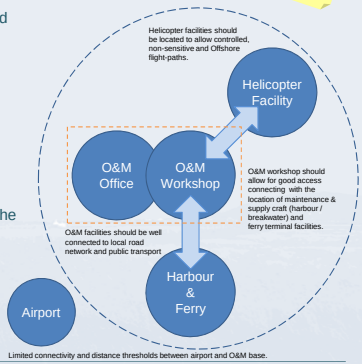
- New harbour would need to be designed to ensure that there are no impacts on bird assemblages within SPA, SSSI and Ramsar site – Information to Inform an Appropriate Assessment will be required.
- Any development proposed at the airport would need to consider potential for impacts on the Tiree Machair SAC.
- Noise associated with helicopter flights – commitment to flight paths to avoid residential areas.
- Construction Method Statements for development

Profile 2 (25% Local Jobs) Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		59
% Local	25%	15
% Non Local (relocations)	75%	44
Employees (with families)	30%	13
Employees (without family)	70%	31
Implications		
Socio Economic		
Family		
New Homes Built	40%	5
Existing Homes Restored / Purchased	30%	4
Other = Rented (PT Residents)	30%	4
Single Professional		
New Homes Built	20%	6
Existing Homes Restored / Purchased	20%	9
Other = Rented (PT Residents)	50%	15
Built Development		
Offices	m2	300
Workshops / Support	m2	2500
Site	m2	2000
Community Infrastructure		
Primary School Places (0.27)		4
Secondary School Places (0.2)		3
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		56
Population Growth		56
Environment		
Major Infrastructure		New Harbour
Helicopter Return Flights Per Day		1 to 5
Water (daily personal consumption - 200l per day)	l/day	11240
Water (O&M Consumption)	l/day	69120
Electricity (domestic) kVA	kVA	35
Electricity (O&M) kVA	kVA	210

This information represents Ironside Farrar's initial findings and draft recommendations informed by community consultation

Facility Dependencies

- O&M facilities would be anticipated to include:
  - O&M offices
  - O&M workshop
  - Helicopter facility, including hangar
- O&M operators generally seek clustering of core activity within a single O&M base
- O&M spatial requirements within the scenarios fall within the range of:
  - Offices 150-600m2
  - Workshop 500-2500m2
  - External Yard 250-2000m2



Limited connectivity and distance thresholds between airport and O&M base.

Scale of Elements

- Typical Scale of Potential O&M Buildings / Class 4 & 5 / Height & Typical Elevational / Gable Scale Detail
- Workshop Buildings for O&M reflect larger industrial buildings on Tiree and could be sub-divided to mitigate impacts of scale and massing
- Location, design and colour treatments will all be important in securing a fit within the landscape and place setting

Scale of some existing buildings on the island

Typical 5m existing industrial building

* Part of the convertor station has to accommodate taller equipment therefore it is expected that only a short section of the converter station would need to be 25m high.

Visions for Tiree

- **The Community Development Plan includes an overall vision for the future of Tiree (2011-2016)***

  "In 2025 Tiree will continue to be a thriving and economically viable community sustaining a high quality of life for all whilst safeguarding our remarkable environment, heritage and culture. By making the Island more attractive to young people and families we will work towards a slow, sustainable population growth, preventing a population decline"

The O&M Scenarios have potential for impacts and benefits to the island and existing way of life.

Scenario	Initial appraisal of Scenario against Vision
Scenario 1	This O&M scenario will bring new residents to Tiree whilst seeking to provide jobs to existing Tiree residents. A new harbour/breakwater would be required as part of the delivery of this scenario and should have wider benefits to the island in terms of reliability of ferry services and travel. Need to recognise the level of change to the island and that potential impacts on environment, heritage and culture need to be addressed through mitigation, forward planning, infrastructure and service review e.g. for community services
Scenario 2	This O&M scenario would not increase the current population over and above existing levels of growth and therefore would also not bring any benefits or impacts to the island.
Scenario 3	This O&M scenario would include a small increase in new residents to Tiree and may therefore have modest wider benefits. Similarly the levels of proposed built development on the island (operations control centre and helipad) would be unlikely to have significant environmental impacts that could not be addressed through sensitive design.
Scenario 4	Similar changes to Scenario 1 with lower number of new residents based on the island.

Objectives*

Mitigation	Sensitive design in line with AdBC Sustainable Design Policy and Guidance
Planning	Appropriate planning for new housing and associated infrastructure
Service Demand	Services would be required to respond in relation to any increases to population
Infrastructure	New Harbour/Breakwater would be required and should seek to capture wider benefits to the island.

Proposed Objectives	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Agriculture To seek to maintain current land management practice and capacity including access to markets and sustaining agricultural / crofting employment	Mitigation Infrastructure	–	–	Mitigation Infrastructure
Fishing To seek to maintain the fishing industry at current levels and/or support modest sustainable growth through improvements to infrastructure and secondary support for fishing incomes.	Infrastructure	–	–	Infrastructure
Design & Construction To seek to ensure place quality is enhanced, derelict and vacant land and buildings are utilised, sustainable design principles and local bespoke design guidance is adopted.	Mitigation	–	–	Mitigation
Education To seek to ensure any additional population growth associated with O&M supports educational provision on the island.	Service Demand	–	Service Demand	Service Demand
Employment To seek to increase local employment opportunities that support skills and training and opportunities for young people whilst growing the locally employed population base and non-seasonal job opportunities.	Infrastructure	Infrastructure	Infrastructure	Infrastructure
Heritage To seek to protect social, environmental and cultural heritage recognising a risk associated with de-population that impacts on a vibrant inland cultural life.	Mitigation	–	–	Mitigation
Nature Conservation To seek to respect nature conservation designations and ensure any future planning and design take full account of environmental impacts and conservation of natural systems.	Mitigation	–	–	Mitigation
Housing To seek to ensure any additional population growth associated with O&M provides housing complementary to the existing settlement structure and its distinctive place qualities.	Mitigation Planning Infrastructure	–	–	Mitigation Planning Infrastructure
Noise To seek to ensure that the noise environment is addressed with specific reference to helicopter access and servicing.	Mitigation	Mitigation	Mitigation	Mitigation
Tourism To seek to maintain the 'special qualities of place' that support the tourism sector recognising the importance of sports / leisure / recreation and cultural heritage to the tourism economy.	Mitigation Planning Infrastructure	–	–	Mitigation Planning Infrastructure
Transport To seek to maintain and enhance transportation access within the modes of air, sea and road with appropriate improvements to infrastructure or service levels that recognise the needs of all sectors.	Mitigation Service Demand Infrastructure	–	–	Mitigation Service Demand Infrastructure
Visual Change To seek to ensure that the visual environment is addressed with specific reference to place quality, buildings and design.	Mitigation	–	–	Mitigation
Health To seek to maintain access to health facilities and ensure provision addresses future health needs	Service Demand	–	Service Demand	Service Demand
Way of Life To seek to maintain a special 'way of life' that offers a diversity of community interests, opportunity for enterprise, for relaxation and amenity that support civic community capacity and health and avoids the loss of the things that make Tiree a special place to live, work and visit.	Mitigation Planning Service Demand Infrastructure	–	Mitigation Planning Service Demand Infrastructure	Mitigation Planning Service Demand Infrastructure

* Objective-led assessment (in line with STAG and SEA assessment methodologies)

Initial Scenario Mapping 1-4

Scenario 1 – O&M Base

Scenario 2 – Offshore Platform

Scenario 3 – Offshore Mothership

Scenario 4 – O&M Base / Mothership

Summary Scenario 1-4

Your Thoughts ?

	1	2	3	4
Jobs on Tiree				
Houses on Tiree new build				
School Pupils primary & secondary				
Built Development				
Helicopter Flights per day return flights				
Population Growth				

This information represents Ironside Farrar's initial findings and draft recommendations

Scenario Mapping

Your Thoughts ?

Consultations have highlighted a breadth of issues with consultees seeking more information on which to asses the O&M implications for Tiree. Development introduces change that may have implications and these may be perceived as benefits or impacts depending on ones perspective. We are keen to better understand the balance of opportunity and impact (benefits and dis-benefits) of each of the 4 Scenarios. A view is summarised below but we would appreciate your comments and thoughts.

Strengths
- O&M base on Tiree
- Significant job opportunities
- Investment in harbour facilities
- Population growth supports community facilities

Weaknesses
- O&M base on Tiree
- Built development
- Additional loads to transportation connections

Opportunities
- Employment opportunity
- Retention young people
- Developing new skills
- Investment in island infrastructure

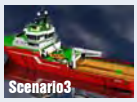
Threats
- Changes impacts on way of life

Strengths
- O&M change limited to offshore
- No additional load on island infrastructure / transport

Weaknesses
- Limited job opportunities all based offshore
- No required investment in island infrastructure
- Limited economic gain

Opportunities
- Limited employment or supply chain
- Limited jobs with ready local access
- Training Opportunity
- Apprenticeship opportunity

Threats
- Array secures no local benefit



Strengths
- Operating Centre on Tiree
- Some job opportunities onshore and offshore
- O&M Facilities assumed to be based at Mainland Location (A&B)

Weaknesses
- Limited employment opportunity
- Limited required investment in island infrastructure
- Limited economic gain for Tiree

Opportunities
- Some employment opportunity
- Training opportunity
- Apprenticeship opportunity

Threats
- Array secures limited local benefit

Strengths
- O&M base on Tiree
- Moderate job opportunities
- Investment in harbour facilities
- Population growth supports community facilities

Weaknesses
- O&M base on Tiree
- Built development
- Additional loads to transportation connections

Opportunities
- Employment opportunity
- Retention young people
- Developing new skills
- Investment in island infrastructure

Threats
- Changes impacts on way of life

Key Findings

Your Thoughts ?

Finding
Scenarios

The 4 O&M Scenarios all offer varying benefits / dis-benefits to Tiree

- Scenarios represent options for O&M management & procurement
- Sub-options exist and will be influenced by changing technologies, baseline conditions
- Scenarios 1 & 4 offer the greatest island opportunity for employment
- Scenarios 3 & 4 offer greater operator flexibility through use of motherships
- Scenarios 2 & 3 minimise any island land based O&M requirements

Finding
Consultation

Community views are divergent on the Array with indications of more convergence on O&M

- Concerns at the scale of change and implications on island way of life
- Concerns at local capacity and developer assurances around jobs
- Concern that the route to capture opportunities and benefits unclear
- Recognition that key benefits will be local employment and enterprise opportunity
- Recognition that sustainable population growth could support community aspirations
- Recognition of a key need to build social and economic opportunities for the community

The 'key findings' sections represent Ironside Farrar's initial findings and draft recommendations informed by community consultation

Key Findings

Your Thoughts ?

Finding
Policy Framework

O&M activity offers convergence with the policy framework for fragile island communities to promote sustainable economic activity and balanced communities.

- Economic policy supports investment
- Planning policy supports balanced communities, strengthening of community capacity and quality in the natural and built environment
- Community planning supports the retention of local community facilities and services
- Recognition in policy terms that sustainable economic development is important in building a resilient socio-economic infrastructure

Finding
Community Objectives

O&M activity offers convergence with Community planning (Tiree Community Development Plan and Forum Report) providing opportunity to strengthen community capacity.

- Population growth
- Greater opportunities for enterprise
- Opportunities for Young People
- Strengthening local Educational Facilities
- Secure Affordable housing
- Improve Household Incomes
- Extend Tourism Season & Offer (Harbour)
- Community Assets & Development

The 'key findings' sections represent Ironside Farrar's initial findings and draft recommendations informed by community consultation

Key Findings

Your Thoughts ?

Finding
Engagement

Community and stakeholders are seeking continued consultation and direct involvement in the consideration of O&M.

- Desire for continued and ongoing involvement in scenario and masterplan development
- Desire to develop a structured format for future consultations
- Communities seeking transparency in consultation with all information available online
- Communities seeking greater detail on O&M scenarios and the spatial and economic implications
- Consultation and community engagement in future masterplanning and assessment processes should inform the planning process.

Finding
Community Benefits

Opportunity should be explored for a Community Fund to support local initiatives and address change.

- Community fund would help support non-mitigatable impacts on local community assets and wellbeing
- Community fund would ensure more inclusive local benefits that support community objectives
- Community funds would allow economic, social and environmental investment selected by the community
- Community fund would address concern under some scenarios that community gain could be negligible and include issues of assurance where developer may not be able to guarantee outcomes
- Consultation and community engagement in future masterplanning and assessment processes should inform the planning process.

The 'key findings' sections represent Ironside Farrar's initial findings and draft recommendations informed by community consultation

Key Findings

Your Thoughts ?

Finding
Socio-Economic

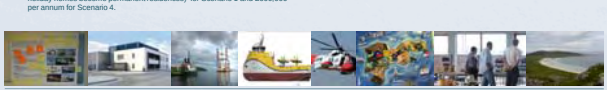
O&M activities will create jobs and opportunities for residents and young people with implications on local services.

- Direct / Indirect Employment
  - 150 Array jobs for Scenario 1 / 50 net additional jobs plus 30-50 back-filled
  - 0 Array jobs for Scenario 2 / Limited net additional and no jobs back-filled
  - 25 Array jobs for Scenario 3 / 5 net additional jobs plus 5-10 back-filled
  - 59 Array jobs for Scenario 4 / 30 net additional jobs plus 10-20 back-filled
- Net additional GVA per annum
  - Approx £6.7 million GVA for Scenario 1 / Limited GVA for Scenario 2 / Approx £1.1 million GVA for Scenario 3 / Approx £2.8 million GVA for Scenario 4
- Housing
  - One-off construction impacts from housing development equivalent to 20 one-off annual jobs and £0.6m GVA for Scenario 1 and 10 one-off annual jobs and £0.3m GVA for Scenario 4
- Additional Local Spend
  - Tourists (~15 berth marina) + visitors to new residents could yield up to £630,000 per annum (less £100,000 per annum lost from tourist spend if holiday homes become permanent residences) for Scenario 1 and £600,000 per annum for Scenario 4.

Finding
Environment

O&M activity will require built facilities and have wider environmental implications associated with servicing and boat and helicopter movement.

- Place-making and protection of place quality will be an important consideration in masterplanning
- Development should avoid sensitive locations and potential impact on existing productive land-use
- Helicopter flights require further assessment including consideration of non-land based flight paths and noise attenuated aircraft
- Environmental designations will require detailed appraisal at EIA stage and specifically to any harbour or breakwater facility
- Risk based assessments for potential pollution of marine environment along with mitigation would need to be addressed.



The 'key findings' sections represent Ironside Farrar's initial findings and draft recommendations informed by community consultation

Key Findings

Your Thoughts ?

Finding
Opportunity

O&M activity offers opportunity to secure investment in facilities that can support the island economy and would provide positive benefits.

- Population growth will support the demand for goods and services and add resilience to the island economy
- Harbour / Breakwater facilities could support recreational boating / in-shore fishing / ferry lifeline services and the islands tourism economy
- O&M investment will support better broadband services
- O&M demands have the potential to increase demand and support for improved air and ferry connections
- O&M would encourage investment in property and support residential property rentals

Finding
Capacity

O&M activity, within island based scenarios, introduces demands that may impact on existing services but are generally positive.

- Medical services have capacity and ability to develop with positive local benefits
- Education services have capacity and ability to develop with positive local benefits
- Transport services (road networks, public transport) are likely to be satisfied by local upgrading
- Lifeline services (ferry / air) are constrained and additional service levels promoted through demand
- Waste and utility services demands are likely to be satisfied by local upgrading
- Retail services can be anticipated to respond to market need

Key Findings

Your Thoughts ?

Finding
Development Mitigation

O&M in all 4 No. scenarios offers opportunity to mitigate development and physical/environmental impacts through forward planning and partnership working. Main areas for mitigation could include:

- Planning controls imposed through Consent Conditions
- Avoidance of sensitive locations and environment in spatial planning including minimising spatial footprint
- Quality commitment to urban design and settlement planning with Local Communities
- Defining air corridors; flight levels and maximum noise levels to land areas
- Securing early design development & decisions on the Converter Station / Converter Technology

Finding
Socio-Economic Mitigation

O&M in all 4 No. scenarios offers opportunity to mitigate socio-economic impacts through forward planning and partnership working. Main areas for mitigation could include:

- Commitment to Local Job targets /Employment Charter
- Support to Educational Bursaries and Training /Skills Development & Apprenticeships
- Developing a Supply Chain Programme with local SME's across Argyll & Bute & local providers
- Ensure infrastructure delivers common benefits through local access (Harbour/ICT/Training Space/Fuel Storage)
- Development of a Community Fund allowing for investment in local culture / community infrastructure

Next Steps

Your Thoughts ?

O&M activity on Tiree will require continued engagement between Scottish Government, Argyll & Bute Council, key stakeholders and the community. O&M masterplanning needs to parallel the consideration of the proposed offshore array. Key next steps and further studies relative to O&M will be informed and influenced by the finalised project design and are subject to further assessments which will be undertaken within the consenting process. In the event of an Array proceeding there may also be support to inform further studies relative to:

- Local Development Plan (LDP)
  Development Framework / Masterplan to maintaining consultation and potentially informing LDP
  Scenario mapping has the potential to help inform the LDP as the scenarios and details continue to develop
- Harbour Feasibility Study
  Detailed study will impact on viability of Scenario 1&4 and would require early study and delivery
- Advance Skills and Training Programme
  Advance Initiative required linking Skills /Training with future need with 3-4 year lead time.
- Community Benefit Review
  Need to continue a dialogue on opportunity and issues associated with Community Benefits
- Converter Station Design & Locational Assessment
  Converter Station decisions are important to impact and mitigation. We understand that detailed assessment will be through the EIA for the proposed Array.
- License / Planning Procurement Programme
  Need to ensure programme convergence on key consent and delivery
- Operational Baseline (Array) Studies
  Need to establish environmental /wave /construction & operational parameters effecting marine servicing. We understand that detailed assessment will be through EIA and engineering design for the proposed array.

Appendix 7
Consultation Boards Events 1-3

Consultation Boards Event 1

Tiree Onshore Scenario Mapping Project

Welcome

Tiree Onshore Scenario Mapping Project

Any future offshore windfarm consent, if granted, will have an operational and maintenance (O&M) need which may have implications for a level of land-based development on Tiree.

The aim of this first consultation event is to better understand local issues, provide information on the potential O&M scenarios and to seek your views.

Please feel free to comment on as many issues as you feel are important and write your comments on post-it-notes or on the comments form. Members of the Ironside Farrar team are also here to discuss any issues you may have or would wish to be considered as part of the study.

The Brief

Tiree Onshore Scenario Mapping Project

The purpose of the study is to consider the onshore implications of the proposed offshore array for the community of Tiree. The study is being funded by Marine Scotland, The Crown Estate, Argyll and Bute Council and Highlands and Islands Enterprise. Central to the study is community consultation

Offshore windfarms have operational and maintenance (O&M) needs which typically include a level of land-based development.

This study will help assist the Steering Group, community and stakeholders in considering any potential land-based implications associated with the proposed offshore array and allow early community input and consultation.

Ironside Farrar, Environmental Consultants, has been appointed to help the project Steering Group take forward the study over the next six months.

Consultation is critical to the process—this is the first of 3 events planned:

- Consultation Event 1 Understanding Local Issues & Concerns
- Consultation Event 2 Initial assessment of potential O&M scenarios
- Consultation Event 3 Reporting on the Draft Findings

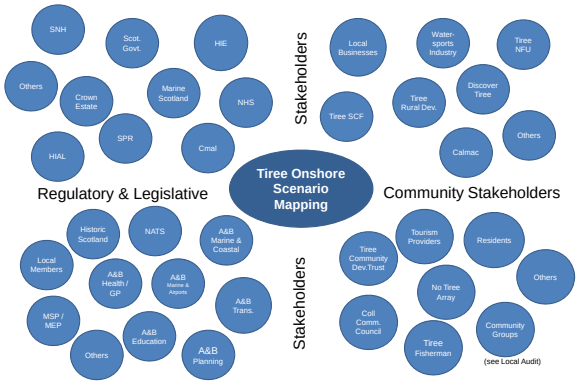
The Steering Group

Argyll and Bute Council is working in partnership with a number of organisations together referred to as the project Steering Group. Argyll and Bute Council are the chair of the Steering Group. The project funders are: Argyll & Bute Council, The Crown Estate, Highlands & Islands Enterprise and Marine Scotland.

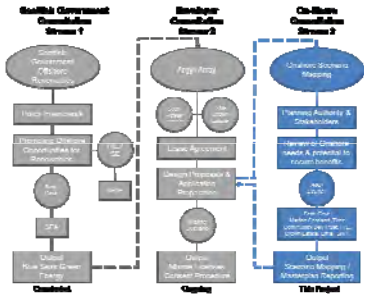
Argyll & Bute Council · The Scottish Government · The Crown Estate · CMAL · marinescotland · Scottish Natural Heritage · Tiree Trust · HIE Highlands and Islands Enterprise · ScottishPower Renewables

* SPR's main input is advisory providing information on the possible options for onshore developments if the offshore array were to be granted a license.

Consultees



Consultation Strategy



A Consultation Strategy was produced to ensure consultation and community engagement is an integral part of this project.

Recognise that other consultations are taking place on Tiree associated with Scottish Government, the windfarm developer (SPR) and other groups.

This consultation process is addressing the Tiree Onshore Scenario Mapping only.

Consultation

The Consultation Strategy includes 3 consultation events at various stages in the project.

This is the first formal consultation event on Tiree looking at the potential onshore implications of the Operations and Maintenance (O&M) associated with the potential array.

Consultation Event 1 (This Event)	These initial consultations will help us to understand the local issues and pressures on local resources, explore areas of potential impact and the potential to secure benefits for the Island community.
Consultation Event 2 w/c 3rd October 2011 (TBC)	We will come back to consult on our initial assessment of potential O&M scenarios and review, through consultation, potential implications for Tiree. Comments from Event 1 will be incorporated into this assessment.
Consultation Event 3 w/c 14th November 2011 (TBC)	The team will consult on the draft findings from the Study advising of the best understanding of the implications of O&M facilities on Tiree and setting out the implications and impacts of each scenario and how these should be further explored.

O&M Scenarios

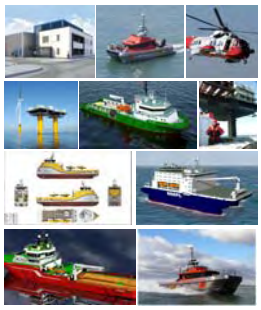
The offshore array developer has identified four separate scenarios relating to the Operations and Maintenance (O&M) that may apply to the development of the offshore wind farm. These are as follows:

Scenario 1
- An onshore base on the Island (office/warehouse/yard) with up to seven workboats and one helicopter accessing the array. Requires a harbour.

Scenario 2
- An offshore platform, located within the array, with up to four workboats and one helicopter stationed on the platform.

Scenario 3
- A mothership, stationed within the array, with up to two workboats and one helicopter stationed on the mothership.

Scenario 4
- A combination of the other three scenarios with perhaps a platform or mothership offshore and a limited presence onshore.



Recognising the Special Qualities of Tiree

Heritage.....

Tiree has a rich history dating from around 9000 years ago that strongly influences the Island today.

Tiree has played a key role in Scottish history due to its location at the centre of trading routes (Ireland, Outer Hebrides, Orkney, Norway) for the west coast economy.

Sites of historical importance include stone circles at Hough, Iron Age fort Dùn na Cleite, Broch Dùn Mòr a' Chaolais and Dùn Mòr Bhalla.

Heritage influences all aspects of the islands place quality including it's landscape, language, land management and communities.

Cultural.....

The Gaelic culture and language, the way of life, the pace of life, architecture, crofting, the scenery and the people themselves. These are all factors that combine to make Tiree what it is - a unique living historical and environmentally important landscape that supports an isolated and proud community.

Strong music, poetry, story-telling and dance

Community spirit events

Island stewardship and self sufficiency

Culture and Gaelic language

International Watersports

World class beaches

Seafaring heritage

Way of Life

Tiree is valued for its quality of place and way of life by both residents and visitors alike.

The unique and special qualities of people and place have created a community that is seeking to both protect traditional values and island stewardship with the recognition of the need to act sustainably and address and meet the needs of future generations.

Tiree retains a strong island community and identity.

Landscape & Environment

Tiree benefits from a high quality environment and natural resources. In recognition of the special qualities, large areas of the island are protected by statutory designations.

Tiree is therefore internationally recognised for its flora (including machair) and fauna (particularly bird interest) and beaches.

Some 4,753ha hectares on Tiree have benefited from the Environmentally Sensitive Area (ESA) scheme to ensure appropriate management of the machair.

There are important links between natural resources and:

- Sustainable crofting
- Agriculture
- Tourism
- Recreation & access
- Place quality
- Local enterprise


Machair


Corncrake!


Distinctive settlement pattern


Quality of Tiree's Beaches

Consultation Issues

Agriculture

Any other concerns?

Your Concerns *

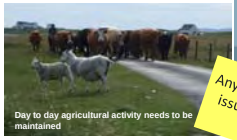
- Loss of land and access rights for agricultural activities
- Increased difficulty in booking space on the ferry to transport essential feedstuffs, etc.
- Disturbance to livestock caused by increase in noise, pets and leisure activities.
- Increased difficulty and danger when moving livestock in faster/heavier traffic and for unfenced livestock.
- Risk of theft or damage to agricultural equipment.
- Risk of wind farm job opportunities drawing young crofters/farmers away from agriculture, leading to croft abandonment.
- Slight reduction in sales leading to loss of United Auctions support and increased freight costs: vicious circle.

Strategic Issue

- Fragile agricultural economy
- Maintaining crofting and agricultural land management

*expressed within the 'Tiree Today and for the Future' Brochure


The importance of protecting agricultural land is recognised


Day to day agricultural activity needs to be maintained

Any other issues?


The protection of the farm and crofting economy is important

Please comment!

Operations & Maintenance

Agriculture

Do you agree?

Proposed Objective:
To seek to maintain current land management practice and capacity including access to markets and sustaining agricultural / crofting employment

Examples of Policy and Guidance

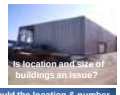
- Scottish Government - A Vision for Scottish Agriculture
- Argyll and Bute Structure Plan – Agriculture and Crofting (STAT AC1)
- Argyll and Bute Local Plan – Sustainable Siting
- A Charter for Crofting (Crofting Association)
- Tiree Community Development Plan (Draft)

Are there other outcomes?

Desirable Scenario Outcomes

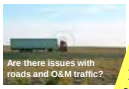
- No significant loss of agricultural land
- No loss of ferry capacity
- No changes to existing land management practices
- New employment that can support agricultural incomes
- Improvements to ICT / Broadband


Are you concerned for the Agricultural economy ?


Is location and size of buildings an issue?


Could the location & number of helicopter flights be disruptive?

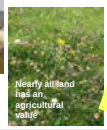

Will the location of any Lay-down space be important?


Are there issues with roads and O&M traffic?

Your Thoughts & Issues?


Is there potential for impacts on agricultural labour?


Will O&M need ferry space?


Nearly all land has an agricultural value

Please comment!

In 2009 nine boats operated out of Tiree (and 3 from Coll), employing 30 crew directly, and producing £1,450,000 of fish for export. All boats were less than 11 metres length overall and used static gear only. Main exports were lobster, velvet crabs and brown crabs.

Fishing

Any other concerns?

Your Concerns*

- During construction of the Array too much of the best fishing grounds will be off limits to allow the local vessels to remain viable, so losing boats, personnel and customers.
- During construction the local fisheries habitats will be permanently damaged, so preventing recovery.
- Following construction the Array site will remain out of bounds due to the restriction to fishing grounds imposed by the turbines, cable and other operational reasons.
- Harbour facilities will be monopolised by Array traffic during and after construction, leading to the physical or financial exclusion of fishing boats.
- Pollution and other disturbances will lead to temporary or permanent loss of commercial fisheries.

Strategic Issue

- Sustaining local fishing industry
- Protecting infrastructure and moorings

*expressed within the 'Tiree Today and for the Future' Brochure


The importance of protecting the fishing industry to the Tiree economy is recognised


Fishing industry needs should be taken into account

Any other concerns?


Protecting assets forming part of the fishing economy is important

Please comment!

Operations & Maintenance

Fishing

Do you agree?

Proposed Objective:
To seek to maintain the fishing industry at current levels and/or support modest sustainable growth through improvements to infrastructure and secondary support for fishing incomes.

Examples of Policy and Guidance

- Common Fisheries Policy (CFP)
- The Marine (Scotland) Act 2010
- Scottish Government, A Strategic Framework for Inshore Fisheries Management in Scotland
- DEFRA, Safeguarding Our Seas
- Inshore Fishing (Scotland) Act, 1984.
- Sea Fish (Conservation) Act 1967

Are there other outcomes?

Desirable Scenario Outcomes

- Discussion of O&M options to limit impacts on fishing activities – need for Fishing Liaison Group?
- Need to include measures to support existing fishing activities e.g. dedicated harbour space, improved fisheries facilities
- Opportunity to promote more produce sold locally?
- New employment to support fishing incomes
- Land based O&M facilities need to avoid impact or offer support for fishing fleet
- Improvements to ICT / Broadband


Conflict with O&M Vessels?

Your Thoughts & Issues?


Restricted access to fishing grounds during O&M

Please comment!

Design & Construction

Tiree is a dispersed community with over 20 separate townships and no specific or defined centre. Almost every building on the island is single storey or 1.5 storeys high. Tiree has a clearly recognisable architectural style, as defined in the Argyll and Bute Council Design Guide. The existing local construction industry is mostly small-scale but has experience of gearing up for big projects, and includes one international contractor.

Any other concerns?

Your Concerns*

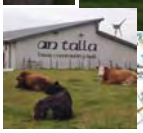
- Developers will be allowed to get away with least cost, fastest completed buildings, leaving Tiree with a poor, ugly legacy.
- No consideration of long-term uses for buildings will be taken at the design stage.
- Local builders & contractors will be excluded from bidding for work by bundling several developments into large contracts.
- A temporary work-camp for the construction phase will be allowed to become a permanent encampment for the operation and maintenance phase.
- The planning process will be compromised by the "need" to get things done quickly at the last minute, rather than starting the planning process early so that we can have considered all the consequences in good time.
- New buildings will be clustered at one or a few sites, leading to large scale industrialisation and urbanisation in a few places, rather than a dispersed development.
- There will be an increase in the number and size of overhead cables, instead of buried cable.
- New building would take in-bye land and the better grazing, which would hamper crofting.

Strategic Issues

- Need to protect place quality and secure quality of design
- Need for consultation relative to land use planning

*expressed within the 'Tiree Today and for the Future' Brochure



Any other concerns?

Please comment!

Operations & Maintenance

Design & Construction

Do you agree?

Proposed Objective:

To seek to ensure place quality is enhanced, derelict and vacant land and buildings are utilised, sustainable design principles and local bespoke design guidance is adopted.

Examples of Policy and Guidance

- Argyll and Bute Structure Plan – STRAT HO 1
- Argyll and Bute Local Plan - LP HOU 1 / LP HOU 2
- Isle of Tiree Sustainable Design Guidance
- Argyll and Bute Local Plan – Rural Land Policy
- Tiree Community Development Plan (Draft)

Are there other outcomes?

Desirable Scenario Outcomes

- Any land based O&M facilities should be sensitively located and be of high quality design in accordance with established policy

Your Thoughts & Issues?

Please comment!

Education

Tiree has 90 students at school, taught by 16.8 teachers (full-time equivalent) supported by 7.8 ancillary staff with a thriving Gaelic medium unit in primary. The school's results are usually above the national average. The viability of the secondary school is currently under threat by budget restrictions. The number of pre-school children on Tiree has been rising for several consecutive years. Argyll College/UHI provides further and higher education through local short courses and guided distance learning.

Any other concerns?

Your Concerns*

- School buildings are old and limited; an increase in numbers would require significant investment in infrastructure.
- Without increases in pupil numbers there will be no increases in staff numbers or the range of subjects.
- Sports facilities are very limited, and would require improvement.
- The current curriculum offered does not align with the job opportunities that the Array might offer.
- Without increased numbers of pupils, the Council may close the school.

Strategic Issue

- Avoiding impact on education services
- Developing skills & training for any future employment opportunity

*expressed within the 'Tiree Today and for the Future' Brochure



Any other concerns?

Please comment!

Operations & Maintenance

Education

Do you agree?

Proposed Objective:

To seek to ensure any additional population growth associated with O&M supports educational provision on the island.

Examples of Policy and Guidance

- Scottish Government Curriculum for Excellence
- Scottish Government 'Our Rural Future' (Consultation)
- Scottish Government Renewables Action Plan - delivered through Scottish Renewables Energy Skills Group (RESG)
- Skills Development Scotland's "The PATH IS Green"
- Highlands and Islands, HIE's "The Big Green Challenge"
- Tiree Community Development Plan (Draft)

Modern Apprenticeships

Are there other outcomes?

Desirable Scenario Outcomes

- Land based O&M staff and families support schools on Tiree
- Improvements to ICT / Broadband supporting links to other educational facilities e.g. Higher Education Colleges
- O&M operators provide work experience and training opportunities to Tiree pupils and support for school leavers.

Your Thoughts & Issues?

Please comment!

Employment

Tiree has relatively low unemployment rate, but a high proportion of low-paid, part-time and seasonal jobs. There is a reliance on subsidised fixed-term employment. Average incomes on Tiree are significantly below national averages. The main sectors on the island are Public Service (health, education, the Council, etc) Crofting, Fishing, Construction and Tourism.

Any other concerns?

Your Concerns*

Lack of assurances from developers about the following:

- New jobs not being made available to local people.
- Loss of employment in tourism, fishing and crofting.
- No local training opportunities for people wanting to find work in the Renewables sector.
- Poor quality of any new jobs.
- Small local businesses will suffer.

Strategic Issues

- Can O&M deliver local employment benefits
- Need to continue to support existing local businesses

*expressed within the 'Tiree Today and for the Future' Brochure




Modern Apprenticeships


Any other concerns?

Please comment!

Operations & Maintenance

Employment

Do you agree?

Proposed Objective:
To seek to increase local employment opportunities that support skills and training and opportunities for young people whilst growing the locally employed population base and non-seasonal job opportunities.

Examples of Policy and Guidance

- National Planning Framework 2
- Scottish Government Economic Strategy
- Scottish Government 'Our Rural Future' (Consultation)
- Argyll and Bute Structure Plan
- Argyll and Bute Local Plan
- HIE's 'Growth at the Edge'
- Tiree Community Development Plan (Draft)
- Skills Development Scotland's "The PATH IS Green"




Are there other outcomes?

Desirable Scenario Outcomes

- O&M supports a more diverse economy and active communities where rural prosperity will continue to grow due to employment opportunities that support existing activities
- Young people will have the opportunity to build careers on Tiree
- Support to economic growth through ICT / Broadband
- O&M will support existing transport infrastructure.
- Local businesses will have an opportunity to contribute to O&M requirements

Your Thoughts & Issues?

Please comment!

Heritage

People have lived on Tiree for thousands of years, each generation leaves its mark on the land, on the language and on the culture.

Any other concerns?

Your Concerns*

- People coming to work on Tiree will not want to become part of the Community or understand its heritage.
- Development will take place rapidly and without due care so that important historical sites will be missed or destroyed.
- Celtic traditions of music, poetry, story-telling and dance will be submerged.
- There will be a decline in the use of the Gaelic language which is widely spoken across the island.
- Planning the location of buildings and cables will not include sufficient research into local historical sites.

Strategic Issues

- Impact on cultural heritage

Any other concerns?

Please comment!

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Heritage

Do you agree?

Proposed Objective:
To seek to protect social, environmental and cultural heritage recognising a risk associated with de-population that impacts on a vibrant island cultural life.

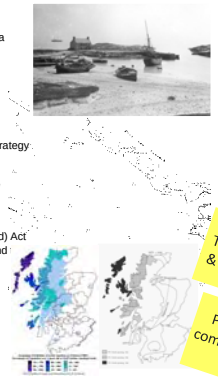
Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- National Planning Framework 2
- Gaelic Language (Scotland) Act 2005
- Choosing our future: Scotland's Sustainable Development Strategy
- Scottish Historic Environment Policy (SHEP) 2009, Planning Advice Note (PAN) 2/2011: Planning and Historic Scotland's Managing Change in the Historic Environment guidance note series
- The Historic Buildings and Ancient Monuments Act 1953, the Ancient Monuments and Archaeological Areas Act 1979, the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997, the Town and Country Planning (Scotland) Act 1997 and Planning etc (Scotland) Act 2006, Historic Environment (Amendment) (Scotland) Act 2011

Are there other outcomes?

Desirable Scenario Outcomes

- Maintain special qualities of Tiree and cultural identities



Your Thoughts & Issues?

Please comment!

Nature Conservation

Tiree has a unique high quality environment that needs to be protected

Potential Concerns*

- Pollution and other disturbances during O&M operations will lead to environmental impacts on:
  - Landscape and Visual Impacts – perception of industrialisation of Island?
  - Impacts on Beaches – pollution from O&M operations?
  - Impacts on Ecology – O&M displacing flora and fauna including impacts on designated sites?
  - Land Use – land take for O&M encroaching on sensitive areas
  - Water – O&M increasing stress on water supply and groundwater?

Strategic Issue

- Potential for temporary and long term environmental impacts arising from O&M requirements of proposed array.

Any other concerns?

Please comment!

*Nature Conservation not a specific topic within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Nature Conservation

Do you agree?

Proposed Objective:
To seek to respect nature conservation designations and ensure any future planning and design take full account of environmental/ impacts and conservation of natural systems.

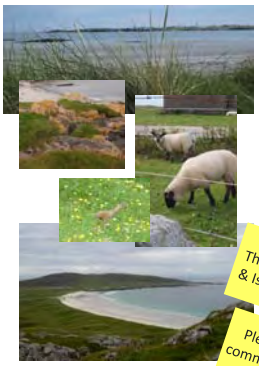
Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- Nature Conservation (Scotland) Act 2004
- Habitats and Birds Directive - Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland)
- Argyll and Bute Council Structure Plan / Local Plan Environmental Policy

Are there other outcomes?

Desirable Scenario Outcomes

- Any land based O&M facilities should be sensitively located to avoid adverse impacts on protected sites or species
- Consultation will be advanced with environmental agencies / bodies including SNH, RSPB, SEPA should there be a requirement for land based O&M facilities



Your Thoughts & Issues?

Please comment!

Housing

The total housing stock on Tiree is 522. Of these, 340 are permanently occupied, 146 are holiday/second homes and 36 are vacant (some now beyond being habitable). There are about 80 housholds on Tiree currently facing some level of housing need. There is currently a shortage of adequate housing for Tiree households, and public sector provision of affordable housing will meet less than 25% of the need.

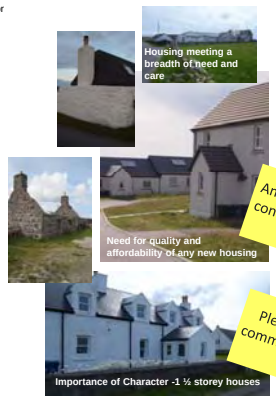
Any other concerns?

Your Concerns*

- An increased population on Tiree will push house prices up even higher and increase the housing need faced by the poorest.
- House prices will drop.
- If the Array goes ahead, new houses will be planned and built too late to assist with meeting overall housing needs.
- New houses will be built in inappropriate styles not sympathetic to Tiree.
- Water supply, domestic electricity and sewerage systems will become stretched with extra development.
- Best quality croft land will be used for new housing.

Strategic Issue

- Can O&M deliver local housing benefits



Any other concerns?

Please comment!

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Housing

Do you agree?

Proposed Objective:
To seek to ensure any additional population growth associated with O&M provides housing complementary to the existing settlement structure and its distinctive place qualities.

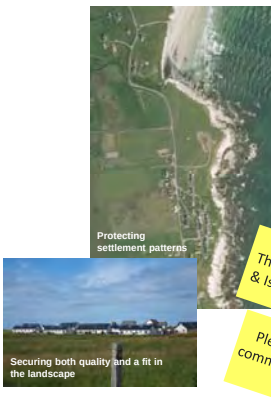
Examples of Policy and Guidance

- Argyll and Bute Structure Plan – STRAT HO 1
- Argyll and Bute Local Plan - LP HOU 1 / LP HOU 2
- Isle of Tiree Sustainable Design Guidance
- Argyll and Bute Local Plan – Rural Land Policy
- Tiree Community Development Plan (Draft)

Are there other outcomes?

Desirable Scenario Outcomes

- Any residential accommodation advanced through the O&M requirements should include provision of affordable homes



Your Thoughts & Issues?

Please comment!

Noise

Tiree has plenty of natural noise and only intermittent man-made noise. For most of the time, in most parts of the island, any discernable noise is of natural origin.

Any other concerns?

Your Concerns*

- Frequent helicopter noise.
- Construction noise associated with O&M.
- Disturbance early in the day, at night and at weekends.
- Increased traffic numbers and noise to all parts of the island
- Harmful effects of inaudible sound (eg infrasound).
- Out of date guidance on control of noise during construction, operation and maintenance of offshore windfarms.
- Disruption to mobile phones and television reception.

Strategic Issue

- Rural environment with low background noise and high sensitivity to changes in noise environment

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Noise

Do you agree?

Proposed Objective:
To seek to ensure that the noise environment is addressed with specific reference to helicopter access and servicing.

Examples of Policy and Guidance

- PAN 01/2011 Noise and Vibration
- Control of Pollution Act 1974
- BS 5228: Noise and Vibration Control on Construction and Open Sites

Are there other outcomes?

Desirable Scenario Outcomes

- Any proposed siting of an O&M Helicopter Landing Area must take into consideration the noise and vibrations which may result from helicopter landings and take offs.
- Routeing of O&M flights will be carefully designed to reduce impacts on residents
- Commitment to use of modern helicopter fleet with lower noise ratings for all O&M operations
- A detailed assessment of any proposed onshore O&M helicopter base will be undertaken

Tourism

Tourism is one of the largest employers on Tiree. It is very closely linked to the natural heritage (wildlife, landscape and wind/water sports) of the island, and hence the land-management patterns. Tourism is highly seasonal on Tiree.

Any other concerns?

Your Concerns*

- During construction of the Array many potential visitors will be put off coming to Tiree.
- Any increases in custom from the Array development will be insufficient to fully replace lost tourism.
- Damage to natural resources, particularly views, beaches, wildlife and quality of wind, will keep tourists away.
- Reduced wave height, due to turbine positioning, could affect water sports tourism, possibly the future of Tiree Wave Classic.
- Small, independent self-catering accommodation providers and water sports activity providers will suffer particularly.
- Many small local businesses will be adversely affected.

Strategic Issue

- Critical to local economy. Actual and perceived impacts important and protection of natural & cultural resources.

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Tourism

Do you agree?

Proposed Objective:
To seek to maintain the 'special qualities of place' that support the tourism sector recognising the importance of sports / leisure / recreation and cultural heritage to the tourism economy.

Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- Scottish Tourism: The Next Decade - A Tourism Framework for Change, 2006
- Argyll and Bute Structure Plan – TOUR 1
- Argyll and Bute Local Plan - TRAN 1, Tran 4, Tran 5, Tran 7, TRAN 8

Are there other outcomes?

Desirable Scenario Outcomes

- No loss of ferry capacity to ensure tourism sector is maintained
- Potential land based O&M facilities sensitively located to minimise land take
- Improvements to ICT / Broadband to support local tourism businesses

Transport

Tiree's transport is dominated by an inflexible ferry service which is oversubscribed in high summer and infrequent in winter, and a lifeline air service of 1 flight per day
Monday - Saturday. Roads are a perennial concern for residents, particularly the rate at which the road surfaces deteriorate.

Any other concerns?

Your Concerns*

- Tiree's roads are already failing to cope with existing traffic levels: increased traffic will cause further significant damage.
- The existing oversubscribed ferry service will not be able to cope with the additional demand.
- The existing oversubscribed air service will not be able to cope with the additional demand.
- Local businesses and residents will find it even harder to access ferry and air services.
- Roads will become congested or blocked by increased traffic.
- The danger increased traffic poses for cyclists and walkers.
- It must still be possible to move livestock on foot by road.
- Roads with passing places will be replaced by 2 lane roads.

Strategic Issue

- Transportation needs may overwhelm scale and capacity of local roads.

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Transport

Do you agree?

Proposed Objective:
To seek to maintain and enhance transportation access within the modes of air, sea and road with appropriate improvements to infrastructure or service levels that recognise the needs of all sectors.

Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- Argyll and Bute Structure Plan – TRANS 1
- Argyll and Bute Local Plan – TRAN 1, 2, 4, 5, 7, 8
- Local Transport Strategy
- Scottish Ferries Review (Draft)
- TCDT Community Development Plan

Are there other outcomes?

Desirable Scenario Outcomes

- Any proposed land based O&M would be located in areas of existing industrial land use zoning close to existing infrastructure to reduce wider impacts on existing road network
- O&M requirements would not reduce existing ferry capacity for community / essential freight / tourism (recognising seasonality)

Visual Impact

Tiree is blessed with stunning natural views, dark night skies, and a predominantly horizontal horizon. There are almost no structures taller than 15m on the island and none, apart from Skerryvore lighthouse, in the inshore (within 12 nm) waters.

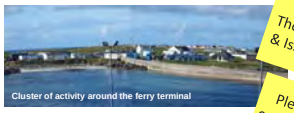
Any other concerns?

Your Concerns*

- Beauty of views will be spoilt by O&M facilities.
- Onshore buildings will be temporary and ugly, leaving no legacy.
- Infrastructure will be utilitarian and brutal.
- Inadequate provision is made for restoration, after decommissioning of O&M facilities.
- Increased pollution on our beaches caused by O&M.


Scale of buildings is important in the landscape


Importance of local character and existing settlement pattern


Cluster of activity around the ferry terminal

Strategic Issue

- Scenic quality and expectation of visitors important as are local views and local amenity and place quality

Your Thoughts & Issues?

Please comment!

*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Visual Impact

Do you agree?

Proposed Objective:
To seek to ensure that the visual environment is addressed with specific reference to place quality, buildings and design.

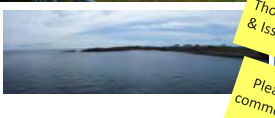
Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- Argyll and Bute Structure Plan – STRAT 1 Sustainable Development, Objective S1 and Objective S2.
- Argyll and Bute Local Plan –Land Use Zone Maps, ENV 1, ENV 9, ENV 10, ENV 16, ENV 17, ENV 18, ENV 19, CST 1, CST2, CST3, CST4.
- Guidelines for Landscape and Visual Impact Assessment, Second Edition, 2002

Are there other outcomes?

Desirable Scenario Outcomes

- Any land based O&M facilities should be sensitively located and be of high quality design in accordance with established policy to reduce potential landscape and visual impacts
- Important to avoid perception of industrialisation of the Island



Your Thoughts & Issues?

Please comment!

Way of Life

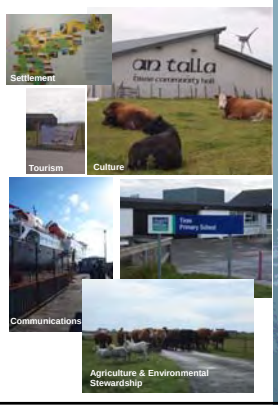
Tiree's largely agricultural landscape, its sense of community and security are the most important aspects of the Tiree way-of-life, according to residents, second home-owners and visitors. Young residents (aged 11-28) consider fishing and traditional music of more importance than other respondents.

Any other concerns?

Your Concerns*

- Sudden influx of lots of new people who will not value or respect, and therefore erode, the Tiree way-of-life.
- Loss of community identity and community spirit.
- Loss of fishing industry and the families that it supports.
- Increase in crime and loss of sense of security.
- Faster, heavier traffic leading to disruption and injury to people and animals.
- Strain on resources and services, e.g. water, accommodation, transport, health services, refuse collection.
- Noise pollution from increased air and road traffic, and from construction works both off and on island.
- Industrialisation of the landscape & seascapes.
- Increased litter and debris.
- Less relaxed and less peaceful.
- Reduced value to tourists.
- Loss of many of the things that make Tiree a unique place to live and visit.

Strategic Issues
Tiree offers a special quality of place / quality of life and even modest or minor change can disproportionately impact on place quality and lifestyle activities and perceptions.



*concerns associated with O&M expressed within the 'Tiree Today and for the Future' Brochure

Operations & Maintenance

Way of Life

Do you agree?

Proposed Objective:
To seek to maintain a special 'way of life' that offers a diversity of community interests, opportunity for enterprise, for relaxation and amenity that support civic community capacity and avoids the loss of the things that make Tiree a special place to live, work and visit.

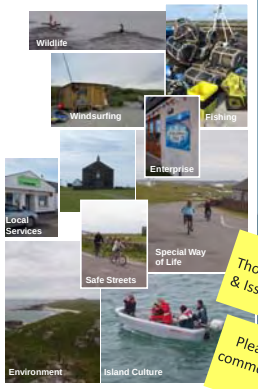
Examples of Policy and Guidance

- Scottish Planning Policy (SPP)
- National Planning Framework 2
- Gaelic Language (Scotland) Act 2005
- Choosing our future: Scotland's Sustainable Development Strategy
- Local Transport Strategy
- TCDT Community Development Plan (Draft)

Are there other outcomes?

Desirable Scenario Outcomes

- The O&M facility and any staff levels are of a scale that integrates into existing island life and supports the special qualities of place.



Your Thoughts & Issues?

Please comment!

What Next?

Thank You

The purpose of this initial consultation has been to better understand local issues and concerns and to start a process of assessment of any future onshore implications of the proposed offshore array for the community of Tiree.

Moving forward and incorporating views and information gathered through the consultation we will be developing, with the Steering Group, our analysis of the four operations and maintenance scenarios.

The next step will be to consult with you on our initial thoughts on each scenario and its implications for Tiree. The scenarios are as follows:-

- **Scenario 1**
  An onshore base on the Island (office/warehouse/yard) with helicopter access
- **Scenario 2**
  An offshore platform, located within the array, including helicopter stationed on the platform.
- **Scenario 3**
  A mothership, stationed within the array, with helicopter stationed on the mothership.
- **Scenario 4**
  A combination of the other three scenarios with perhaps a platform/ mothership and limited presence onshore.

Your Thoughts & Issues?

Please comment!

What Next?

The Consultation Strategy includes 3 consultation events at various stages in the project.

This is the first formal consultation event on Tiree looking at the potential onshore implications of the Operations and Maintenance (O&M) associated with the potential array.

Consultation Event 1
consider points raised at consultation
⇨ These initial consultations will help us to understand the local issues and pressures on local resources, explore areas of potential impact and the potential for benefits to the Island community.

Consultation Event 2
5th and 6th October 2011
⇨ We will come back to consult on our initial assessment of potential O&M scenarios and review, through consultation, potential implications for Tiree. Comments from Event 1 will be incorporated into this assessment.

Consultation Event 3
16th and 17th November 2011 (TBC)
⇨ The team will consult on the draft findings from the Study advising of the best understanding of the implications of O&M facilities on Tiree and setting out the implications and impacts of each scenario and how these should be further explored.

Ongoing Consultation
August / September 2011
⇨ The team will continue to consult with a range of stakeholders and community interests. Andy Wright and Lynne MacKinnon from Tiree Community Development Trust are available on the island to collect any further consultation responses as necessary.

Your Thoughts & Issues?

Please comment!

Consultation Boards Event 2

Tiree Onshore Scenario Mapping Project

Welcome

Tiree Onshore Scenario Mapping Project
Consultation Event No.2 – O& M Scenarios

Any future offshore windfarm consent, if granted, will have an Operational and Maintenance (O&M) need which may have implications for land-based development on Tiree. The aim of this second consultation event is to provide a better understanding each of the four potential Operations & Maintenance Scenarios advised by the developer and to consider the potential implications for Tiree.

This is early and advance consultation well ahead of any decision on the Offshore Array but it is considered important at the earliest date to consider onshore implications in parallel with the wider consultation on the Offshore Array itself.

Please comment on as many issues as you feel are important and write your comments on post-it notes or on the comments form. The Consultants are also here to discuss any issues you may have as part of the study and explain current assumptions and information on the O&M scenarios.

The Brief

Tiree Onshore Scenario Mapping Project

The purpose of the study is to consider the onshore implications of the proposed offshore array for the community of Tiree. The study is being funded by Marine Scotland, The Crown Estate, Argyll and Bute Council & Highlands and Islands Enterprise. Central to the study is community consultation

Offshore windfarms have Operational and Maintenance (O&M) needs which typically include a level of land-based development. This study will help assist the community, stakeholders and Steering Group in considering any potential land-based O&M implications associated with the proposed offshore array and allow early community input and consultation based on the scenarios.

This Scenario Mapping Project is not part of the formal consenting process for the proposed array and Scottish Power Renewables has still to submit formal applications for both the offshore and onshore elements of the project. Ironside Farrar has been appointed to help the project Steering Group take forward the study over the next few months anticipating reporting in December. The findings of the study will be presented to the community early in 2012.

Consultation is a key element of the Brief and has been organised around 3 main consultation events:

Consultation Event 1 – Understanding the Issues	24th and 25th August 2011
Consultation Event 2 – Interim Consultation	3rd and 4th October 2011
Consultation Event 3 – Draft Reporting	Mid - late November 2011

Consultation Event 1

Feedback

Consultation Event No.1. - Key issues and areas of concern

- **Confirmation TCDT / Forum issues**
  - 12 Key Topic Issues and initial concerns raised from consultation
  - Jobs, Housing and implications for Education/Health /Life Style are key topic areas
  - Breadth of views from clear objection to positive support with most attendees reserving position
- **Objectives and Outcomes broadly supported**
  - Draft Objectives and Outcomes addressed key areas of concern
- **New and additional key issues advised at the consultation included:**
  - Need more detailed information on the O&M Scenarios and Tiree benefits
  - Better understanding of any proposed development scale relative to way of life
  - Need to understand job opportunities; employment and skill sets required for jobs
  - Lack of clarity in any information on the scale of change and infrastructure needs
  - Lack of clarity on potential for disruption and impacts on transport (air/ferry/roads)
  - Re-iterated more strongly concerns regarding light pollution and helicopter noise
  - Recognition that Tiree has successfully accommodated change in the past
  - Need to consider wider opportunity for developer contributions to community benefits

Scenario Planning & Mapping Understanding Implications

Scenario Mapping

What is Scenario Mapping?

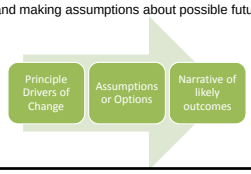
What is Scenario Mapping / Planning?

Scenario Planning is a tool to help stakeholders and others better understand the implications of change and assist consultation on how to manage potential futures more effectively.

We are at an interim stage in developing the scenarios and the figures used are provisional and still being developed. The scenario planning process can be used to highlight:

- Principal factors that create or drive change e.g. jobs, people, demand for services
- Provides based on percentage assumptions a better understanding of the range of change that might occur e.g. population growth / proportion of local versus new jobs
- Provides an explanation of likely outcomes based on understanding of existing baseline

Scenarios are widely used by various organisations and groups to assess change and help to inform views and future decisions. The information can inform debate by looking at existing facilities or experience and making assumptions about possible futures.



Scenario Mapping

Key Drivers and Outcomes

Key Issues influencing Benefits & Impacts

The key factors influencing change relative to the Onshore O&M Scenario Mapping include:

1. **Nature of O&M Scenario**
   Onshore, Offshore Platform, Offshore Mothership, Onshore plus Mothership
2. **People required for each O&M Scenario**
   Onshore, Offshore - Tiree based Staff / Local jobs / Incoming workers
3. **Employment Profile for each O&M Scenario**
   Job Description / Skills Required / Training Support / Commitment to Local Job access
4. **Need & Implications for Community Infrastructure**
   Housing, Education and Healthcare and Lifeline service provision and Way of Life
5. **Need and Implications for Transport Infrastructure**
   Harbour upgrading , road access, ferry capacity, workboat facilities, helicopter access
6. **Need and Implications for Physical Infrastructure**
   Office, Workshop, Land Area, Maintenance Space, Harbour, ICT.

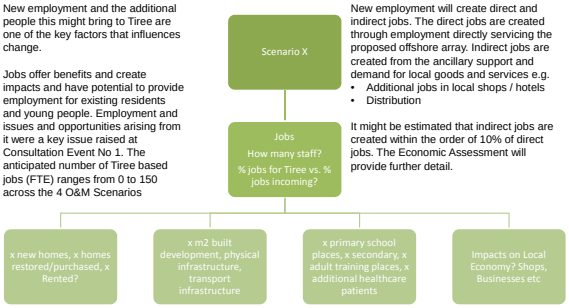
Scenario Mapping

Scenario Development

Scenario Development

New employment and the additional people this might bring to Tiree are one of the key factors that influences change.

Jobs offer benefits and create impacts and have potential to provide employment for existing residents and young people. Employment and issues and opportunities arising from it were a key issue raised at Consultation Event No 1. The anticipated number of Tiree based jobs (FTE) ranges from 0 to 150 across the 4 O&M Scenarios



Employment – Direct vs. Indirect

New employment will create direct and indirect jobs. The direct jobs are created through employment directly servicing the proposed offshore array. Indirect jobs are created from the ancillary support and demand for local goods and services e.g.

- Additional jobs in local shops / hotels
- Distribution

It might be estimated that indirect jobs are created within the order of 10% of direct jobs. The Economic Assessment will provide further detail.

Scenario Mapping

Use of Profiles

Use of Profiles in Scenario Planning / Mapping

Job Types

Recognising that new employment and the additional people this might bring to Tiree are one of the key factors that influences change we use profiles to look at likely job opportunities available. Job requirements have been estimated based on broadly comparable O&M facilities and can be broadly broken down as follows:

Office Based Support	Engineering Support	Specialist Turbine Engineers
Estimate 10-15% of all jobs	Estimate 25 - 30% of all jobs	Estimate 60% of all jobs
Array Manager / Programme Managers / Logistics / Administration	Engineering Manager / High Voltage Cable Manager / Helicopter & Boat Crews / etc	Mechanical Engineers / Electrical / Civil Engineers / Divers

Job Profiles – Local vs. Non Local

In order to assess the likely implications on Tiree, we need to look at how many of the potential jobs that could be available in O&M may be filled by those already resident on Tiree vs. those coming to Tiree i.e. Local vs. Non Local Jobs. We have looked at 3 different profiles:

Profile 1 (Assumptions)	Profile 2 (Assumptions)	Profile 3 (Assumptions)
• 35% Local • 65% Non Local	• 25% Local • 75% Non Local	• 15% Local • 85% Non Local

The Non-Local Jobs are those with greatest potential to bring change to Tiree – we have assumed 60% bring families and 40% are single. This allows a range of assessments to be presented in respect to housing provision requirements, school places, healthcare requirements and overall population growth.

We have used profiling only for Scenarios 1 and 4 i.e. those with potential O&M jobs on Tiree.

Jobs are Full Time Job Equivalents (FTE) which means that some of these jobs will be part time or seasonal and offer flexible posts for both men and women. The Scenario Planning exercise only looks at assumptions of the direct jobs at this stage.

Scenarios 1-4 Assessment of O&M

The 4 O&M Scenarios

Scenario Descriptions

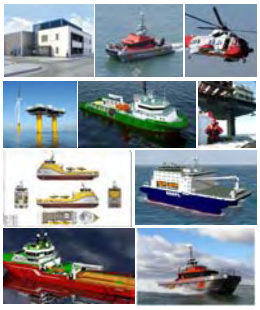
The offshore array developer has identified four separate scenarios relating to the Operations and Maintenance (O&M) that may apply to the development of the offshore wind farm. These are as follows:

Scenario 1 – Onshore O&M Base
- An onshore base on the island (office/warehouse/yard) with up to five workboats and one helicopter accessing the array. Requires a harbour or breakwater

Scenario 2 – Offshore O&M Base (Platform)
- An offshore platform, located within the array, with workboats and one helicopter stationed on the platform.

Scenario 3 – Offshore O&M Base (Mothership)
- Two motherships, stationed within the array, with daughter workboats and one helicopter stationed on the motherships with the mothership working from a mainland port .

Scenario 4 – Onshore O&M Base / Mothership
- A combination of scenarios 1 and 3 with an arrangement based on motherships /daughter workboats working within the array , with the motherships and helicopter working from a Tiree base.



Your Thoughts ?

Local Benefit or Impact?

Scenario Mapping

Interactions with Tiree?

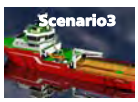
The Community Consultation Event No 1. highlighted a general concern to better understand impacts/benefits on: Jobs / Skills / Training / Built Development / Housing / Harbour / Airport / Roads / Ferry / Education / Healthcare In addition, the consultation event highlighted some of the softer or secondary impacts/benefits that may arise from change and highlighted a desire to better understand the level of assurance the community could secure about local opportunity and impacts on: Local Economy, Businesses, Enterprise and opportunity for young people etc Way of Life, Culture, Crofting and Land Management Environment and place quality.

Onshore O&M Base – On Tiree
An onshore base would have a Tiree base operating between the O&M office and workshops, harbour and helipad.

Scenario 1 therefore has significant direct implications for Tiree in terms of O&M activity with impacts or benefits occurring at the O&M base, which is assumed to be at the harbour with possible facilities at the airport.

Offshore O&M Base - Platform
An offshore platform servicing the offshore array with connections to the mainland base for staffing and equipment.

Scenario 2 has no or negligible direct implications for Tiree in terms of O&M activity. Any impacts or benefits would occur wherever the O&M mainland base operates from - e.g. a mainland Scottish port.



Offshore O&M Base – Mothership
An offshore mothership arrangement for servicing the offshore array operating from a mainland port.

Scenario 3 has an Operational Control Centre and helicopter crew based on Tiree with all other O&M based on the Mothership. This Scenario therefore has minor direct implications for Tiree in terms of O&M activity. The main impacts or benefits would occur wherever the O&M mainland base operates from - e.g. a mainland Scottish port

Onshore O&M Base & Mothership
An onshore O&M base comprising O&M office, harbour and helipad. Two motherships would use the harbour for crew changes, re-fuelling and supplies.

Scenario 4 therefore has significant direct implications for Tiree in terms of O&M activity with impacts or benefits occurring at the O&M base which is assumed to be at the harbour with possible facilities at the airport.

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Description

Scenario 1 - O&M Base on Tiree

An onshore base would have a Tiree base operating between the O&M office and workshops, harbour and helipad.

- Full O&M base including Office space, Maintenance and Workshop and Laydown space
- Helicopter pilot office within O&M base
- SCADA control room not on Tiree (utilise existing mainland facility)
- 5 no. Workboat
- Helipad (1 x helicopter Eurocopter 135)
- Harbour upgrade would be required including breakwater


London Array onshore O&M Base design

The proposed offshore array would be managed from O&M operational and maintenance base on Tiree.

Key Implications for Tiree

Onshore staffing would mean direct impacts and benefits to Tiree coupled with a requirement for a built facility or development of facilities on the island.
The harbour would need to be upgraded to provide facilities for workboats and helipad would be stationed at either the harbour or the airport.

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Scenario Development

O&M Base on Tiree - Jobs / Skills / Training

SPR estimate that an onshore O&M base on Tiree would generate up to 150 FTE jobs on Tiree. Using the 3 Profiles (Local vs. Non Local uptake for these jobs) we can generate some outcomes for Tiree in terms of numbers of new people coming to Tiree during operation and maintenance of the proposed array (and how many incoming workers bring families or are single).

Profile 1		
Jobs	Assumption	Estimate
Number Jobs (FTE)		150
% Local	35%	53
% Non Local	65%	98
Employee with Families	60%	59
Employees (single)	40%	39

Profile 2		
Jobs	Assumption	Estimate
Number Jobs (FTE)		150
% Local	25%	38
% Non Local (relocations)	75%	113
Employees (with families)	60%	68
Employees (without family)	40%	45

Profile 3		
Jobs	Assumption	Estimate
Number Jobs (FTE)		150
% Local	15%	23
% Non Local	85%	128
Employee with Families	60%	77
Employees (single)	40%	51

Opportunities & Mitigation

The level and range of local job opportunity and training support for young people is an important local issue around which the community is seeking assurance. Types of assurance which could be helpful could include:

Offshore Array Employment Charter e.g.
- Commitment for local employment within O&M service contract

Education Charter e.g.
- Commitment to higher and further education bursaries

Public & Private Sector collaboration for advance skills training and career guidance e.g.
- Advance skills training programmes

Commitment to Apprenticeships e.g.
- Commitment to adult and youth apprenticeships for technical support jobs

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Scenario Development

O&M Base on Tiree - Built Development

The employment predictions establish office and workspace requirements and all supporting external space. The O&M operator will require a modern fully equipped facility with all normal servicing. The development will be expected to meet all Planning and Sustainable Design Guidance. Space requirements could be anticipated as follows:

- Office space 600m2 – 2 storey building with 9m eaves height
  - Modern open plan with all ancillary services for boat and helicopter crews
  - Full Broadband / ICT
- Workshop space 2500m2 – single storey with 9m eaves height
  - Stores and warehouse facility for spares and maintenance consumables
- External space - 1000m2 - secure yardage
  - Car & vehicular parking; fuel bunkering; external storage
- Helipad facility (if located with O&M base)
  - Hangar (500m2); Helipad Space (360m2)

Opportunities & Mitigation

The scale of built development compares broadly with larger agricultural buildings on the island. These typically are of 800-1200m2. Opportunity and Mitigation may be achieved by:

Addressing needs with regard to A&BC Local Plan Industrial Land Allocation e.g.
- Developing brown field land and minimising land take of land under agriculture

Compliance with A&BC Sustainable Design Policy and Guidance e.g.
- Limiting main building heights to maximum 9m to eaves
- Considering scaling buildings to reflect current island scale
- Employment of local architects / trades

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Scenario Development

O&M Base on Tiree - Housing

Housing provision will be in part dependent on the level of local employment uptake (e.g. level of existing residents taking up jobs). In the Scenario Mapping we have assumed potential levels of local job uptake of between 15–25–35%. Assumptions on new build, locally purchased, restored and rented properties allow levels of new build housing to be estimated.

Profile 1		
Housing		
New Homes Built	50%	49
Existing Homes Restored / Purchased	30%	29
Other+ Rented	20%	20

Profile 2		
Housing		
New Homes Built	50%	66
Existing Homes Restored / Purchased	30%	34
Other + Rented (PT Residents)	20%	23

Profile 3		
Housing		
New Homes Built	50%	64
Existing Homes Restored / Purchased	30%	38
Other+ Rented	20%	26

Opportunities & Mitigation

New housing needs to be developed in a manner sensitive to the settlement patterns of the island and seek to support local access to housing for young people from the island taking up employment in O&M. A number of housing scenarios could be envisaged including:

- Growth of a single Township e.g.
  - Settlement extension providing between 49 and 64 new homes
- Extension to a number of Townships across the island e.g.
  - Assuming 6 townships equates to 11 houses per township
- Dispersed housing e.g.
  - New housing throughout the island on Brownfield land wherever possible

Housing is an important local issue around which the community is seeking assurance about quality and urban design. Opportunity exists for housing refurbishment alongside contemporary new build in a manner that builds on community infrastructure and supports demand for goods, services & indirect jobs.

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Scenario Development

O&M Base on Tiree – Transport Infrastructure

Harbour

The O&M operations will be operated by 5 workboats typically of 28m in length providing the service support and personnel access to the turbines in combination with the helicopter. A harbour facility created by a breakwater and offering pontoon / quay access will be required.

- Harbour Breakwater
  - Offering safe haven for workboats all year round
- Pontoon and Quay facilities
  - 150 (+10)m sheltered pontoon length
  - Marine fuel bunkering (200,000l capacity) serviced and refuelled by sea-barge. It is not anticipated that workboat fuelling would require fuel import by ferry.

Airport / Heliport

The O&M operation could be supported by a helicopter base either at the harbour or potentially at the airport. Helicopter provision would include a hangar, helipad and fuel bunkering. Flight levels are currently under assessment but worst case numbers suggest 7-12 return flights per day.

Local Roads

The O&M operation may require some local Road Network upgrading but only in the immediate local area of the O&M Base or between the base and the harbour. Access to the harbour / breakwater will be required for vehicles. If helipad facilities were located at the airport volumes of traffic are unlikely to be significant.

Opportunities & Mitigation

Infrastructure clearly needs to match any intensification of use whether this be associated with harbour/airport or roads. Local road upgrades may offer wider benefits as would development of the harbour. Issues requiring to be addressed would include:

- Harbour improvements may offer wider support to existing local businesses e.g.
  - Creating access for fishing / recreational boats and improving ferry weather protection
- Helicopter flights paths across defined sea routes could mitigate island over-flying.
- Protecting existing air and sea capacity

Your Thoughts ?

Local Benefit or Impact?

Scenario 1

Scenario Development

O&M Base on Tiree – Community Infrastructure

Education

Scenario 1 O&M operations would increase the resident population and increase the school roll. Base on a multiplier of 0.27 primary pupils per household and 0.2 secondary pupils per household the additional educational needs would include:

- 24 Primary Pupil places
- 18 High School places

The existing Tiree Primary School has a roll of 62 (including nursery roll of 15) and Secondary School Roll of 44. Higher and further Education is provided on the mainland.

Health

O&M operations would potentially add between 185 and 242. The resident population is currently estimated at around 850. On the basis of new resident assumptions this could create additional demand on healthcare and community infrastructure. Health provision is responsive to demand / population with particular need however to address community care.

Profile 1		
Community Infrastructure		
Primary School Places (0.27)		21
Secondary School Places (0.2)		18
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		185
Population Growth		185

Profile 2		
Community Infrastructure		
Primary School Places (0.27)		24
Secondary School Places (0.2)		18
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		214
Population Growth		214

Profile 3		
Community Infrastructure		
Primary School Places (0.27)		29
Secondary School Places (0.2)		20
Educational Bursaries		3
Adult Training / Apprenticeships		4
Additional Healthcare Patients		242
Population Growth		242

Lifeline Services – Air and Ferry connections

Scenario 1 O&M operations by increasing island population will place additional demand on air and ferry connections. A 20% increase in population will require a review of current air and ferry capacity. Vehicular ferry capacity at weekends & in the summer months is near or at capacity. Reducing ferry cancellations and any improvement to capacity would offer local benefits.

Opportunities & Mitigation

A growing population would introduce both opportunity and impacts with mitigation dependent on investment in local capacity. Discussions are being progressed with a number of key service providers to identify any specific measures or responses.

- Discussions with CMAL / Calmac and HIAL regarding Lifeline services
- Discussion with Argyll and Bute Council and relevant health providers

Your Thoughts ?

Local Benefit or Impact?

Scenario 2

Description

Scenario 2

An offshore platform, located within the array, with workboats and one helicopter stationed on the platform.

- No O&M base on Tiree
- No SCADA control room (utilise existing mainland facility)
- Helicopter Station provided on mainland but with some limited use of Tiree Airport and offering a potential link for local employees
- No O&M Support infrastructure required on Tiree

The proposed offshore array would be managed from a main land base with O&M operational and maintenance activity operated from the platform.
The platform would operate similar to oil and gas developments with O&M staff recruited nationally and flown/transported to the platform by air or boat from a mainland airport/port. No daily contact with Tiree would be required but fortnightly employment flights to the platform may be possible.

Key Implications for Tiree

Offshore staffing would mean no direct impacts or benefits to Tiree and no requirement for a built facility or development of facilities. Employment opportunity may exist at a minimal scale.

Your Thoughts ?

Local Benefit or Impact?

Scenario 2

O&M Base on Offshore Platform

Jobs /Skills/Training

Job requirements are broadly comparable to onshore facilities but none of the jobs would be based on Tiree. A wider opportunity would exist as part of the Argyll and Bute Renewable Energy Action Plan (REAP) to participate in wider skills and training programmes aimed at developing skills/competencies for the Renewable Energy Sector.

Built Development

Built development on Tiree would be limited to a potential converter station onshore.
No O&M workshop / office or other facilities would be proposed on Tiree.
All supplies would be sourced from a mainland base and delivered by air/sea.

Housing

No housing requirement on Tiree. Employment would be typically nationally recruited and access to the platform coordinated from the mainland O&M Base airport/port facility.

Your Thoughts ?

Local Benefit or Impact?

Scenario 2

O&M Base on Offshore Platform

Harbour / Airport / Roads

No harbour works required
No airport works required albeit that helicopter access to the existing airport may be used to a limited degree (e.g. for taking any locally employed people to and from the platform)
No road works required associated with O&M

Community Infrastructure

No additional load on community infrastructure except perhaps a potential requirement for medical support for non-surgical accidents / medical attention not provided by platform staffing, on a very limited basis.

Lifeline Services – Air and Ferry connections

No additional air or ferry requirements.

Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Description

Scenario 3 – Offshore Motherships

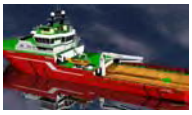
Two motherships, stationed within the array, with daughter workboats and one helicopter stationed on the motherships with the mothership working from a mainland port.

- Operational control centre on Tiree but limited to office based functions, with no wider O&M support infrastructure (e.g. motherships) required on Tiree
- No SCADA control room (utilise existing mainland facility)
- No workshop facility
- Helicopter Station provided on Tiree

The proposed offshore array would be managed from a local Operational Control Centre based on Tiree and potentially located at the airport alongside helipad facilities. All physical operations and maintenance activity will be managed from the motherships with the vessels acting as a mobile platform. O&M staff would return to the mainland operating port, based on a shift pattern arrangement. No daily contact with Tiree would be required but fortnightly employment flights for local employees to the mothership may be possible.

Key Implications for Tiree

Offshore staffing would limit the impacts or benefits to Tiree with these limited to the operation control centre. Offshore employment opportunity may exist but would not be locally connected and access to opportunity may be more restricted than in other scenarios.



Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Scenario Development

O&M Offshore Motherships - Jobs / Skills / Training

SPR estimate that O&M from Offshore Motherships with only the operations control centre and helipad on Tiree would generate up to 25 FTE jobs on Tiree. Using the 3 Profiles (Local vs. Non Local uptake for these jobs) we can generate some outcomes for Tiree in terms of numbers of new people coming to Tiree during operation and maintenance of the proposed array (and how many incoming workers bring families or are single).

Profile 1		
Jobs	Assumption	Estimate
Number Jobs (FTE)		25
% Local	35%	9
% Non Local (relocations)	65%	16
Employees (with families)	60%	10
Employees (without family)	40%	7

Profile 2		
Jobs	Assumption	Estimate
Number Jobs (FTE)		25
% Local	25%	6
% Non Local (relocations)	75%	19
Employees (with families)	60%	11
Employees (without family)	40%	8

Profile 3		
Jobs	Assumption	Estimate
Number Jobs (FTE)		25
% Local	15%	4
% Non Local (relocations)	85%	21
Employees (with families)	60%	13
Employees (without family)	40%	9

Opportunities & Mitigation

Job requirements for the project are broadly comparable with those in scenario 1 with the difference being the majority of jobs would not be based on Tiree. A wider opportunity would exist as part of Argyll and Bute Renewable Energy Action Plan (REAP) to participate in wider skills and training programmes aimed at developing skills/competencies for the Renewable Energy Sector. Opportunities could include:

Offshore Array Employment Charter e.g.
- Commitment for local employment within O&M service contract

Education Charter e.g.
- Commitment to higher and further education bursaries

Public & Private Sector collaboration for advance skills training and career guidance e.g.
- Advance skills training programmes

Commitment to Apprenticeships e.g.
- Commitment to adult and youth apprenticeships for technical support jobs

Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Scenario Development

O&M Offshore Motherships - Built Development

Built development on Tiree would be limited to a potential converter station onshore and an operational control centre. The converter station could be proposed for either offshore or onshore – no decision has yet been made. No O&M workshop on the island would be required. Typically all supplies would be sourced from a mainland base and delivered by air/sea.

The employment predictions establish office and workspace requirements that should also allow for expansion and all supporting external space. The O&M operator will require a modern fully equipped facility with all normal servicing. The development will be expected to meet all Planning and Sustainable Design Guidance. Space requirements are as follows:

- Operations Control Centre 150m2
  - Modern open plan with all ancillary services for helicopter crews
  - Full Broadband / ICT
- Mixed / Multi-function Workshop 500m2 – single storey with 9m eaves height
  - Stores and warehouse facility for spares and maintenance consumables
- External space - 250m2 - secure yardage
  - Car & vehicular parking; fuel bunkering; external storage
- Helipad facility
  - Hangar (500m2); Helipad Space (360m2)

Opportunities & Mitigation

The scale of built development compares broadly with larger agricultural buildings on the island. These typically are of 800-1200m2. Opportunity and Mitigation may be achieved by:

- Addressing needs with regard to A&BC Local Plan Industrial Land Allocation e.g.
  - Developing brown field land and minimising land take of land under agriculture
- Compliance with A&BC Sustainable Design Policy and Guidance e.g.
  - Limiting main building heights to maximum 9m to eaves
  - Considering scaling buildings to reflect current island scale
- Employment of local architects / trades

Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Scenario Development

O&M Offshore Motherships – Housing

Housing provision will be in part dependent on the level of local employment uptake (e.g. level of existing residents taking up jobs). In the Scenario Mapping we have assumed a level of local job uptake of between 15% -35%. Assumptions on new build, locally purchased, restored and rented properties allow new build housing to be estimated. Any local needs associated with the operation centre would be limited.

Profile 1		
Housing		
New Homes Built	50%	8
Existing Homes Restored / Purchased	30%	5
Other + Rented	20%	3

Profile 2		
Housing		
New Homes Built	50%	9
Existing Homes Restored / Purchased	30%	6
Other + Rented (PT Residents)	20%	4

Profile 3		
Housing		
New Homes Built	50%	11
Existing Homes Restored / Purchased	30%	6
Other + Rented	20%	4

Opportunities & Mitigation

New housing needs to be developed in a manner sensitive to the settlement patterns of the island and seek to support local access to housing for young people from the island taking up employment in O&M. A number of housing scenarios could be envisaged including:

- Growth of a single Township e.g.
  - Settlement extension providing between 8 and 11 new homes
- Extension to a number of Townships across the island e.g.
  - Assuming 6 townships equates to approx 2 houses per township
- Dispersed housing e.g.
  - New housing throughout the island on Brownfield land wherever possible

Housing is an important local issue around which the community is seeking assurance about quality and urban design. Opportunity exists for housing refurbishment alongside contemporary new build in a manner that builds on community infrastructure and supports demand for goods, services & indirect jobs.

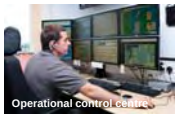
Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Scenario Development

O&M Offshore Motherships - Transport Infrastructure



Operational control centre

Harbour

No harbour works required.

Airport / Heliport

O&M helicopter base on Tiree operating from the airport or harbour with new hangar/fuel bunker and support facility (Operational Control Centre) and linking to offshore motherships. Flight levels are currently under assessment but worst case numbers suggest 1-5 return flights per day.

Local Roads

No road works required associated with O&M
If Operational Control Centre and helipad facilities were located at the airport volumes of traffic are unlikely to be significant.

Opportunities & Mitigation

There is no anticipated intensification of use whether this be associated with harbour/airport or roads. Issues requiring to be addressed would include:

- Helicopter flights paths across defined sea routes could mitigate island over-flying.
- Protecting existing air and sea capacity

Your Thoughts ?

Local Benefit or Impact?

Scenario 3

Scenario Development

O&M Offshore Motherships - Community Infrastructure

Education

Scenario 3 O&M operations would increase the resident population and therefore the school roll. Base on a multiplier of 0.27 primary pupils per household and 0.2 secondary pupils per household the additional educational needs would include:

- 4 Primary Pupil places
- 3 High School places

The existing Tiree Primary School has a roll of 62 (including nursery roll of 15) and Secondary School Roll of 44. Higher and further Education is provided on the mainland.

Health

O&M operations would potentially add between 31 and 40 to the resident population creating additional demand on healthcare and community infrastructure. Health provision is responsive to demand / population with particular need however to address any community care requirements.

Profile 1		
Community Infrastructure		
Primary School Places (0.27)		4
Secondary School Places (0.2)		3
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		31
Population Growth		31

Profile 2		
Community Infrastructure		
Primary School Places (0.27)		4
Secondary School Places (0.2)		3
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		36
Population Growth		36

Profile 3		
Community Infrastructure		
Primary School Places (0.27)		5
Secondary School Places (0.2)		3
Educational Bursaries		3
Adult Training / Apprenticeships		4
Additional Healthcare Patients		40
Population Growth		40

Lifeline Services – Air and Ferry connections

Limited additional ferry requirements would arise from Scenario 3.

Opportunities & Mitigation

Whilst the O&M Operational Control Centre and helipad would have limited impacts on community infrastructure, opportunities would include discussion with Argyll and Bute Council and relevant health providers relative to service provision.

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree

London Array O&M Base

A combination of scenarios 1 and 3 with an arrangement based on motherships /daughter workboats working within the array, with the motherships and helicopter working from a Tiree base.

- O&M Office space, Maintenance and Workshop, Laydown space on Tiree
- Helicopter pilot office within O&M base
- SCADA control room not on Tiree (utilise existing mainland facility)
- 2 Motherships
- Helipad (1 x helicopter Eurocopter 135)
- Harbour upgrade would be required including breakwater

The proposed offshore array would be managed from Tiree including all operational and maintenance activity excluding SCADA /off-site monitoring control. The motherships would operate from an enhanced harbour but would be stationed on-field returning to Tiree for re-supply, crew changeovers and parts on a regular cycle – probably fortnightly, with one mothership returning to Tiree each week. Helicopter flights would support the motherships and would work in combination with the motherships in deliver technical engineers to the turbines. It would not be envisaged that turbine towers, nacelles or blades would be stored on the island. Key activities would include operational management, marine & flight logistics, programme management and engineering support.

Key Implications for Tiree

The numbers of O&M staff living on Tiree is anticipated to be 59 people but the potential catchment would be wider allowing mainland and Coll resident employees to access Tiree for the shift changes moderating the likely demands for local services, housing and community infrastructure. Critical to this scenario is development of harbour facilities.

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree - Jobs / Skills / Training

Local Jobs & Training Opportunity

SPR estimate that an O&M Motherships & Base on Tiree would generate up to 59 FTE jobs on Tiree. Using the 3 Profiles (Local vs. Non Local uptake for these jobs) we can generate some outcomes for Tiree in terms of numbers of new people coming to Tiree during operation and maintenance of the proposed array (and how many incoming workers bring families or are single).

Profile 1		
Jobs	Assumption	Estimate
Number Jobs (FTE)		59
% Local	35%	21
% Non Local (relocations)	65%	38
Employees (with families)	60%	23
Employees (without family)	40%	15

Profile 2		
Jobs	Assumption	Estimate
Number Jobs (FTE)		59
% Local	25%	15
% Non Local (relocations)	75%	44
Employees (with families)	60%	22
Employees (without family)	40%	18

Profile 3		
Jobs	Assumption	Estimate
Number Jobs (FTE)		59
% Local	15%	9
% Non Local (relocations)	85%	50
Employees (with families)	60%	30
Employees (without family)	40%	20

Opportunities & Mitigation

The level and range of local job opportunity and training support for young people is an important local issue around which the community is seeking assurance. Types of assurance which could be helpful could include:

- Offshore Array Employment Charter e.g.
  - Commitment for local employment within O&M service contract
- Education Charter e.g.
  - Commitment to higher and further education bursaries
- Public & Private Sector collaboration for advance skills training and career guidance e.g.
  - Advance skills training programmes
- Commitment to Apprenticeships e.g.
  - Commitment to adult and youth apprenticeships for technical support jobs

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree - Built Development

The employment predictions establish office and workspace requirements that should also allow for expansion and all supporting external space. The O&M operator will require a modern fully equipped facility with all normal servicing. The development will be expected to meet all Planning and Sustainable Design Guidance. Space requirements are as follows:

- Office space 300m2 – 2 storey building with 9m eaves height
  - Modern open plan with all ancillary services for boat and helicopter crews
  - Full Broadband / ICT
- Mixed / Multi-function Workshop 2500m2 – single storey with 9m eaves height
  - Stores and warehouse facility for spares and maintenance consumables
- External space - 1000m2 - secure yardage
  - Car & vehicular parking; fuel bunkering; external storage
- Helipad facility (if located with O&M base)
  - Hangar (500m2); Helipad Space (360m2)

Opportunities & Mitigation

The scale of built development compares broadly with larger agricultural buildings on the island. These typically are of 800-1200m2. Opportunity and Mitigation may be achieved by:

- Addressing needs with regard to A&BC Local Plan Industrial Land Allocation e.g.
  - Developing brown field land and minimising land take of land under agriculture
- Compliance with A&BC Sustainable Design Policy and Guidance e.g.
  - Limiting main building heights to maximum 9m to eaves
  - Considering scaling buildings to reflect current island scale
- Employment of local architects / trades

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree – Housing

Housing provision will be in part dependent on the level of local employment uptake (e.g. level of existing residents taking up jobs). In the Scenario Mapping we have assumed a level of local job uptake of between 15% -35%. Assumptions on new build, locally purchased, restored and rented properties allow new build housing to be estimated.

Profile 1		
Housing		
New Homes Built	50%	19
Existing Homes Restored / Purchased	30%	12
Other - Rented	20%	8

Profile 2		
Housing		
New Homes Built	50%	22
Existing Homes Restored / Purchased	30%	13
Other - Rented (PT Residents)	20%	9

Profile 3		
Housing		
New Homes Built	50%	25
Existing Homes Restored / Purchased	30%	15
Other - Rented	20%	10

Opportunities & Mitigation

New housing needs to be developed in a manner sensitive to the settlement patterns of the island and seek to support local access to housing for young people from the island taking up employment in O&M. A number of housing scenarios could be envisaged including:

- Growth of a single Township e.g.
  - Settlement extension providing between 19 and 25 new homes
- Extension to a number of Townships across the island e.g.
  - Assuming 6 townships equates to approx 4 houses per township
- Dispersed housing e.g.
  - New housing throughout the island on Brownfield land wherever possible

Housing is an important local issue around which the community is seeking assurance about quality and urban design. Opportunity exists for housing refurbishment alongside contemporary new build in a manner that builds on community infrastructure and supports demand for goods, services & indirect jobs.

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree - Transport Infrastructure

Harbour

The O&M operations will be operated by 2 motherships providing the service support and personnel access to the turbines in combination with the helicopter. A harbour facility created by a breakwater and offering quay access will be required.

- Harbour Breakwater
  - Offering safe haven for mothership(s) all year round
- Pontoon and Quay facilities
  - 140m of alongside space- quay wall or breakwater
  - Marine fuel bunkering serviced and refuelled by sea-barge. It is not anticipated that workboat fuelling would require fuel import by ferry.

Airport / Heliport

The O&M operation could be supported by a helicopter base either at the harbour or at the airport. Helicopter provision would include a hangar, helipad and fuel bunkering. Flight levels are currently under assessment but worst case numbers suggest 1-5 return flights per day.

Local Roads

The O&M operation may require some local Road Network upgrading but only in the immediate local area of the O&M Base or between the base and the harbour. Access to the harbour / breakwater will be required for vehicles. If helipad facilities were located at the airport volumes of road traffic are unlikely to be significant.

Opportunities & Mitigation

Infrastructure clearly needs to match any intensification of use whether this be associated with harbour/airport or roads. Local road upgrades may offer wider benefits as would development of the harbour. Issues requiring to be addressed would include:

- Harbour improvements may offer wider support to existing local businesses e.g.
  - Creating access for fishing / recreational boats and improving ferry weather protection
- Helicopter flights paths across defined sea routes could mitigate island over-flying.
- Protecting existing air and sea capacity

Your Thoughts ?

Local Benefit or Impact?

Scenario 4

O&M Motherships & Base on Tiree - Community Infrastructure

Education

Scenario 4 O&M operations would increase the resident population and the school roll. Base on a multiplier of 0.27 primary pupils per household and 0.2 secondary pupils per household the additional educational needs would include:

- 10 Primary Pupil places
- 7 High School places

The existing Tiree Primary School has a roll of 62 (including nursery roll of 15) and Secondary School Roll of 44. Higher and further Education is provided on the mainland.

Health

O&M operations would potentially add between 73 and 95 to the resident population creating additional demand on healthcare and community infrastructure. Health provision is responsive to demand / population with particular need however to address community care.

Profile 1		
Community Infrastructure		
Primary School Places (0.27)		8
Secondary School Places (0.2)		6
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		73
Population Growth		73

Profile 2		
Community Infrastructure		
Primary School Places (0.27)		10
Secondary School Places (0.2)		7
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		84
Population Growth		84

Profile 3		
Community Infrastructure		
Primary School Places (0.27)		11
Secondary School Places (0.2)		8
Educational Bursaries		3
Adult Training / Apprenticeships		4
Additional Healthcare Patients		95
Population Growth		95

Lifeline Services – Air and Ferry connections

Scenario 4 O&M operations by increasing island population will place additional demand on air and ferry connections. A 10% increase in population will require a review of current air and ferry capacity. Vehicular ferry capacity at weekends & in the summer months is near or at capacity. Reducing ferry cancellations and any improvement to capacity would offer local benefits.

Opportunities & Mitigation

A growing population would introduce both opportunity and impacts with mitigation dependent on investment in local capacity. Discussions are progressing with a number of key service providers to identify any specific measures or responses.

- Discussions with CMAL / Calmac and HIAL regarding Lifeline services
- Discussion with Argyll and Bute Council and relevant health providers

Your Thoughts ?

Local Benefit or Impact?

Summary
Scenarios 1-4 Summary

Initial Scenario Mapping 1-4

Scenario 1 - O&M Base

Scenario 2 - Offshore Platform

Scenario 3 - Offshore Mothership

Scenario 4 - O&M Base / Mothership

Your Thoughts ?

Local Benefit or Impact?

Summary Scenario 1-4

Jobs on Tiree				
Houses on Tiree new build				
School Pupils primary & secondary				
Built Development				
Helicopter Flights per day return flights				
Population Growth				

Provisional Assessment to Assist Consultation. All numbers to be verified.

Your Thoughts ?

Local Benefit or Impact?

Scenario Mapping

Opportunity and Impact?

Consultations have highlighted a breadth of issues with consultees seeking more information on which to asses the O&M implications for Tiree. Development introduces change that may have implications and these may be perceived as benefits or impacts depending on ones perspective. We are keen to better understand the balance of opportunity and impact (benefits and dis-benefits) of each of the 4 Scenarios. A view is summarised below but we would appreciate your comments and thoughts.

Strengths
- O&M base on Tiree
- Significant job opportunities
- Investment in harbour facilities
- Population growth supports community facilities

Weaknesses
- O&M base on Tiree
- Built development
- Additional loads to transportation connections

Opportunities
- Employment opportunity
- Retention young people
- Developing new skills
- Investment in island infrastructure

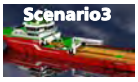
Threats
- Changes impacts on way of life

Strengths
- O&M change limited to offshore
- No additional load on island infrastructure / transport

Weaknesses
- Limited job opportunities all based offshore
- No required investment in island infrastructure
- Limited economic gain

Opportunities

Threats



Strengths
- Operating Centre on Tiree
- Some job opportunities onshore and offshore

Weaknesses
- Limited employment opportunity
- Limited required investment in island infrastructure
- Limited economic gain

Opportunities
- Some employment opportunity
- Some training opportunity

Threats

Strengths
- O&M base on Tiree
- Moderate job opportunities
- Investment in harbour facilities
- Population growth supports community facilities

Weaknesses
- O&M base on Tiree
- Built development
- Additional loads to transportation connections

Opportunities
- Employment opportunity
- Retention young people
- Developing new skills
- Investment in island infrastructure

Threats
- Changes impacts on way of life

Your Thoughts ?

Local Benefit or Impact?

Array Construction

Offshore Construction

The construction of the proposed offshore array would involve a major sea based construction programme following all pre-construction surveys and agreement on method statements.

Offshore windfarms are-constructed from a principal installation port base and / or manufacturing centre using offshore construction craft (barges, cranes etc). Construction activity to date in the UK has included Harland & Wolfe in Belfast, BiFab in Methil and ports on Teeside, Tyneside and Hull.

The developer is not proposing that any construction activities related to the wind turbines be based on Tiree. Array construction camps, construction lay-down space, turbine assembly or fabrication would all take place elsewhere in the UK or abroad.

Current construction practice for offshore wind turbines involves specialist vessels either:

- delivering completed turbines to site
- delivering major component parts to site, with assembly then taking place offshore

Detailed discussions are currently being progressed within the industry by SPR to identify manufacturer and contractor requirements.

Your Thoughts ?

Changing Technology

Unknowns in O&M

Offshore Renewables are relatively new developments and therefore the technology to deliver these developments is constantly changing.

The Scenario Mapping exercise and development of the 4 Scenarios has been based on:

- Discussions with the Promoter (Scottish Power Renewables) of the scheme,
- Discussions and information sourced from turbine manufacturers, engineers and O&M specialists
- Benchmarking against existing offshore wind developments and facilities planned or under consideration in more challenging environments
- Understanding of the local environment - limitations and opportunities

The scenarios therefore represent our current best understanding of the key components of the 4 O&M Scenarios and typically would be altered/amended as technology and O&M practice develops.

Your Thoughts ?

Challenging Environments

Marine Environment

Offshore O&M often means working in challenging environments:

- Wave heights and swell and frequency of storms
- Increased maintenance of turbines in harsh environments
- Challenges of remote working and additional HSE requirements

The Scenarios are being developed in parallel with detailed marine and climatic surveys to allow the Operations and Maintenance (O&M) needs for the proposed array to reflect the unique conditions of Tiree. Significant wave heights and windspeeds during the winter months need to be addressed in developing O&M solutions. Discussions are ongoing with operators and manufacturers to match operational specifications with these conditions. The scenarios give an impression of the scale of activities, types of impacts and benefits and allow early consideration of how opportunities may be secured and mitigation addressed. New innovations can be anticipated to influence future O&M activity and impacts upon the levels and provision of:

- Mothership / Workboat size, crews, support, maintenance
- Helicopter type, size, crews, support, maintenance
- Technical support staff requirements and shift patterns
- Corresponding facilities requirement (size of onshore base, mothership(s), platform

Your Thoughts ?

O&M Procurement

Procurement Variables

The O&M Procurement Process will influence the exact nature of the way that O&M is implemented. It will be informed by:

- The O&M should the proposed array go ahead will be tendered and therefore will be open to variation based on appointed O&M operators approach to the proposed development
- New technology as it becomes available will influence O&M e.g. more reliable turbine components fitted, workboats able to work in poor weather conditions, increased telemetry etc
- Changes in response to HSE requirements and offshore working practices

Preparing boat landing at site

Different operators will bring different experience and innovation to the O&M activity with SPR specifying the standards and any pre-requisites for operations. This study process is seeking to help understand future requirements for O&M.

SPR are looking to apply for permission to build the windfarm in 2013 with an ambition to move to construction and operation in 2017-18. Innovation in technology and new experience from existing sites may impact on O&M procurement.

Your Thoughts ?

Associated Infrastructure

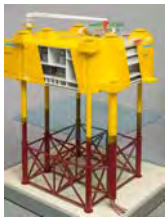
Converter Station

Converter Station

The proposed Array will include a requirement for a Converter Station.

Whilst not part of the brief for this study, we are aware that there have been discussions about the need, location and size of a Converter Station either onshore on Tiree or offshore.

The converter station will form part of the associated development of the windfarm. This means the electrical infrastructure required for the windfarm – including export cabling (to take electricity to the national grid), substations and converter stations. Cabling would be underground and not on overhead lines.



A decision has not yet been taken on whether to propose that the converter station be offshore or onshore. If onshore, a building of dimensions 100 x 50metres may be proposed.

Your Thoughts ?

What Next?

The Consultation Strategy includes 3 consultation events at various stages in the project.

This is the second consultation event on Tiree looking at the initial assessment of the Operations and Maintenance (O&M) associated with the potential array.

Consultation Event 1 consider points raised at consultation	These initial consultations provided feedback on local issues, pressures on local resources, areas of potential impact and the potential to secure benefits for the island community.
Consultation Event 2 3rd and 4th October 2011	We are now consulting on our initial assessment of the potential O&M scenarios to allow us to review in more detail, through consultation, potential implications for Tiree. Comments from Event 1 have been incorporated into this assessment.
Consultation Event 3 Mid/late November 2011 (TBC)	The team will consult on the draft findings of the Study and advising of the best understanding of the implications of O&M facilities on Tiree and setting out the implications and impacts of each scenario and how these might be taken forward.
Ongoing Consultation September /October 2011	The team will continue to consult with a range of stakeholders and community interests. Andy Wright and Lynne MacKinnon from Tiree Community Development Trust are available on the island to collect any further consultation responses as necessary.

Your Thoughts ?

What Next?

Thank You

The purpose of this second consultation has been to communicate with further detail what the four scenarios might mean in terms of implications for the community of Tiree.

The four scenarios outlined here have quite different implications for Tiree. The benefits or dis-benefits of each needs to be carefully assessed in terms of identifying how Tiree might benefit from renewable energy proposals and how impacts might be addressed or mitigated. This study is intended to provide an early assessment of land based O&M implications without presumption as to the outcome of the proposed offshore array Licensing application, or SPR's final procurement of O&M services.

This consultation will help us continue to develop the detail on the four scenarios and initiate the economic, social and environmental assessment of the possible implications.

Consultation Boards Event 3

Tiree Onshore Scenario Mapping Project

Consultation Event 3
O&M Scenario Reporting

These boards were used at Consultation Event 3 held at An Talla, Tiree on the 29th and 30th of November 2011. It is important to recognise that this continues to be interim reporting and represents the findings of Ironside Farrar. Consultation and details will continue to evolve as the study is developed and finalised.

Welcome

Tiree Onshore Scenario Mapping Project
Consultation Event No.3 – O& M Scenarios Reporting

Any future offshore windfarm consent, if granted, will have an Operational and Maintenance (O&M) need which may have implications for land-based development on Tiree. The aim of this third consultation event is to provide a better understanding each of the four potential Operations & Maintenance Scenarios advised by the developer and to consider in more detail the potential implications for Tiree.

This is early and advance consultation well ahead of any decision on the Offshore Array but it is considered important at the earliest date to consider onshore implications in parallel with the wider consultation on the Offshore Array itself.


Please comment on as many issues as you feel are important and write your comments on post-it notes or on the comments form. Boards with 'Your Thoughts?' include new information and/or revisions to information previously presented. The Consultants are also here to discuss any issues you may have as part of the study and explain current assumptions and information on the O&M scenarios.

The Brief

Tiree Onshore Scenario Mapping Project

The purpose of the study is to consider the onshore implications of the proposed offshore array for the community of Tiree. The study is being funded by Marine Scotland, The Crown Estate, Argyll and Bute Council and Highlands and Islands Enterprise. Central to the study is community consultation

Offshore windfarms have operational and maintenance (O&M) needs which typically include a level of land-based development.

This study will help assist the Steering Group, community and stakeholders in considering any potential land-based implications associated with the proposed offshore array and allow early community input and consultation.

Ironside Farrar, Environmental Consultants, has been appointed to help the project Steering Group take forward the during 2011.

Consultation is critical to the process—this is the third of the 3 events planned:

- Consultation Event 1 Understanding Local Issues & Concerns
- Consultation Event 2 Initial assessment of potential O&M scenarios
- Consultation Event 3 Reporting on the Draft Findings

Consultation Event 1 – Key Issues

- **Confirmation TCDT / Forum issues**
  - 12 Key Topic Issues and initial concerns raised from consultation
  - Jobs, Housing and implications for Education/Health /Life Style are key topic areas
  - Breadth of views from clear objection to positive support with most attendees reserving position
- **Objectives and Outcomes broadly supported**
  - Draft Objectives and Outcomes addressed key areas of concern
- **New and additional key issues advised at the consultation included:**
  - Need more detailed information on the O&M Scenarios and Tiree benefits
  - Better understanding of any proposed development scale relative to way of life
  - Need to understand job opportunities; employment and skill sets required for jobs
  - Lack of clarity in any information on the scale of change and infrastructure needs
  - Lack of clarity on potential for disruption and impacts on transport (air/ferry/roads)
  - Re-iterated more strongly concerns regarding light pollution and helicopter noise
  - Recognition that Tiree has successfully accommodated change in the past
  - Need to consider wider opportunity for developer contributions to community benefits

FOCUS

Seeking to understand Scenarios and Implications on Education / Health / Community Lifestyle

Consultation Event 2 – Key Issues

- **Review of Scenarios 1-4**
  - Detail presented on the key elements within 4 alternative scenarios
  - Detail presented on Changing Technology / Converter Station / O&M Procurement / Challenging Environments
  - Summary Mapping presented showing possible relationships between O&M base, helicopter facility, ferry terminal
- **Key Issues Raised through consultation included:**
  - Presentation well received in terms of additional levels of information – but more detail & on-going dialogue sought
  - Key opportunities recognised as including:
    - Local jobs & access to jobs
    - Local employment and training /apprenticeships for young people
    - Population growth with additional support for local goods and services
    - Long term economic benefit to island from investment
  - Key concerns remain associated with:
    - Level and Timing of Assurances in terms of commitment to delivery of local benefits
    - Environmental impact associated with Helicopter Movements / Converter Station / Harbour Requirements / Place Quality
    - Impacts of Array on tourism /environment and communities and O&M employment leading to displacement of local jobs/job-shares
  - Interest in how wider community issues might be addressed – Community Benefit Fund

FOCUS

Benefits and Disbenefits and the balance of impact. Critical to understand actual benefit include, jobs, and community fund.

Consultation Feedback

Positive

- The project will provide the island with more investment, opportunities and financial benefit; economic growth is essential on a small island like Tiree.
- Tiree needs this, the windfarm = jobs + people = the island's future.
- Funded training will enable local people to take jobs.
- Local building industry will benefit through the creation of indirect employment.
- Local infrastructure will be improved.
- Tiree is going backwards and it should be going forwards; the development will bring more families / people to the island.
- Effects of the development, i.e. a growing population, more jobs, more children in the school, align with Tiree's Growth Plan.
- A broad range of jobs will be created.
- A 'sovereign wealth fund' could be created which would benefit the island over the next 20 years, providing a long term resource for the community.
- Choosing a scenario with island involvement will provide local benefits.
- Dispersing new housing across the island will reduce the impacts.
- Recognition that the school requires help and the development offers the opportunity for this to happen.

Negative

- Shift workers using Tiree as a hub would have a negative impact.
- Noise pollution by the helicopter flights as the island is down wind from the development site, residents will hear a lot of 'air traffic' to and from the site due to the amount of flights.
- The ferry is already at capacity during much of the year, additional passengers will worsen this problem.
- Loss of croft land will have a negative effect on the island.
- An offshore converter would be very large and unsightly; however an onshore converter will also have a negative impact on the island.
- The development would create a lot of light pollution on and offshore.
- The suggestion that 60% of the workforce will have families seems too high.
- Concern over who will buy new housing and whether houses will become even less affordable for local residents.
- Concern the island will become a 'hub' for other offshore wind developments on the west coast.
- Concern that Gaelic will be diluted.
- Worry that the sense of community will be lost on the island as a result of the proposed development.
- Concern over the negative impact the development will have on tourism.
- Fear that the development may drive people to move off the island.

Scenario Mapping

What is Scenario Mapping / Planning?
Scenario Planning is a tool to help stakeholders and others better understand the implications of change and assist consultation on how to manage potential futures more effectively.

We are at draft reporting stage in developing the scenarios and the figures used are provisional and continue to be developed. The scenario planning process can be used to highlight:

- Principal factors that create or drive change e.g. jobs, people, demand for services
- Provides based on percentage assumptions a better understanding of the range of change that might occur e.g. population growth / proportion of local versus new jobs
- Provides an explanation of likely outcomes based on understanding of existing baseline

Scenarios are widely used by various organisations and groups to assess change and help to inform views and future decisions. The information can inform debate by looking at existing facilities or experience and making assumptions about possible futures.

Scenario Mapping

Key Issues influencing Benefits & Impacts
The key factors influencing change relative to the Onshore O&M Scenario Mapping include:

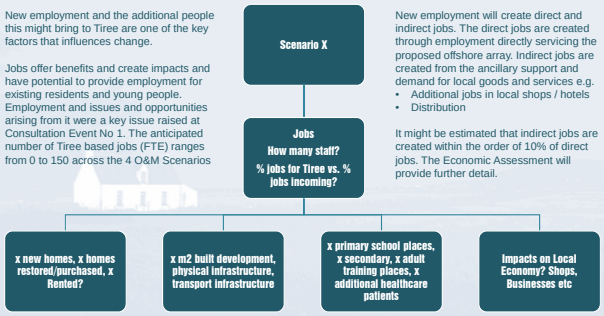
1. **Nature of O&M Scenario**
   Onshore, Offshore Platform, Offshore Mothership, Onshore plus Mothership
2. **People required for each O&M Scenario**
   Onshore, Offshore - Tiree based Staff / Local jobs / Incoming workers
3. **Employment Profile for each O&M Scenario**
   Job Description / Skills Required / Training Support / Commitment to Local Job access
4. **Need & Implications for Community Infrastructure**
   Housing, Education and Healthcare and Lifeline service provision and Way of Life
5. **Need and Implications for Transport Infrastructure**
   Harbour upgrading , road access, ferry capacity, workboat facilities, helicopter access
6. **Need and Implications for Physical Infrastructure**
   Office, Workshop, Land Area, Maintenance Space, Harbour, ICT

Scenario Mapping

Scenario Development

New employment and the additional people this might bring to Tiree are one of the key factors that influences change.

Jobs offer benefits and create impacts and have potential to provide employment for existing residents and young people. Employment and issues and opportunities arising from it were a key issue raised at Consultation Event No 1. The anticipated number of Tiree based jobs (FTE) ranges from 0 to 150 across the 4 O&M Scenarios



Employment – Direct vs. Indirect

New employment will create direct and indirect jobs. The direct jobs are created through employment directly servicing the proposed offshore array. Indirect jobs are created from the ancillary support and demand for local goods and services e.g.

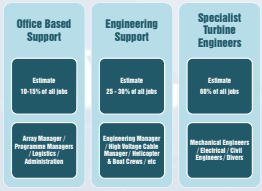
- Additional jobs in local shops / hotels
- Distribution

It might be estimated that indirect jobs are created within the order of 10% of direct jobs. The Economic Assessment will provide further detail.

Scenario Mapping

Use of Profiles in Scenario Planning / Mapping

Job Types
Recognising that new employment and the additional people this might bring to Tiree are one of the key factors that influences change we use profiles to look at likely job opportunities available. Job requirements have been estimated based on broadly comparable O&M facilities and can be broadly broken down as follows:



Job Profiles – Local vs. Non Local
In order to assess the likely implications on Tiree, we need to look at how many of the potential jobs that could be available in O&M may be filled by those already resident on Tiree vs. those coming to Tiree i.e. Local vs. Non Local Jobs. We have looked at 3 different profiles:

Profile 1 (Assumptions)	Profile 2 (Assumptions)	Profile 3 (Assumptions)
• 35% Local • 65% Non Local	• 25% Local • 75% Non Local	• 15% Local • 85% Non Local

The Non-Local Jobs are those with greatest potential to bring change to Tiree – we have assumed 70% are single and 30% would bring a family. This allows a range of assessments to be presented in respect to housing provision requirements, school places, healthcare requirements and overall population growth.

We have applied the profiling to Scenarios 1, 2, 3 and 4 to provide and understanding of potential implications.

Jobs are Full Time Job Equivalents (FTE) which means that some of these jobs will be part time or seasonal and offer flexible posts for both men and women. The Scenario Planning exercise only looks at assumptions of the direct jobs at this stage.

Scenario Mapping

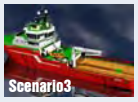
The Community Consultation Event No 1. highlighted a general concern to better understand impacts/benefits on: Jobs / Skills / Training / Built Development / Housing / Harbour / Airport / Roads / Ferry / Education / Healthcare In addition, the consultation event highlighted some of the softer or secondary impacts/benefits that may arise from change and highlighted a desire to better understand the level of assurance the community could secure about local opportunity and impacts on: Local Economy, Businesses, Enterprise and opportunity for young people etc Way of Life, Culture, Crofting and Land Management Environment and place quality.

Onshore O&M Base – On Tiree
An onshore base would have a Tiree base operating between the O&M office and workshops, harbour and helipad.

Scenario 1 therefore has significant direct implications for Tiree in terms of O&M activity with impacts or benefits occurring at the O&M base, which is assumed to be at the harbour with possible facilities at the airport.

Offshore O&M Base - Platform
An offshore platform servicing the offshore array with connections to the mainland base for staffing and equipment.

Scenario 2 has no or negligible direct implications for Tiree in terms of O&M activity. Any impacts or benefits would occur wherever the O&M mainland base operates from – e.g. a mainland Scottish port.



Offshore O&M Base – Mothership
An offshore mothership arrangement for servicing the offshore array operating from a mainland port.

Scenario 3 has an Operational Control Centre and helicopter crew based on Tiree with all other O&M based on the Mothership. This Scenario therefore has minor direct implications for Tiree in terms of O&M activity. The main impacts or benefits would occur wherever the O&M mainland base operates from - e.g. a mainland Scottish port

Onshore O&M Base & Mothership
An onshore O&M base comprising O&M office, harbour and helipad. Two motherships would use the harbour for crew changes, re-fuelling and supplies.

Scenario 4 therefore has significant direct implications for Tiree in terms of O&M activity with impacts or benefits occurring at the O&M base which is assumed to be at the harbour with possible facilities at the airport.

Scenario 1

Your Thoughts ?

Onshore O&M Base

An onshore base would have a Tiree base operating between the O&M office and workshops, harbour and helipad.

- Full O&M base including Office space, Maintenance and Workshop and Laydown space
- Helicopter pilot office within O&M base
- SCADA control room not on Tiree (utilise existing mainland facility)
- 5 no. Workboat
- Helipad (1 x helicopter Eurocopter 135)
- Harbour upgrade would be required including breakwater

The proposed offshore array would be managed from O&M operational and maintenance base on Tiree.


London Array onshore O&M Base design

Key Implications for Tiree
Onshore staffing would mean direct impacts and benefits to Tiree coupled with a requirement for a built facility or development of facilities on the island.
The harbour would need to be upgraded to provide facilities for workboats and helipad would be stationed at either the harbour or the airport.

Scenario 1

Your Thoughts ?

Assessment
Economic

- Direct Employment - 150 Array jobs (50% increase in current jobs base of island)
- Indirect Employment - 50 net additional jobs
- Approx £6.7 million net additional GVA per annum from all additional economic activity
- Substitution - Around 30-50 existing jobs would need to be back-filled as a result of residents choosing to work on proposed Array (50/50 between full and part-time jobs)
- 20-25 new residents seeking work on Tiree (outwith Array) with 5 new residents establishing new businesses on Tiree (assume home workers)
- 26-33 new houses needed with one-off construction impacts from housing development equivalent to 20 one-off annual jobs and £600,000 GVA
- New harbour – assume 15 new marina berths for leisure purposes
- Tourists (marina) + visiting friends + relatives generating local spending of £630,000 per annum less £100,000 per annum lost from holiday homes becoming permanent residences.

Assessment
Socio-Economic

- Increased population supports community infrastructure / resilience
- Supports more balanced demographic – age structure /social environment
- Increased population supports argument for improved ferry/air - lifeline services
- Greater demand for local goods and services
- Increased demand in sectors Hotels /Leisure/Retail sector

Assessment
Environment

- New harbour would need to be designed to ensure that there are no impacts on bird assemblages within SPA, SSSI and Ramsar site – Information to Inform an Appropriate Assessment will be required.
- Any development proposed at the airport would need to consider potential for impacts on the Tiree Machair SAC.
- Noise associated with helicopter flights – commitment to flight paths to avoid residential areas.
- Construction Method Statements for development

Profile 2 (25% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		150
% Local	25%	38
% Non Local (relocations)	75%	113
Employees (with families)	30%	34
Employees (without family)	70%	79
Socio Economic		
Family		
New Homes Built	40%	14
Existing Homes Restored / Purchased	20%	10
Other + Rented (PT Residents)	30%	10
Single Professional		
New Homes Built	30%	24
Existing Homes Restored / Purchased	20%	16
Other + Rented (PT Residents)	50%	38
Built Development		
Offices (m2)	m2	600
Workshops / Support (m2)	m2	3500
Site (laydown+parking) (m2)	m2	2000
Community Infrastructure		
Primary School Places (0.27)		9
Secondary School Places (0.2)		7
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		143
Population Growth		143
Environment		
Major Infrastructure		New Harbour
Helicopter Return Flights Per Day		7 to 12
Building Land Take	m2	5100
Water (daily personal consumption - 200 per day)	l/day	28575
Water (O&M)	l/day	73440
Electricity (domestic) kVA	kVA	111
Electricity (O&M) kVA	kVA	233

Scenario 2

Your Thoughts ?

Offshore O&M Base (Platform)

An offshore platform, located within the array, with workboats and one helicopter stationed on the platform.

- No O&M base on Tiree
- No SCADA control room (utilise existing mainland facility)
- Helicopter Station provided on mainland but with some limited use of Tiree Airport and offering a potential link for local employees
- No O&M Support infrastructure required on Tiree

The proposed offshore array would be managed from a main land base with O&M operational and maintenance activity operated from the platform.
The platform would operate similar to oil and gas developments with O&M staff recruited nationally and flown/transported to the platform by air or boat from a mainland airport/port. No daily contact with Tiree would be required but fortnightly employment flights to the platform may be possible.

Key Implications for Tiree
Offshore staffing would mean no direct impacts or benefits to Tiree and no requirement for a built facility or development of facilities. Employment opportunity may exist at a minimal scale.

Scenario 2

Your Thoughts ?

Assessment
Economic

- Direct Employment - 5 Array jobs, equating to 2% increase in current jobs base of Tiree (None of these jobs are likely to be for local residents)
- Indirect Employment - very limited additional jobs or GVA for island
- Substitution - No substitution issues over existing jobs needing to be back-filled
- 1 new residents seeking work on Tiree (outwith Array) with no new residents establishing new businesses on Tiree
- 2-3 new resident houses needed, of which all assumed to be new build with one-off construction impacts from housing development equivalent to 2-3 one-off annual jobs and £0.1m GVA
- Visiting friends + relatives generating very limited local spending of c. £1,000 per annum
- no negative impact on existing visitor numbers through lost holiday homes

Assessment
Socio-Economic

- No O&M based change to population on Tiree - any population structure changes will be in relation to existing factors i.e. availability of local jobs and employment
- No potential for improved ICT infrastructure etc through O&M activity
- There will still be opportunity for access to training through for example Education Charters, Bursaries and Apprenticeships associated with the proposed array.

Assessment
Environment

- No harbour/breakwater would be required, nor any built development on the island and therefore no anticipated environmental considerations or protection requirements
- Visual effects of the proposed offshore rig may need to be addressed in consultation with Marine Scotland
- Occasional helicopter flights associated with this Scenario and therefore noise associated with helicopter flights should be addressed through commitment to flight paths minimising impacts on residential areas.

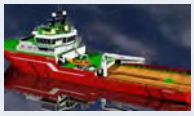
Profile 2 (25% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		0
% Local	25%	0
% Non Local (relocations)	75%	0
Employees (with families)	30%	0
Employees (without family)	70%	0
Socio Economic		
Family		
New Homes Built	40%	0
Existing Homes Restored / Purchased	30%	0
Other + Rented (PT Residents)	30%	0
Single Professional		
New Homes Built	30%	0
Existing Homes Restored / Purchased	20%	0
Other + Rented (PT Residents)	50%	0
Built Development		
Offices (m2)	m2	0
Workshops / Support (m2)	m2	0
Site (laydown+parking) (m2)	m2	0
Community Infrastructure		
Primary School Places (0.27)		0
Secondary School Places (0.2)		0
Educational Bursaries		3
Adult Training / Apprenticeships		3
Additional Healthcare Patients		0
Population Growth		0
Environment		
Major Infrastructure		None
Helicopter Return Flights Per Day		occasional
Water (daily personal consumption - 200 per day)	l/day	0
Water (O&M Consumption)	l/day	0
Electricity (domestic) kVA	kVA	0
Electricity (O&M) kVA	kVA	0

Scenario 3

Your Thoughts ?

Offshore O&M Base (Mothership)

Two motherships, stationed within the array, with daughter workboats and one helicopter stationed on the motherships with the mothership working from a mainland port.



- Operational control centre on Tiree but limited to office based functions, with no wider O&M support infrastructure (e.g. motherships) required on Tiree
- No SCADA control room (utilise existing mainland facility)
- No workshop facility
- Helicopter Station provided on Tiree

The proposed offshore array would be managed from a local Operational Control Centre based on Tiree and potentially located at the airport alongside helipad facilities. All physical operations and maintenance activity will be managed from the motherships with the vessels acting as a mobile platform. O&M staff would return to the mainland operating port, based on a shift pattern arrangement. No daily contact with Tiree would be required but fortnightly employment flights for local employees to the mothership may be possible.

Key Implications for Tiree
Offshore staffing would limit the impacts or benefits to Tiree with these limited to the operation control centre. Offshore employment opportunity may exist but would not be locally connected and access to opportunity may be more restricted than in other scenarios.

Scenario 3

Your Thoughts ?

Assessment
Economic

- Direct Employment - 25 Array jobs, (8% increase in current jobs base of island)
- Indirect Employment - 5 net additional jobs on Tiree
- Approx £1.1 million net additional GVA per annum from all additional economic activity
- Substitution - 5-10 existing jobs would need to be back-filled as a result of residents choosing to work on proposed Array (split 50/50 between full and part-time positions)
- 5-10 new residents seeking work on Tiree (outwith Array) assume 1 new resident establishing new businesses on Tiree;
- 4-6 new houses needed for new residents, of which one-off construction impacts from housing development equivalent to 5-6 one-off annual jobs and £0.2m GVA
- Visiting friends + relatives generating limited additional local spending of £7,000 per annum with lost spend of £10,000 per annum from holiday homes becoming permanent residences.

Assessment
Socio-Economic

- No O&M based change to population on Tiree or resulting change to island services or businesses - any population structure changes will be in relation to existing factors i.e. availability of local jobs and employment
- No potential for improved ICT infrastructure etc through O&M activity
- There will still be opportunity for access to training through for example Education Charters, Bursaries and Apprenticeships associated with the proposed array.

Assessment
Environment

- No harbour/breakwater would be required on the island so no potential impacts.
- Environmental design of any buildings would minimise potential impacts e.g. visual in line with Tiree Design Guide
- Any development proposed at the airport would need to consider potential for impacts on the Tiree Machair SAC.
- Noise associated with helicopter flights – commitment to flight paths to avoid residential areas.
- Construction Method Statements for development

Profile 2 (25% Local Jobs)		
Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		25
% Local	25%	6
% Non Local (relocations)	75%	19
Employees (with families)	30%	6
Employees (without family)	70%	13
Socio Economic		
Family		
New Homes Built	40%	2
Existing Homes Restored / Purchased	30%	2
Other + Rented (PT Residents)	30%	2
Single Professional		
New Homes Built	20%	3
Existing Homes Restored / Purchased	30%	4
Other + Rented (PT Residents)	50%	7
Built Development		
Offices	m2	150
Workshops / Hangar	m2	500
Site Ancillary	m2	250
Community Infrastructure		
Primary School Places (0.27)		2
Secondary School Places (0.2)		1
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		24
Population Growth		24
Environment		
Major Infrastructure		None
Helicopter Return Flights Per Day		between 1 and 5 per day
Water (daily personal consumption - 200 per day)	l/day	4763
Water (O&M Consumption)	l/day	12960
Electricity (domestic) kVA	kVA	15
Electricity (O&M) kVA	kVA	49

Scenario 4

Your Thoughts ?

Onshore O&M Base / Mothership

A combination of scenarios 1 and 3 with an arrangement based on motherships /daughter workboats working within the array, with the motherships and helicopter working from a Tiree base.

- O&M Office space, Maintenance and Workshop, Laydown space on Tiree
- Helicopter pilot office within O&M base
- SCADA control room not on Tiree (utilise existing mainland facility)
- 2 Motherships
- Helipad (1 x helicopter Eurocopter 135)
- Harbour upgrade would be required including breakwater

The proposed offshore array would be managed from Tiree including all operational and maintenance activity excluding SCADA /off-site monitoring control. The motherships would operate from an enhanced harbour but would be stationed on-field returning to Tiree for re-supply, crew changeovers and parts on a regular cycle – probably fortnightly, with one mothership returning to Tiree each week. Helicopter flights would support the motherships and would work in combination with the motherships in deliver technical engineers to the turbines. It would not be envisaged that turbine towers, nacelles or blades would be stored on the island. Key activities would include operational management, marine & flight logistics, programme management and engineering support.

Key Implications for Tiree
The numbers of O&M staff living on Tiree is anticipated to be 59 people but the potential catchment would be wider allowing mainland and Coll resident employees to access Tiree for the shift changes moderating the likely demands for local services, housing and community infrastructure. Critical to this scenario is development of harbour facilities.

Scenario 4

Assessment
Economic

- Direct Employment - 59 Array jobs (19% increase in current jobs base of island)
- Indirect Employment - 30 net additional jobs
- Approx £2.8 million net additional GVA per annum from all additional economic activity
- Substitution - 10-20 existing jobs would need to be back-filled as a result of residents choosing to work at Array (split 50/50 between full and part-time positions)
- 10 new residents seeking work on Tiree (outwith Array) and assume 2 new residents establishing new businesses on Tiree
- 10-13 new houses needed for new residents with one-off construction impacts from housing development equivalent to 10 one-off annual jobs and £0.3m GVA
- 15 new marina berths, of which 6 permanent/5 visitor (attracting new visitors)
- Tourists (marina) + visiting friends + relatives generating local spending of £600,000 per annum less £20,000 per annum lost from holiday homes becoming permanent residences.

Assessment
Socio-Economic

- Level of population increase would support community infrastructure / resilience and more balanced demographic – age structure /social environment
- O&M based change to population on Tiree would support island services – need to ensure that demand is accommodated without affecting Lifeline Services (airferry)

Assessment
Environment

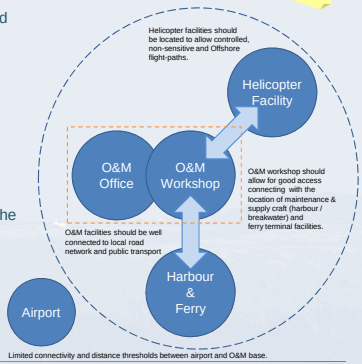
- New harbour would need to be designed to ensure that there are no impacts on bird assemblages within SPA, SSSI and Ramsar site – Information to Inform an Appropriate Assessment will be required.
- Any development proposed at the airport would need to consider potential for impacts on the Tiree Machair SAC.
- Noise associated with helicopter flights – commitment to flight paths to avoid residential areas.
- Construction Method Statements for development

Profile 2 (25% Local Jobs) Economic		
Jobs	**Assumption**	**Estimate**
Number Jobs (FTE)		59
% Local	25%	15
% Non Local (relocations)	75%	44
Employees (with families)	30%	13
Employees (without family)	70%	31
Implications		
Socio Economic		
Family		
New Homes Built	40%	5
Existing Homes Restored / Purchased	30%	4
Other = Rented (PT Residents)	30%	4
Single Professional		
New Homes Built	20%	6
Existing Homes Restored / Purchased	20%	9
Other = Rented (PT Residents)	50%	15
Built Development		
Offices	m2	300
Workshops / Support	m2	2500
Site	m2	2000
Community Infrastructure		
Primary School Places (0.27)		4
Secondary School Places (0.2)		3
Educational Bursaries		3
Adult Training / Apprenticeships		5
Additional Healthcare Patients		56
Population Growth		56
Environment		
Major Infrastructure		New Harbour
Helicopter Return Flights Per Day		1 to 5
Water (daily personal consumption - 200l per day)	l/day	11240
Water (O&M Consumption)	l/day	69120
Electricity (domestic) kVA	kVA	35
Electricity (O&M) kVA	kVA	210

This information represents Ironside Farrar's initial findings and draft recommendations informed by community consultation

Facility Dependencies

- O&M facilities would be anticipated to include:
  - O&M offices
  - O&M workshop
  - Helicopter facility, including hangar
- O&M operators generally seek clustering of core activity within a single O&M base
- O&M spatial requirements within the scenarios fall within the range of:
  - Offices 150-600m2
  - Workshop 500-2500m2
  - External Yard 250-2000m2



Limited connectivity and distance thresholds between airport and O&M base.

Scale of Elements

- Typical Scale of Potential O&M Buildings / Class 4 & 5 / Height & Typical Elevational / Gable Scale Detail
- Workshop Buildings for O&M reflect larger industrial buildings on Tiree and could be sub-divided to mitigate impacts of scale and massing
- Location, design and colour treatments will all be important in securing a fit within the landscape and place setting

Scale of some existing buildings on the island

Typical 5m existing industrial building

* Part of the convertor station has to accommodate taller equipment therefore it is expected that only a short section of the converter station would need to be 25m high.

Visions for Tiree

- **The Community Development Plan includes an overall vision for the future of Tiree (2011-2016)***

  "In 2025 Tiree will continue to be a thriving and economically viable community sustaining a high quality of life for all whilst safeguarding our remarkable environment, heritage and culture. By making the Island more attractive to young people and families we will work towards a slow, sustainable population growth, preventing a population decline"

The O&M Scenarios have potential for impacts and benefits to the island and existing way of life.

Scenario	Initial appraisal of Scenario against Vision
Scenario 1	This O&M scenario will bring new residents to Tiree whilst seeking to provide jobs to existing Tiree residents. A new harbour/breakwater would be required as part of the delivery of this scenario and should have wider benefits to the island in terms of reliability of ferry services and travel. Need to recognise the level of change to the island and that potential impacts on environment, heritage and culture need to be addressed through mitigation, forward planning, infrastructure and service review e.g. for community services
Scenario 2	This O&M scenario would not increase the current population over and above existing levels of growth and therefore would also not bring any benefits or impacts to the island.
Scenario 3	This O&M scenario would include a small increase in new residents to Tiree and may therefore have modest wider benefits. Similarly the levels of proposed built development on the island (operations control centre and helipad) would be unlikely to have significant environmental impacts that could not be addressed through sensitive design.
Scenario 4	Similar changes to Scenario 1 with lower number of new residents based on the island.

Objectives*

Mitigation	Sensitive design in line with AdBC Sustainable Design Policy and Guidance
Planning	Appropriate planning for new housing and associated infrastructure
Service Demand	Services would be required to respond in relation to any increases to population
Infrastructure	New Harbour/Breakwater would be required and should seek to capture wider benefits to the island.

Proposed Objectives	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Agriculture To seek to maintain current land management practice and capacity including access to markets and sustaining agricultural / crofting employment	Mitigation Infrastructure	–	–	Mitigation Infrastructure
Fishing To seek to maintain the fishing industry at current levels and/or support modest sustainable growth through improvements to infrastructure and secondary support for fishing incomes.	Infrastructure	–	–	Infrastructure
Design & Construction To seek to ensure place quality is enhanced, derelict and vacant land and buildings are utilised, sustainable design principles and local bespoke design guidance is adopted.	Mitigation	–	–	Mitigation
Education To seek to ensure any additional population growth associated with O&M supports educational provision on the island.	Service Demand	–	Service Demand	Service Demand
Employment To seek to increase local employment opportunities that support skills and training and opportunities for young people whilst growing the locally employed population base and non-seasonal job opportunities.	Infrastructure	Infrastructure	Infrastructure	Infrastructure
Heritage To seek to protect social, environmental and cultural heritage recognising a risk associated with de-population that impacts on a vibrant inland cultural life.	Mitigation	–	–	Mitigation
Nature Conservation To seek to respect nature conservation designations and ensure any future planning and design take full account of environmental impacts and conservation of natural systems.	Mitigation	–	–	Mitigation
Housing To seek to ensure any additional population growth associated with O&M provides housing complementary to the existing settlement structure and its distinctive place qualities.	Mitigation Planning Infrastructure	–	–	Mitigation Planning Infrastructure
Noise To seek to ensure that the noise environment is addressed with specific reference to helicopter access and servicing.	Mitigation	Mitigation	Mitigation	Mitigation
Tourism To seek to maintain the 'special qualities of place' that support the tourism sector recognising the importance of sports / leisure / recreation and cultural heritage to the tourism economy.	Mitigation Planning Infrastructure	–	–	Mitigation Planning Infrastructure
Transport To seek to maintain and enhance transportation access within the modes of air, sea and road with appropriate improvements to infrastructure or service levels that recognise the needs of all sectors.	Mitigation Service Demand Infrastructure	–	–	Mitigation Service Demand Infrastructure
Visual Change To seek to ensure that the visual environment is addressed with specific reference to place quality, buildings and design.	Mitigation	–	–	Mitigation
Health To seek to maintain access to health facilities and ensure provision addresses future health needs	Service Demand	–	Service Demand	Service Demand
Way of Life To seek to maintain a special 'way of life' that offers a diversity of community interests, opportunity for enterprise, for relaxation and amenity that support civic community capacity and health and avoids the loss of the things that make Tiree a special place to live, work and visit.	Mitigation Planning Service Demand Infrastructure	–	Mitigation Planning Service Demand Infrastructure	Mitigation Planning Service Demand Infrastructure

* Objective-led assessment (in line with STAG and SEA assessment methodologies)

Initial Scenario Mapping 1-4

Scenario 1 – O&M Base

Scenario 2 – Offshore Platform

Scenario 3 – Offshore Mothership

Scenario 4 – O&M Base / Mothership

Summary Scenario 1-4

Your Thoughts ?

	1	2	3	4
Jobs on Tiree				
Houses on Tiree new build				
School Pupils primary & secondary				
Built Development				
Helicopter Flights per day return flights				
Population Growth				

This information represents Ironside Farrar's initial findings and draft recommendations

Scenario Mapping

Your Thoughts ?

Consultations have highlighted a breadth of issues with consultees seeking more information on which to asses the O&M implications for Tiree. Development introduces change that may have implications and these may be perceived as benefits or impacts depending on ones perspective. We are keen to better understand the balance of opportunity and impact (benefits and dis-benefits) of each of the 4 Scenarios. A view is summarised below but we would appreciate your comments and thoughts.

Strengths
- O&M base on Tiree
- Significant job opportunities
- Investment in harbour facilities
- Population growth supports community facilities

Weaknesses
- O&M base on Tiree
- Built development
- Additional loads to transportation connections

Opportunities
- Employment opportunity
- Retention young people
- Developing new skills
- Investment in island infrastructure

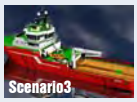
Threats
- Changes impacts on way of life

Strengths
- O&M change limited to offshore
- No additional load on island infrastructure / transport

Weaknesses
- Limited job opportunities all based offshore
- No required investment in island infrastructure
- Limited economic gain

Opportunities
- Limited employment or supply chain
- Limited jobs with ready local access
- Training Opportunity
- Apprenticeship opportunity

Threats
- Array secures no local benefit



Strengths
- Operating Centre on Tiree
- Some job opportunities onshore and offshore
- O&M Facilities assumed to be based at Mainland Location (A&B)

Weaknesses
- Limited employment opportunity
- Limited required investment in island infrastructure
- Limited economic gain for Tiree

Opportunities
- Some employment opportunity
- Training opportunity
- Apprenticeship opportunity

Threats
- Array secures limited local benefit

Strengths
- O&M base on Tiree
- Moderate job opportunities
- Investment in harbour facilities
- Population growth supports community facilities

Weaknesses
- O&M base on Tiree
- Built development
- Additional loads to transportation connections

Opportunities
- Employment opportunity
- Retention young people
- Developing new skills
- Investment in island infrastructure

Threats
- Changes impacts on way of life

Key Findings

Your Thoughts ?

Finding
Scenarios

The 4 O&M Scenarios all offer varying benefits / dis-benefits to Tiree

- Scenarios represent options for O&M management & procurement
- Sub-options exist and will be influenced by changing technologies, baseline conditions
- Scenarios 1 & 4 offer the greatest island opportunity for employment
- Scenarios 3 & 4 offer greater operator flexibility through use of motherships
- Scenarios 2 & 3 minimise any island land based O&M requirements

Finding
Consultation

Community views are divergent on the Array with indications of more convergence on O&M

- Concerns at the scale of change and implications on island way of life
- Concerns at local capacity and developer assurances around jobs
- Concern that the route to capture opportunities and benefits unclear
- Recognition that key benefits will be local employment and enterprise opportunity
- Recognition that sustainable population growth could support community aspirations
- Recognition of a key need to build social and economic opportunities for the community

The 'key findings' sections represent Ironside Farrar's initial findings and draft recommendations informed by community consultation

Key Findings

Your Thoughts ?

Finding
Policy Framework

O&M activity offers convergence with the policy framework for fragile island communities to promote sustainable economic activity and balanced communities.

- Economic policy supports investment
- Planning policy supports balanced communities, strengthening of community capacity and quality in the natural and built environment
- Community planning supports the retention of local community facilities and services
- Recognition in policy terms that sustainable economic development is important in building a resilient socio-economic infrastructure

Finding
Community Objectives

O&M activity offers convergence with Community planning (Tiree Community Development Plan and Forum Report) providing opportunity to strengthen community capacity.

- Population growth
- Greater opportunities for enterprise
- Opportunities for Young People
- Strengthening local Educational Facilities
- Secure Affordable housing
- Improve Household Incomes
- Extend Tourism Season & Offer (Harbour)
- Community Assets & Development

The 'key findings' sections represent Ironside Farrar's initial findings and draft recommendations informed by community consultation

Key Findings

Your Thoughts ?

Finding
Engagement

Community and stakeholders are seeking continued consultation and direct involvement in the consideration of O&M.

- Desire for continued and ongoing involvement in scenario and masterplan development
- Desire to develop a structured format for future consultations
- Communities seeking transparency in consultation with all information available online
- Communities seeking greater detail on O&M scenarios and the spatial and economic implications
- Consultation and community engagement in future masterplanning and assessment processes should inform the planning process.

Finding
Community Benefits

Opportunity should be explored for a Community Fund to support local initiatives and address change.

- Community fund would help support non-mitigatable impacts on local community assets and wellbeing
- Community fund would ensure more inclusive local benefits that support community objectives
- Community funds would allow economic, social and environmental investment selected by the community
- Community fund would address concern under some scenarios that community gain could be negligible and include issues of assurance where developer may not be able to guarantee outcomes
- Consultation and community engagement in future masterplanning and assessment processes should inform the planning process.

The 'key findings' sections represent Ironside Farrar's initial findings and draft recommendations informed by community consultation

Key Findings

Your Thoughts ?

Finding
Socio-Economic

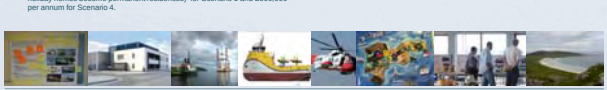
O&M activities will create jobs and opportunities for residents and young people with implications on local services.

- Direct / Indirect Employment
  - 150 Array jobs for Scenario 1 / 50 net additional jobs plus 30-50 back-filled
  - 0 Array jobs for Scenario 2 / Limited net additional and no jobs back-filled
  - 25 Array jobs for Scenario 3 / 5 net additional jobs plus 5-10 back-filled
  - 59 Array jobs for Scenario 4 / 30 net additional jobs plus 10-20 back-filled
- Net additional GVA per annum
  - Approx £6.7 million GVA for Scenario 1 / Limited GVA for Scenario 2 / Approx £1.1 million GVA for Scenario 3 / Approx £2.8 million GVA for Scenario 4
- Housing
  - One-off construction impacts from housing development equivalent to 20 one-off annual jobs and £0.6m GVA for Scenario 1 and 10 one-off annual jobs and £0.3m GVA for Scenario 4
- Additional Local Spend
  - Tourists (~15 berth marina) + visitors to new residents could yield up to £630,000 per annum (less £100,000 per annum lost from tourist spend if holiday homes become permanent residences) for Scenario 1 and £600,000 per annum for Scenario 4.

Finding
Environment

O&M activity will require built facilities and have wider environmental implications associated with servicing and boat and helicopter movement.

- Place-making and protection of place quality will be an important consideration in masterplanning
- Development should avoid sensitive locations and potential impact on existing productive land-use
- Helicopter flights require further assessment including consideration of non-land based flight paths and noise attenuated aircraft
- Environmental designations will require detailed appraisal at EIA stage and specifically to any harbour or breakwater facility
- Risk based assessments for potential pollution of marine environment along with mitigation would need to be addressed.



The 'key findings' sections represent Ironside Farrar's initial findings and draft recommendations informed by community consultation

Key Findings

Your Thoughts ?

Finding
Opportunity

O&M activity offers opportunity to secure investment in facilities that can support the island economy and would provide positive benefits.

- Population growth will support the demand for goods and services and add resilience to the island economy
- Harbour / Breakwater facilities could support recreational boating / in-shore fishing / ferry lifeline services and the islands tourism economy
- O&M investment will support better broadband services
- O&M demands have the potential to increase demand and support for improved air and ferry connections
- O&M would encourage investment in property and support residential property rentals

Finding
Capacity

O&M activity, within island based scenarios, introduces demands that may impact on existing services but are generally positive.

- Medical services have capacity and ability to develop with positive local benefits
- Education services have capacity and ability to develop with positive local benefits
- Transport services (road networks, public transport) are likely to be satisfied by local upgrading
- Lifeline services (ferry / air) are constrained and additional service levels promoted through demand
- Waste and utility services demands are likely to be satisfied by local upgrading
- Retail services can be anticipated to respond to market need

Key Findings

Your Thoughts ?

Finding
Development Mitigation

O&M in all 4 No. scenarios offers opportunity to mitigate development and physical/environmental impacts through forward planning and partnership working. Main areas for mitigation could include:

- Planning controls imposed through Consent Conditions
- Avoidance of sensitive locations and environment in spatial planning including minimising spatial footprint
- Quality commitment to urban design and settlement planning with Local Communities
- Defining air corridors; flight levels and maximum noise levels to land areas
- Securing early design development & decisions on the Converter Station / Converter Technology

Finding
Socio-Economic Mitigation

O&M in all 4 No. scenarios offers opportunity to mitigate socio-economic impacts through forward planning and partnership working. Main areas for mitigation could include:

- Commitment to Local Job targets /Employment Charter
- Support to Educational Bursaries and Training /Skills Development & Apprenticeships
- Developing a Supply Chain Programme with local SME's across Argyll & Bute & local providers
- Ensure infrastructure delivers common benefits through local access (Harbour/ICT/Training Space/Fuel Storage)
- Development of a Community Fund allowing for investment in local culture / community infrastructure

Next Steps

Your Thoughts ?

O&M activity on Tiree will require continued engagement between Scottish Government, Argyll & Bute Council, key stakeholders and the community. O&M masterplanning needs to parallel the consideration of the proposed offshore array. Key next steps and further studies relative to O&M will be informed and influenced by the finalised project design and are subject to further assessments which will be undertaken within the consenting process. In the event of an Array proceeding there may also be support to inform further studies relative to:

- Local Development Plan (LDP)
  Development Framework / Masterplan to maintaining consultation and potentially informing LDP
  Scenario mapping has the potential to help inform the LDP as the scenarios and details continue to develop
- Harbour Feasibility Study
  Detailed study will impact on viability of Scenario 1&4 and would require early study and delivery
- Advance Skills and Training Programme
  Advance Initiative required linking Skills /Training with future need with 3-4 year lead time.
- Community Benefit Review
  Need to continue a dialogue on opportunity and issues associated with Community Benefits
- Converter Station Design & Locational Assessment
  Converter Station decisions are important to impact and mitigation. We understand that detailed assessment will be through the EIA for the proposed Array.
- License / Planning Procurement Programme
  Need to ensure programme convergence on key consent and delivery
- Operational Baseline (Array) Studies
  Need to establish environmental /wave /construction & operational parameters effecting marine servicing. We understand that detailed assessment will be through EIA and engineering design for the proposed array.

Appendix 8
Consultation Event Summaries

Appendix 8 Consultation Summaries

Event 1 Boards

Comments from Event 1 (24th and 25th August 2011) and Event 2 (3rd and 4th October 2011)

No.	Board	Event 1 Comments (24th and 25th August 2011) –Yellow Stickers	Event 2 Comments (3rd and 4th October 2011) – Orange Stickers
Introductory Boards			
1	**Welcome**	• It is not surprising that many people cannot make their minds up – it's like trying to buy a car when the manufacturers won't tell you the colour, size or engine size. It would be difficult! • We must benefit from this. Do not allow it to go ahead without involving Tiree. The benefits could be tremendous. • Important that the island benefits from this. • Beyond "assisting" in considering what is the effect/ relevance of this exercise in the licensing/ consenting process. • Tiree must benefit in a good way or it will only detract from beauty and peace which we love and people come for. • They would not be interested if they were not going to make a massive profit & get government grants. • The exhibition lists nothing but 'Concerns' without mentioning 'Hopes' which is not balanced. • It is hoped that Tiree WILL benefit. Not that we are to be only lookers on!	
2	**Consultation**	• How will Event 2 be presented to the Tiree community stakeholders. • Lots to think about! Not enough information yet. Results of Array surveys wildlife, health impact etc not yet known. Would like to hear more positive comments and attitudes instead of all gloom and doom! SPR – give more info please. • Come to this meeting, please!	
3	**Consultees**	• Surely the residents are the Principal Stakeholders? • Does an Array require SPR to place a fund up front for decommissioning? • Will any benefit to C. Mac, also be beneficial to Residents. • Where are residents? X 2	
4	**The Steering Group**	• Why was "NTA" not considered as representing a Community Stakeholder Group. • If project goes ahead we must make sure that Tiree benefits. It would be tragic if it all happened off-shore.	

No.	Board	Event 1 Comments (24th and 25th August 2011) –Yellow Stickers	Event 2 Comments (3rd and 4th October 2011) – Orange Stickers
5	**O & M Scenarios**	• Need images. • Scenario 1 with building designed by ECO – experts on Rural Design. Scenario 1 with apprenticeships etc for our school kids **NOW**! • If it goes ahead should be scenario 1. If we have the upheaval etc we should be able to have same benefit! • No benefit to Tiree from 2 of 3 from this description. • Would support O&M activities only if island benefits. Scenario 1 preferred. Scenario 2 & 3 would be against. • Too close. 2) Visual Impact. SPR already know what O&M will be. • Scenario 1. 1) Best for island. 2) Would bring more jobs. 3) Mixture of Scenarios possible? Agree. • Tiree needs the O&M to be onshore. This is where the benefits are in terms of jobs and strengthening the population. • Argyll & Bute Council applying to Scottish Government for £20m for O&M of offshore windfarms (Tiree). Does this mean they might get any jobs instead of Tiree? • I agree. They will promise anything to get our support. There must be a clause about clearing the remains when they stop working after 10 years. • No guarantee whether on or offshore that there will be jobs for Tiree people. • General Point: Need for formal modelling of e.g. School number impact/ stability of incoming O&M staff so they can contribute to community life/ cultural heritage. As part of formal process so SPR can be held to commitments. • They will promise what they think we want to hear. Glensanda Quarry Argyll promised work. It did not happen. Workers from elsewhere. • Scenario 1. Would hope to give employment and long term harbour would benefit island and possibly increase yacht visitors. • Scenario 3. Most sustainable. Least fuel use and infrastructure on island. • Not concerned at Visual Impact but concerned at cost, government support etc. • Harbour capacity at Oban? Campbeltown, Ullapool? • This is not going to bring permanent residents i.e. The RAF and the Met Office – they had a turnover - ok one or two married local girls but on the whole they moved on to other places. • Any harbour should no impact …… important sites e.g. Hynish. • Would this scenario be most beneficial to community and contribution to	• Scenario 1 – best for island. • Scenario 1 – let the island benefit! • Scenario 1 for the island. • There are bound to be negative impacts on this fragile island, fragile way of life – any benefits must be assured to outweigh these!

No.	Board	Event 1 Comments (24th and 25th August 2011) –Yellow Stickers	Event 2 Comments (3rd and 4th October 2011) – Orange Stickers
		island? • Personally would much prefer no land based on Tiree. Detriment is likely to outweigh benefit even though all will suffer visual impact of array.	
6	**Way Of Life (setting Scene)**	• Will any benefits to Tiree, mean that we shall lose so much that we value i.e. Peace, Safety, friendliness & our Gallic Culture. • Important heritage site at Hynish with museums etc. • Hynish important for heritage & culture – both for islanders & visitors. • At present we have no crime –we do not lock our doors or worry about our children.	• The sense of community here is very strong. People really look after one another in a way that has been lost elsewhere. It would tragic if this were lost.
7	**Cultural**	• The possibility of 100 incoming families must dilute Tiree's Gaelic language culture & traditions. • The high quality of traditional housing types with so far little to distance this in terms of types of modern housing which are less sensitive to the importance – fragility of this special aspect of the Tiree scene. • Concern that wave/ swell patterns will be affected (by the Array). Impact on kite surfing, surfing etc. • Culture depends on people with jobs and money – the economy comes first. • Local young people want to build modern houses. Tiree houses have modernised through the generations.	
Topics			
8	**Education (Concerns & Strategic Issues)**	• These are 2011 concerns. An Array planned for 2020 is irrelevant to current issues. • Opportunity not to be missed. • More families would be good for the school. • For how long, would there be an increase in the number of pupils. • More families & young people would greatly benefit the island and the school skills awareness for jobs for local young people to work on the Array!!! • Would like to think families would come with workers thus strengthening position of school: - staffing, subjects on offer etc! • Scenarios 2 & 3 would NOT pupil numbers etc. • Land-based development on Tiree would only be justified if modelling predicted increased number of children's enrolled in school. • Great idea, would benefit two communities! Do you mean Helicopter core kids to Tiree School? If so, brilliant idea! • Primary links – Coll/ Tiree – Day pupil.	• For how long would there be an increase in pupils? • School needs help now but important to plan ahead. It would be very sad if Gaelic was diluted.

No.	Board	Event 1 Comments (24th and 25th August 2011) –Yellow Stickers	Event 2 Comments (3rd and 4th October 2011) – Orange Stickers
		• Primary – strengthen numbers – Coll Primary pupils (26). • Increased non-native population potentially reduce importance of Gaelic in education. • Coll – children go to Oban High School and Board. Can SPR helicopter etc transport school kids? Some parents feel if leaving Coll to school, may as well be on Mainland.	
9	**Education (O&M)**	• What careers Engineers/ etc? Otherwise it is going to be unskilled work. • Yes, I agree with objective • More young people would want to stay on Tiree if they had the opportunity. • Lots of young people keen to learn skills and work on the Array – Guidance and encouragement needed!! Would be fantastic for young people on Tiree! • Tiree needs more employment – especially jobs for younger people. • Scenarios 2 & 3 do not achieve the outcomes • Keen for jobs on Coll – Helicopter access? • Employment + supports demand for good services. • How many jobs will be available once the initial building is complete? • Many people have several part-time/ seasonal jobs small changes in tourism/ fishing pattern may undermine overall viability. • New Jobs! Technically specific? How will isle's populace fit in or benefit from an engineering based project.	• Will the disruption to island life – noise, pollution etc not drive people from the island?
10	**Agriculture Board (Concerns & Strategic Issues)**	• Agree with Objective (x2) • Summer ferry capacity full at present. • How do you achieve this? • Tiree Abattoir- effectively closed – sheep to Barra – Mull expensive. • Wind farm will have a limited life span, crofting may suffer even more if it goes ahead. • Access to Vet (x2) – vet based on Tiree. None on Coll. • Size of onshore building – one of my main concerns dependant on Design & Boundaries. • Yes, preferable to have minimum flights per day. • Yes. Desirable to minimise number of households/ land disturbed. • Yes, there is an issue with all roads and heavy traffic already, destroying verges and surface. • Roads will not be an issue if upgraded before the installation phase. • Roads need upgrading & more maintenance would be required! • Improved roads & transport links would be a huge benefit to locals on	• In the summer there are roughly 3000 tourists/locals on the island. How would 200 new residents make more of a difference than 3000 in the summer? (comment in response to a previous comment about traffic increases and its affect on livestock on island).

No.	Board	Event 1 Comments (24th and 25th August 2011) –Yellow Stickers	Event 2 Comments (3rd and 4th October 2011) – Orange Stickers
		Tiree – if done right and early enough. • The road system is an integral aspect of Tiree – it's pattern of life	
11	**Agriculture Board (O&M)**	• There is no mention of credible research into an Array of this size creating a down-wind micro climate if more rain!! • Road infrastructure is not adequate. • Single track and livestock movement – croft farming disruption. • Animals less acceptable on roads because of increased traffic density/ urgency. • Impacts on other areas of economic activity tourism/ fishing etc reduce viability of crofting livelihood.	• Preserving the agricultural economy is critical to the future of Tiree's environment, wildlife and culture. Preserving agriculture should take precedence. • Crafting, farming and wildlife all need space. Extra buildings (O&M), extra housing and improved roads all take up space.
12	**Visual Impact (Concerns & Strategic Issues)**	• It should be constantly borne in mind, when considering any aspect of development that Tiree represents something uniquely precious, in terms of environment, for future generations the outside world. Due respect for this should guide the thinking – if planners & developers – inform their decision. • No to street lighting/ security lighting. High security fencing (Ugliness!) • Not just the more obvious scenic areas – "views" but also housing stock/ centres of habitation – their relationship with the whole scene. • Drilling ground = changing out beaches from white sands to sharp grit and stone fragments. • Cannot ignore the usual impact of the offshore development on the onshore economy and way of life. • True horizon lost/ sun flicker/ strobe defects of sun setting behind turbines. (Towering above beaches) (No long shadows?) Epilepsy/ eye troubles. • What will happen to our dark skies? • Due to changes of air/ behind turbines could affect fauna able to grow – SSSI sites in danger.	
13	**Visual Impact (O&M)**	• Proposed Objective – Yes, I agree. • We don't want streetlights etc. The stars are fantastic because of no night light – every turbine will have a light on its head! • Yes, I agree with the above. • Very important to be well planned, sustainable materials, energy sources etc. • Newton Laws – every action has an equal and appropriate reaction therefore what is effect on the beaches, wild birds etc.	• Because Tiree is flat it would be very difficult to build in unobtrusive way – but this must be done. • Tiree can take a limited number of restoration homes hence scenario 4 is the best option if it is to go ahead.
14	**Transport (Concerns &**	• Strongly support location of any O&M in areas of existing industrial land use.ILS at airport – is a must.	

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	Strategic Issues)	• Roads need attention – have written to SPR regarding roads. • Traffic movement (too fast) and already at risk of damaging culture of civilised pace and neighbourliness. Any road widening would severely increase this damage. Therefore minimise road movements. Do not widen roads. • Yes, it would. • Better roads! Barra has fantastic double track roads and still has plenty of culture – with better roads locals wouldn't constantly have flat tyres.	
15	**Transport (O&M)**	• Impact – Coll ferry capacity/ frequency. • Ferry capacity – concern at maintaining & enhancing services? • Do we want larger roads? Traffic will go even faster etc. • Road network is currently fit for purpose. Does Tiree really want to have roads, I don't think so.. • Ferry service would have to be improved – it is difficult just now for local people during summer period. • Ferry capacity at a premium in summer months currently. • Keep single track roads, passing spaces. Cycle lanes at most! • Ferry service would have to be improved – as it is, it is difficult to get on/ off island at short notice – for days at a time. • Ferry can't cope now – both in winter & summer. How will it deal with extra demand? Agreed. • Ferry Review + Scottish Government + Concern + Island links.	• Current road network is fit for purpose – just needs to be maintained better – no to 2-way roads! • In this current economic recession will the government spend the money on greater ferry capacity, widening roads and basic infrastructure improvements?
16	**Design & Construction (Concerns & Strategic Issues)**	• Plenty of unused land in parts of island – not cultivated or grazed. • Concern: Buildings or other structures are dispersed and damage remaining unbuilt areas of the island; its most precious resource from matured heritage aspect. • There are lots of high buildings on Tiree already. • Suggestion for desirable outcome0: Restrict any land-based development to existing commercial 'brownfield' sites e.g. near pierhead at Scarinish. Near garage at crossings. Near power stations by airport. • Concern: Cables tail to be buried for cost or engineering reasons thus unnecessarily damaging visual aspects of Tiree. • Where are the images of what you might erect?? • Plenty of brown field land sites to minimise/ avoid good agric. land. • When the lighthouse was built the islanders probably felt the very same about its impact as this new one does. The right development needs to become an asset for the future too!	

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17	**Design & Construction (O&M)**	• Promote green eco building for convertor station/ grass roof. • Strongly agree. • Yes, please. • Are you purposely photographing our ugliest out of use buildings?? To make a point?	
18	**Fishing (Concerns & Strategic Issues)**	• Concern: Tidal flow disruption. Breeding ground disruption. Wind flow, speed disruption. All caused effect to mixed climate. • Impact of fishing displacement to Coll – Construction phase. • Fishing is an important part of island – culture & survival. • Fully agree with main fishing concerns, although not many fishermen, those involved will be either out of work completely or greatly restricted.	
19	**Fishing (O&M)**	• Loss of biodiversity and fish resource is a price too high. • Discussion!! So far this has achieved nothing. • Agreed.	• Need to weigh up any potential job gains with potential loss of sustainable fishing jobs – is this acceptable?
20	**Housing (Concerns & Strategic Issues)**	• Young modern families want to live in 21st century houses. • Could same jobs be based on Coll – take pressure off Tiree & benefit Coll's economy?	
21	**Housing (O&M)**	• Affordable homes are required would be better. Dispersed round island and not in one group. • Agree with the above. • Proposed Objective: Has to be! • New housing can be modern inside but not outside. • Any developments should abut existing newer housing clusters so as to minimise damage to more open areas. Damage includes visual impact. • Housing development – using traditional house designs would be great for the island – affordable housing is desperately needed – just don't make a brookside. • Please do not use this vision as a standard for future housing design. • A agree with the above. (Hear, hear).	
22	**Tourism (Concerns & Strategic Issues)**	• Many windfarms have a visitor centre which can encourage eco-tourism. You may lose some and gain others. The Danish Government rejected a planning application for an off-shore windfarm off No. coast. • Reason@ Negative part on tourism and water sports particularly wind surfing. Like Tiree it had hosted a World Cup event. • I agree with this comment? • Turbines could be positive for tourism.	

No.	Board	Event 1 Comments (24th and 25th August 2011) –Yellow Stickers	Event 2 Comments (3rd and 4th October 2011) – Orange Stickers
		• Jetskis no better than helicopters, but there are only 5!! • Tourism is part of many people's income therefore reduction in tourism may threaten whole livelihoods. • From a loss of tourism – which will be a HUGE shame for many people their peaceful holiday island is going to be ruined. • The first windsurfers came 28 years ago, since then it has increased massively with the 'first' visitors children and grandchildren now partaking in water sports whose variety has also increased. All using wind and wave. • Watersports are new to Tiree. 20 years ago nobody came to Tiree for watersports. • Visitors will be deterred from coming to the island. I've been here every 18 years of my life on holiday and it's certainly going to have an impact of my future holidays. Local businesses will suffer. As a regular visitor I would not wish to continue coming to Tiree if the island went through dramatic changes.	
23	**Tourism (O&M)**	• Year round jobs for young people would be far better than young people having to rely on low paid seasonal work. Even if tourism is reduced locals might have better opportunities for decent careers- also might attract new/ different tourist. Agree. • Analysis of impact on holidaymaker needs specific attention from their perspective e.g. quiet roads – biking/ walking; visual impact; obtrusive fencing; noise; light pollution; over busy-ness • If harbour, would Coll lose out on sailing – or would capacity for sailing simply increase.	• Negative impact on tourism would be great. The Scottish economy relies heavily on eco-tourism. Conservation – our wildlife on land and at sea are so important to our island's economy! • Impact is too big and too close, hence impacts in Tiree will be greater than at any other Scottish offshore site. • Tourism is bound to take a big knock. Access to the island without significant additional resources (ferry/air) will become even more difficult. • Tourism is bound to be affected – can this be balanced by other benefits to the island? • Negative impact on tourism – also likely to impact on other activities such as crafting as the two sectors closely inter-related.
24	**Heritage (Concerns & Strategic Issues)**	• Consider future generations.	
25	**Heritage (O&M)**	• Yes – agree with objective • Make every new Array employee do Gaelic lessons!	
26	**Nature**	• Occasionally we do have a water shortage!	• Tiree's environment, wildlife & culture are SPECIAL and

No.	Board	Event 1 Comments (24th and 25th August 2011) –Yellow Stickers	Event 2 Comments (3rd and 4th October 2011) – Orange Stickers
	Conservation (Concerns & Strategic Issues)	• The flora/ fauna/ birds/ mammals of Tiree are vital to the ecology and to tourism. We take for granted the sea otters, basking sharks, porpoises, dolphins. The odd whale. It would be dreadful if this was affected by the array which they are bound to be.	require a greater level of respect from prospective developers and government than mainland sites that have already lost theirs. • Tiree's special habitats and wildlife have been created by generations of crofting activity on the landscape and are unique – must not impact on this through unsustainable development
27	**Nature Conservation (O&M)**	• Balphinal Beach/ Haugh Beach – beaches affected?	
28	**Noise (Concerns & Strategic Issues)**	• Yes, I am concerned about the location, timing and frequency of helicopter flights? • Restrict extra on-shore noise to airport area – this, however, may result in unacceptable increases in motor vehicle activity. Conclusions – off-shore would be preferable to on-shore. • Concern: - major with 2 lane roads – loss of Machair- Cost of drainage, relocation and light pollution. No street – or building outlights. • Low frequency noise from turbines – possible impacts on health. • The sea will not drown out the noise of the turbines as it will be different (mechanical) depending upon the distance of the turbines venture effect might actually increase the turbine and maintenance (operation) noise hitting Tiree. Such as hearing a vessel out to sea (far out) as if it is nearby. • Helicopter noise a major problem night & day? • We should demand harsh legally enforceable conditions & restrictions to minimise light pollution. • Light pollution also a major concern which could be very damaging.	
29	**Noise (O&M)**	• Tiree is blessed with peace and quiet – any increase in noise pollution will send me nuts & drive me away. • Noise Act of 1997? • Another proposed Objective please ensure that the noise environment is addressed with specific reference to turbine frequency noise whether low or otherwise. – This would be welcomed. • I'd prefer helicopters and jet skis and quads or HWD on beaches! – I agree, with above. • As long as noise was controlled and minimal it may be a compromise to	• Ugly noisy and busy – not desired.

No.	Board	Event 1 Comments (24th and 25th August 2011) –Yellow Stickers	Event 2 Comments (3rd and 4th October 2011) – Orange Stickers
		any potential benefit.	
30	**Way of Life (Concerns & Strategic Issues)**	• We should be wary of too easily accepting the proposals if commercial concerns with their own profit as the main criterion. Too easily, they would get away with things that the people of Tiree will find extremely distressing and very likely without the benefits we would like to see. • Tiree way of life has remained largely unspoilt for a long time. Let's leave it this way. • With an increase of population the workers coming to Tiree, many people may feel unsafe to continue as they have done…everyone leaves their homes &cars unlocked, new people may not understand this way of life. • O & M staffing based on island should not rotate but should become permanent new residents to contribute to community life/ children at school etc – will they? This should be modelled in Scenario Planning (with legal under-pinning). • The main worry is <u>crime</u> would the island need more police, income of drugs? People who do not understand Tiree – sensitivity needed. • Health issues – implications? • Culture once gone is lost forever, same with crafting tradition – one day this will be truly valued, will 500 turbines in 50 years time.	
31	**Way of Life (O&M)**	• Proposed Objective – Do you agree – Yes. • Way of life is Tiree's thing!! That falls so will a lot of people. It's safe etc. The freedom would be curtailed therefore if wide roads – more traffic etc. • Have to ensure by-in to Tiree way of life for incoming workers. • Re scenario SPR state 100 families - Can this scale integrate? • Would welcome some new families who would appreciate our way of life and add to our population. • I would hate to see the way of life on Tiree change dramatically but nothing stays the same forever. • 20 years ago this was not part of Tiree "way of life". It illustrates how a community is always evolving. • Incomers would only be here for the life of the windfarm – would they really settle. Look at the fuss over the relocation of the PO to Glasgow – will they want to come to Tiree.	• Scenario 4 offers potential for sustainable increase in growth on Tiree. Scenario 1 is too much, too quickly and could easily damage the way of life here.
32	**What Next**	• A possible benefit would be the creation of a 'Sovereign Wealth Fund' for Tiree over 20 years which would provide a long term resource for the community. • Tiree is politically weak – we need to come together to build strong	

No.	Board	Event 1 Comments (24th and 25th August 2011) –Yellow Stickers	Event 2 Comments (3rd and 4th October 2011) – Orange Stickers
		institutions to. • How will we be informed/ advised on 2nd event if we are not on the island? (Can A & BC confirm)	

Event 2 Boards

Comments from Event 2 (3rd and 4th October 2011) on the Event 2 Boards

No.	Board	Event 2 Comments (3rd and 4th October 2011)
1	**Welcome**	• No comments
2	**The Brief**	• No comments
3	**Consultation Event 1**	• No comments
4	**Initial Scenario Mapping**	• Scenario 1 – absolutely not! • Scenario 3 – an excellent opportunity for Tiree airport. • What number of flights would be expected each day? Noise pollution! Especially on calm days when noise travels further and flights likely to be concentrated on these days. • Scenario 3 – light pollution massive, especially if converter station is offshore too! How can that be mitigated against? • Scenario 4 – no flights please! • Helicopter should be based at Scarinish to avoid flying over land • Depending on prevailing wind, i.e. weather coming onshore, flight path should take this into account – so that noise always taken away!.
5	**Scenario Mapping – Opportunities & Impacts**	• Scenario 2 – 4 weaknesses: recruitment can still be from Tiree people when O&M limited to offshore. • I strongly disagree with employment options under all 4 scenarios. Tiree can argue for its preferred amount of jobs under each scenario – its not up to SPR, its up to us. • Scenario 2 would bring nothing to Tiree except for all the negatives. • Scenario 1 will provide the island with more investment, opportunity and financial benefit. Economic growth is essential on a small island like Tiree and I feel this Scenario would be best for the islands future. • Shift workers using Tiree as a hub would have a negative impact. • The ideal scenario would be: the windfarm pushed further offshore, the O&M kept offshore, recruit from Tiree and a percentage of money the array earns given to the community to compensate for the visual/noise/climatic impacts. Such funds could be used by the community to spend on infrastructure and jobs as they require. Any one agree? *All in response to above comment:* Yes! Yes! Yes! Don't build it here! Don't use Tiree as cheap stepping stone, go to the Bay of Biscay! • Scenario 6 – none of the above. Leave Tiree alone. We have a strong community that can provide all its own jobs and infrastructure needs if it wants. The CARROT doesn't work, we don't want a retirement island.
6	**Scenario Mapping – Key**	• No comments

No.	Board	Event 2 Comments (3rd and 4th October 2011)
	Drivers and Outcomes	
7	**Scenario Development**	• No comments
8	**Profiles**	• Will there be environmental monitoring posts as part of the O&M? • The figure suggesting that 60% of workers coming to live on the island will have families appears to be high – I would have thought more of the incoming workers would have been single. • The figure suggesting 60% of the incoming workforce will have families seems high. • School needs to improve subject choices such as geography and biology as that will increase the chances of the local young being able to fill job positions.
9	**4 Scenarios - Descriptions**	• No comments
10	**Interactions with Tiree**	• Is O&M by SPR or outsourced? • Flight patterns for any helicopters would need to be defined in order to reduce flights directly across Tiree's land. • Agreement with above comment. • Because we are downwind of the site, we will hear most of what occurs in 'traffic' to and from the site. • If the array goes ahead, onshore facilities should be award winning in terms of architecture of harbour wall and buildings necessary. Concern over pollution due to diesel, petrol etc. • Tiree needs this – windfarm = jobs and people = future. • I don't think 30 local jobs and a bigger school roll are enough of an island benefit and won't affect 50% of the island's population. There has to be a financial benefit to the whole community.
11	**Scenario 1 – Description**	• The base should be built in relation to our environment – not a straight 'brick' construction. Would people be allowed to walk along or fish from the breakwater/harbour or will it be closed off with high fences? Will there be lighting day and night? • This will do me, happy days. • Example building used on board not a good building – should be wood or turf roof eco-construction. • Sensitive design essential for all onshore buildings. • As the harbour area is already congested, how would local businesses operating be consulted and kept in the loop? •
12	**Scenario 1 – Transport**	• Diesel storage for turbine generator for lighting and de-humidifier? • Best benefits for Tiree: jobs, housing, upgrades to harbour and airport
13	**Scenario 1 – Employment**	• Has the figure of 60% (number of new employees with families) been taken from knowing single/family status of an existing skills base on other O&M sites? If so could be correct. • A 60% figure sounds high, re: new workforce with family moving to island. • 60% sounds like a high percentage of people coming to work with families. • A number of these jobs could be filled by native Tiree people returning from the mainland. • How many local people are here to take jobs? • Training (which is paid for) would enable the possibility of locals being able to take these jobs, such as boat qualifications, health and safety etc. sponsorship of kids to carry out degrees, HNCs.

No.	Board	Event 2 Comments (3rd and 4th October 2011)
		• Who would provide possible skills training and career guidance? Who would bursaries? Who would provide apprenticeships for technical support jobs?
14	**Scenario 1 – Built Development**	• Modern buildings do not have to be unsightly.
15	**Scenario 1 – Housing**	• Existing building industry would benefit from Scenario 1 providing indirect employment. • Re: new housing – would prefer dispersed settlement pattern – 2 houses per township. • Don't trust Argyll and Bute Council planning department to keep the island beautiful with regard to the development of new housing. • Any new housing should concentrate on 'rural' design, rather than 'urban' as it says on board. • Who is going to buy these and once again will houses become even less affordable for actual residents – not available for purchase privately.
16	**Scenario 1 – Community Infrastructure**	• Water, power and communication are actually the most important things. • How will this affect local businesses and fuel services in the pier area? • The infrastructure is probably more important than some of what is mentioned here. E.g. Water supply, electricity supply, refuse disposal. • An increase in ferry passengers of 20% would only cover the increase in passengers on a wet September bank holiday. • Registered population at surgery is currently 725 people. • How many tiree people are there (or will there be) in the 20-40 age band, that want to do this sort of work? 25?
17	**Scenario 2 – Description**	• No thanks! • This would be worst case scenario for Tiree. • I agree, this would be worst case scenario for Tiree. • No ta!
18	**Scenario 2 – Transport**	• No comments
19	**Scenario 2 – Employment/ Built Development/ Housing**	• Scenarios 2 and 3 would be worst options – with Tiree having no benefits but all the negatives, e.g. views, lighting etc. • Scenario 2 is most effective for SPR but the worst for Tiree. We must work together to ensure Tiree relieves maximum benefit! • Scenario 2 would not be good for our island – very intrusive! • Re: large offshore platform: it would be very unsightly – it will be an eye sore and lit up all night/day during winter
20	**Scenario 2 – Community Infrastructure**	• Re: lifeline services – no addition to air and ferry services not an option! • The ferry service is already limited during summer months, it was impossible to get off the island at weekends during July and August thus no benefit at all – we would have to watch it all pass us by.
21	**Scenario 3 – Description**	• No comments

No.	Board	Event 2 Comments (3rd and 4th October 2011)
22	**Scenario 3 – Transport**	• At present locals are able to utilise the berthing facilities at Gott Bay – would this be taken away or improved upon? • Scenario 3 in general has no real benefit for Tiree – only using our air space and sea area. There would be no input into infrastructure of Tiree.
23	**Scenario 3 – Employment**	• No comments
24	**Scenario 3 – Built Development**	• Not enough benefit to Tiree. • Where would the operations control centre go? Would the converter station be sited with the control centre or be more hidden? • I think physical models of possible buildings/stations which show size in relation to what exists are required for a realistic view! Numbers are not visible!
25	**Scenario 3 – Housing**	• No comments
26	**Scenario 3 – Community Infrastructure**	• Re: education – the next few years is going to see the number of primary school children rise significantly due to a rise in number of nursery age children already on Tiree (something like 20 new kids 2 years consecutively). • Re: lifeline services – especially during tourist months/school holidays etc, the ferry/air service already very busy. Locals often find they can not get ferry last minute which can be a problem for medical appointments etc.
27	**Scenario 4 – Description**	• Boats are very sig – draft is large, swell etc. does scenario 4 mean we will become a hub for all wind developments?
28	**Scenario 4 – Transport**	• Quay wall and breakwater, access to locals or fenced off? • Would there be night lighting in these area or work limited to day hours? Security lighting?
29	**Scenario 4 – Employment**	• Wage profile impacts – counter effects on other incomes. • Re: opportunities and mitigation – education/training, this needs to start now in terms of what is available at the school – relevant subjects (sciences).
30	**Scenario 4 – Built Development**	• No comments
31	**Scenario 4 – Housing**	• This would mean 50 workers each week coming off shift after 2 weeks away going via Tiree and 50 more each week preparing to go out for a two week shift offshore. Will this cause a problem? Yes! • What about future knock on effects of phases 2, 3, 4, 5. Can be it be capped at phase 1 only? • New housing should be dispersed and in keeping with existing Tiree Styles. But do not remove land from agriculture. • Conglomerating housing better than filling in all spaces between townships, i.e. build on what is already there. • Using existing ruin sizes as a guide for new builds.
32	**Scenario 4 – Community Infrastructure**	• Who will provide funding to build a bigger and better school? • Who will provide funding for greater health care resources? • Don't forget: water, sewage, emergency services and policing. • How far on are discussions with CalMac re: ferry implications? • Ferry cancellations are acceptable as it is health and safety, however lack of space and number of sailings are already a problem. • Already ferry issues during summer time (main tourist season) – 10% increase not enough. • Ferry already at capacity – who will pay for additional ferry crossings?

No.	Board	Event 2 Comments (3rd and 4th October 2011)
		• Could the SPR fuel barge help bring in supplies for other islanders?
33	**Summary Scenarios 1 – 4**	• If the array goes ahead, scenario 1 is the best option for Tiree. • Scenario 1: linked to community benefit. • If the array goes ahead, Scenario 1 is best for Tiree for job, improved infrastructure and housing. • Lets not have Tiree a retirement island. • We think scenario 1 would be best for Tiree. Tiree is going backwards and it should be going forwards. Bring more people/families to the island and school. • I agree with the above comment, Tiree must move forward. • Scenario 1 is too heavy in terms of impacts – loss of croft land etc. prefer scenario 4. • Re: helicopter – if there is bad weather one week, will the number of flights double the following week? Would that then mean the workforce would need to be doubled on week 2? • Re: helicopter flights required for scenario 1: 12 return = 24 flights over Tiree = 3 per/hr? That's a lot of extra noise – constant almost. • Re: helicopter – 1 return flight = 2 helicopter movements. This figure should be doubled. The number of flights outlined in scenario 1 is unacceptable. • Re: education – school places only based on new build houses – should it not be based on family numbers? • Scenario 1 ties in with Tiree Growth Plan – growing population, jobs for locals, more kids at the school. All in response to above comment: But at what cost? Tiree does not need the Argyll Array in order to grow! I'd like to hear your suggestions about what Tiree does need to grow?? If not something like this. We need to keep the school open and create jobs for school leavers and locals – scenario 1. I prefer scenario 1 – lets grow Tiree. I agree. • We need to push for scenario 1! • Scenario 1 is the best. • Scenario 4 fits far closer to Tiree Growth Plan than scenario 1 – too much, too quick. • Scenarios 1 and 2 fill me with horror! • "jobs on Tiree" – very misleading. Tiree can argue for 'x' number of jobs from any of these scenarios. • Scenario 4 would offer a broader range of jobs e.g. Coll as well as Tiree. • Scenario 4 is best option – sustainable growth for Tiree at moderate cost of impacts. Scenario 1 will impact too heavily on Tiree's way of life. • Scenario 4 would be a middle ground and also open up work in other areas of Scotland. • Scenario 4 is the best we are being offered but at what cost?? Noise. • Re: helicopter – 5 flights/day = 10 movements, 10 x 365 = 3650 flights/year. Concentrated on the approximately 30 days when flights will be possible = 122 movements/day when weather if good. • Re: helicopter – each return journey = 2 flights over Tiree.
34	**O&M Procurement**	• Wait until floating turbines have been tested, then could move them about site further out at edge of site – less eco damage.
35	**Changing Technologies**	• The pounding from the sea these structures will get needs to be tested otherwise we will end up with a complete mess on and offshore.

No.	Board	Event 2 Comments (3rd and 4th October 2011)
	– Unknowns in O&M	• How can they guarantee that turbines can be serviced in very extreme conditions?
36	**Array Construction**	• I have just visited Barrow offshore windfarm, it was like looking at an oil refinery at night. • Construction should be carried out in the UK, use Campbeltown or Glasgow. Keep it in the country, all the profits go out already! • Need to minimise light pollution from on-turbine lighting. • 'jacket' construction visually unacceptable! But this is what we will get.
37	**Challenging Environments – Marine**	• This is a misrepresentation of the array.
38	**Associated Infrastructure – Converter Station**	• The design of this is crucial – a wavy turf roof on a building that is dug into the ground would help. • Where would this be sited if on Tiree? – should be hidden/underground and surface structure should blend in with environment. No security fences/lighting. • Township meeting was advised by SPR that converter station would be accessed by a hugely engineered road. • If the converter station is onshore, will there be a road to it? How would construction traffic access the site to converter station? • If the converter station is onshore, will it be at Happy Valley or where? Road access is horrendous – carving any road suitable for wide based will destroy much of the narrow existing network. • Would converter station enable onshore turbines? At present no grid capacity. • If converter station offshore it would be very unsightly – will be totally visible, a 'large oil refinery' type structure. • An offshore converter could be lost amongst the array of turbines, i.e. out the back somewhere. Impact of onshore location of converter station = too great for Tiree. • Offshore option is a nine-storey building, its massive!
39	**What next?**	• Tiree is politically weak – we need to come together to build strong institutions. • How will we be informed of 3rd event if we are not on the island? Can Argyll & Bute Council inform? • A possible benefit would be the creation of a 'sovereign wealth fund' for Tiree over 20 years which would provide long-term resources for the community.

Event 3 Boards

Comments from Event 3 (29th and 30th November 2011)

No.	Board	Event 1 Comments (29th and 30th November 2011)
1	**Front Cover**	• No comment
2	**Welcome**	• No comment
3	**The Brief**	• No comment
4	**Consultation Event 1 – Key Issues**	• Have there been any studies on effects to date – e.g. land buying / selling? • Concern that negative impacts are understated • (in response to above comment) I agree!
5	**Consultation Event 2 – Key Issues**	• No comment
6	**Consultation Feedback: Positive & Negative**	• Re: 'Tiree Growth Plan' – Tiree Trust Growth Plan? In response to above comment: Growth Plan not produced by TCDT But by Local Development Officer • Tiree Trust did not produce the Growth Plan. The Plan was produced by the HIE-employed Local Development Officer….After consultation with the community (not just Trust members). • Re: School requiring help – Does it? How? • Re: People moving off island – Building project cancelled due to client putting on hold after hearing of array.
7	**Scenario Mapping: What is Scenario Mapping / Planning?**	• No comment
8	**Scenario Mapping: Key Issues influencing Benefits & Impacts**	• No comment
9	**Scenario Mapping: Scenario Development**	• No comment
10	**Scenario Mapping: Use of Profiles in Scenario Planning / Mapping**	• What assurance that any jobs come to Tiree?
11	**Scenario Mapping**	• No comment
12	**Scenario 1: O&M Base**	• No comment
13	**Scenario 1: Economic, Socio-Economic & Environment Assessment**	• No comment
14	**Scenario 2: O&M Base (Platform)**	• No comment
15	**Scenario 2: Economic, Socio-**	• Tiree base? Helicopter

No.	Board	Event 1 Comments (29th and 30th November 2011)
	Economic & Environment Assessment	▪ Trend to reduce numbers ▪ Anticipated base on Tiree
16	**Scenario 3: Offshore O&M Base (Mothership)**	• No comment
17	**Scenario 3: Economic, Socio-Economic & Environment Assessment**	• No comment
18	**Scenario 4: Onshore O&M Base / Mothership**	• No comment
19	**Fishing (O&M)**	• Space onshore for dry boat storage – allow boat to be lifted out of water, maintained in the dry (Maritime Trust have project for shed/store). • Threat to island second home contribution industry if second homes reduce.
20	**Scenario 4: Economic, Socio-Economic & Environment Assessment**	• No comment
21	**Scale of Elements**	• Re: Converter gable – Oh my, this is big!
22	**Vision for Tiree**	• Concern at turbine impact on tourism. • Re: Scenario 2 – But could population DECREASE due to windfarm, especially if tourism is affected and less jobs?
23	**Objectives***	• No comment
24	**Initial Scenario Mapping 1-4**	• No comment
25	**Summary Scenario 1-4**	• Re: Scenario 3 – How is fuel getting to island? Aviation fuel bunkers? Tank farm needed? e.g. marine diesel, aviation fuel, DERV etc on fuel …. boat and pumped. • Capacity of ferry to take fuel. Gas / hay / beer gas. Dangerous. Can't mix with Coll dangerous goods.
26	**Scenario Mapping**	• Re: Scenario 1 Employment – Can there be guarantees put in place that these jobs will be offered to locals first? Locals given preference over subcontractors?
27	**Key Findings: Scenarios & Consultation**	• No comment
28	**Key Findings: Policy Framework & Community Objectives**	• No comment
29	**Key Findings: Engagement & Community Benefits**	• No comment
30	**Key Findings: Socio-Economic & Environment**	• No comment
31	**Key Findings: Opportunity & Capacity**	• Cost of housing on island and cost of living ▪ £60-80k ▪ £150/ft² - £175/ft² ▪ Closer to £200/ft²
32	**Key Findings: Development**	• No comment

No.	Board	Event 1 Comments (29th and 30th November 2011)
	Mitigation & Socio-Economic Mitigation	
33	**Next Steps**	• No comment

Appendix 9
The Brief

ARGYLL AND BUTE COUNCIL
Development and Infrastructure Services

Quick Quote

FOR

Mapping the on shore impacts of the Argyll Array off-shore wind farm development on the island of Tiree

TENDER REF: 2011/ET/07/WFDT

ISSUE: Monday 16th May 2011
DEADLINE: 12 noon on Friday 3rd June 2011

PART 4 – SPECIFICATION

4.1.1 BACKGROUND INFORMATION

4.1.1 In February 2009 the Crown Estate granted exclusivity rights to two separate developers (Scottish and Southern Energy Renewables and Scottish Power Renewable) to take forward the development of three off shore wind farm wind sites in Argyll and Bute. These sites are of a significant scale with the site off Tiree (the Argyll Array, 300-500 turbines 1.8GW) being the largest site, potentially generating enough electricity to power 1 million homes, providing up to 20% of Scotland electricity. These sites will have a 5 – 8 year project development and a 20 operational life span but could be repaired and maintained indefinitely.

4.1.2 In examining how these developments will be taken forward in the future one of the key issues that has been identified as requiring further work has been the need to identify and fully plan for the onshore implications arising from these off shore wind farm developments.

4.1.3 This particular project looks specifically at the development of the Argyll Array wind farm development off Tiree. The developer has identified four separate off shore scenarios relating to the operations and maintenance that may apply to the development of the off shore wind farm. These are as follows:

1. An onshore base, local to the project, with workboats (circa 7) going daily to the site, backed up by one or more helicopters.
2. A mother ship, stationed offshore within the project, backed up by one or more helicopters and using (circa 2) workboats.
3. An offshore platform within the project, using workboats (circa 4) to get to the turbines, backed up by one or more helicopters.
4. A mixture of the above three options.

Each of these scenarios will have varying implications for any associated on shore development. It is important that each scenario is analysed and the on shore implications identified and mapped to determine the environmental and socio economic impacts. The project will also consider how to optimise any socio economic benefit and mitigate against any negative consequences arising from each of the scenarios.

4.1.4 There will be no certainty as to which scenario will be taken forward by the developers until around 2015 and therefore this is seen as the first phase of a longer term process which may well lead to the development of a masterplan in the future.

4.1.5 The analysis of the four scenarios is a process which will ensure engagement with the community and partners to build widespread support for a sequence of actions that may unfold over several years and which will provide a vision for the future of the area, and that can also be used as a strategic decision-making tool, based on economic, social and market appraisals**.**

4.2 INTRODUCTION

4.2.1 The partners, Argyll and Bute Council, Marine Scotland, Highlands and Islands Enterprise Scottish Power Renewables, Tiree Community Development Trust and The Crown Estate, recognise the local socio economic opportunities that may well come with the development of these off shore wind farms with regard to construction but more specifically the ongoing operation and maintenance requirements. However, the partners also recognise that the potential onshore requirements arising from each of the four scenarios need to be properly planned for in close consultation with the local community to ensure that these opportunities can be quantified, planned for and realised and any mitigation measures undertaken to offset any negative consequences. Until this exercise is undertaken the partners do not feel in a position to be able to fully understand and plan for the implications arising from the off shore development some of which may have implications on public sector resources.

4.2.2 The overall aim is to work collaboratively with the community and developer to produce map based scenario plans, based on the four scenarios identified by the developer that will aid, guide and inform any associated on shore development for the Argyll Array offshore wind farm. In addition, this process will inform the Argyll and Bute Local Development Plan process and could have a bearing upon regional marine planning processes.

4.2.3 In addition the process will seek to optimise socio economic outcomes for the Island, informed through consultation and based upon practical options for the developer and will mitigate the negative consequences of each scenario addressing any socio economic and environmental issues. Delivering sustainable development outcomes will be an integral part of the process.

4.2.4 Whilst the scenario plans will be the key output, the process of preparing these and in particular the engagement of the community with the developer and public sector bodies will be critical. The process will require a high level of consultation with the public, community representatives, local businesses, interest groups, stakeholders, public agencies including Highland Health Board and the Local Community Health Partnership and other key consultees, in order to ensure the views of the community are taken into account and reflected in the plan. A communications strategy will require to be developed to ensure that community engagement is at the heart of the process.

4.2.5 Argyll and Bute Council, Marine Scotland, Scottish Power Renewables, Tiree Community Development Trust, The Crown Estate and Highlands and Islands Enterprise (the partners) will together form a steering group to oversee and guide the process. Additional input to the process will be invited from other specialist interest organisations from time to time. The process will be implemented by a consultant working under contract to Argyll and Bute Council but supervised by the Steering Group.

4.3 OVERALL STUDY OBJECTIVES

The project seeks to map the onshore implications arising from the 4 scenarios identified by the developer relating to the associated construction, operational and maintenance requirements of the off shore wind farm development, seeking to optimise the socio economic benefit to the island and mitigate the negative consequences of each scenario.

The project will be developed in an inclusive manner involving the community of Tiree, the developer and relevant public bodies who are involved in land use and marine planning and development or who provide services such as health services and education services. The main aim is to secure a sustainable vision for the future and provide a strategic decision-making tool, based on socio economic and environmental appraisals.

4.4 AREA OF STUDY

The area to be covered by the project is the island of Tiree land area above mean low water level, including structures existing or planned that extend from land into the sea, and including the impact on the onshore community of developments offshore.

4.5 TENDER REQUIREMENTS

The project will include the following key elements, as well as recommended responses to issues that arise from them:

- The development of a communication strategy which will detail the methodology for engagement with the community. This shall be drawn up at the beginning of the process in close consultation with the steering group and will identify the key community stakeholders. The strategy will include engagement with the community at the outset of the process and then throughout the process at key stages.
- Consider and analyse the four off shore scenarios being considered by the developer for the development of the Argyll Array off shore wind farm as detailed in the scoping document produced by the developer.
- Map proposed on shore requirements arising from each of the four scenarios relative to the Argyll Array off shore wind farm development including those required by the developer to undertake construction of and to operate and maintain the wind farm and any associated ancillary requirements that may arise such as housing for workers.
- Consider and identify realistic options for the on shore infrastructure requirements relative to the harbour and port facilities, roads network, electric transmission network etc. Cmal as owners and operators of the port facilities and as harbour authority shall be a key consultee.
- An assessment of the on shore implications resulting from the off shore development scenarios and identification of socio economic and environmental and health/wellbeing impacts arising. This will include an assessment of the scope to mitigate negative consequences.
- Development of a matrix which will identify the socio economic impacts and benefits to the island and Argyll and Bute from each of the 4 scenarios and their associated on shore requirements. This work should also consider how best to optimise these benefits.
- Specific consideration of and assessment made as to compatibility with other land users and owners also any issues arising as regards impact on services such as water, sewage, health, education, retail etc.
- Consider the need for a phased approach to the development of and implementation of each of the scenarios taking into account the developers timeline for the associated off shore wind farm.
- An assessment of any constraints, including land ownership issues and planning policy.

- An indication of where public investment is likely to be required to secure specific developments.
- Sustainability must be at the heart of the process, with equal consideration given to the economic, social, health and environmental impacts of any proposals.

4.6 TIMETABLE

A draft of the report is required to be submitted by 4th November 2011. The final report and associated appendices should be submitted to the Projects and Renewables Manager in pdf format *and* in their original format - e.g. Microsoft Word, Excel, AutoCAD, etc by 16th December 2011.

4.7 STEERING GROUP

The consultants will have direct access to the following lead officers within the Group

- Argyll and Bute Council: - Audrey Martin – Projects, Renewables and Regeneration
- Marine Scotland - Phil Gilmour, Mark Christie
- Scottish Government – Off shore Renewables Policy team – David Stevenson
- Tiree Community Development Trust – Ann Kirby
- Scottish Power Renewables – Ralph Thornton, Morna Canon, Debbie Harper
- Highlands and Islands Enterprise – Lucinda Gray
- Crown Estate - John Stevenson
- Cmal – Lorna Spencer and Andrew Flockhart
- SNH – Andrew Campbell

4.8 IN ADDITION TO THE STEERING GROUP THE KEY CONSULTEES WILL INCLUDE: -

Argyll and Bute Council:

- Fergus Murray – Development Policy Manager
- Richard Kerr – Development Management
- Moya Ingram – Transportation Manager
- Operational Manager Marine and Airports – Martin Gorringe
- Marine and Coastal Unit Manager - Mark Steward
- Head of Education – Carol Walker
- 4 local Councillors - Cllr Gordon Chalmers, Cllr Mary Jean Devon, Cllr Roddie McCuish, Cllr Donald McIntosh

Marine Scotland : Phil Gilmour, David Palmer, Anna Donald

Scottish Government: David Stevenson, Fiona Simpson

Scottish Natural Heritage : Colin Macfarlane

Tiree Community Development Trust: Ann Kirby, Mark Vale and Trudy MacKenzie
Tiree Trust Board
Tiree Community Business

Tiree Rural Development
Tiree Branch of NFUS
Tiree Branch of Scottish Crofters Foundation
Tiree Fishermen
Discover Tiree
Curam Thiriodh

Coll Community Council – Alexander McLean Bristol – alex@grishipol.co.uk
Development Coll – Emma Grant – emma@developmentcoll.co.uk

Scottish Power Renewables

Highlands and Islands Enterprise: Audrey MacIver, Joint Head of Energy

Community Planning Partners:
NHS Highland Health Board,
The Local Community Health Partnership,
Strathclyde Fire Brigade
Strathclyde Police

Crown Estate: John Stevenson

Historic Scotland
Scottish Water
SEPA
HIAL and relevant local airlines
Calmac
BT
SSE (electricity network)

Principle Land owner

4.9 CONTRACT INFORMATION

The contract start date is 27 June 2011.

The proposed completion date for each section of the works is as follows:

Stage	Milestone/ Product/ Activity	Target Date
1	Desk top review of existing information in consultation with Steering Group. This shall include familiarisation with and building an understanding of the four operations and maintenance scenarios. Production of detailed timeline for the delivery of the project which shall include provision for fortnightly update reports to the Steering Group.	July 2011
2	Develop communications strategy in consultation with	July 2011

	community and steering group, this will include an initial visit to Tiree	
3	Implement communication strategy - undertake first community consultation event on the Island	July/August 2011
4	Carefully examine the four scenarios relating to the development of the Argyll Array off shore wind farm and consider and examine any onshore implications resulting from the construction, associated infrastructure and operational and maintenance requirements relating to the development	July/August 2011
5	Fully explore and map out the associated on shore requirements that will arise such as shore side and on shore infrastructure (harbour, roads, water and sewage) transport (airport), health service and education requirements housing for workers	August/September 2011
6	Community consultation event	August/September 2011
7	Assess the local socio economic impact and environmental and landscape impact and health and wellbeing impact, identify any significant issues that may arise and define mitigation and optimisation measures including alternative options in close consultation with the community, key partners and stakeholders	September 2011
8	Submit Draft Report.	4 Nov 2011
9	Presentation to stakeholders/community	Nov 2011
10	Final Report.	16 December 2011

4.10 INVOICES

Invoices should be submitted as soon as possible after completion of the appropriate section of works. All invoices should be sequentially numbered and sent to:

Fiona McGregor
Argyll and Bute Council
Development and Infrastructure Services
Manse Brae
Lochgilphead
Argyll
PA31 8RD

PART 5 – STRUCTURE AND FORMAT OF PROPOSAL

5.1 INTRODUCTION

5.1.1 Your response to this tender document should follow the defined structure below and not exceed the maximum page limit of 30 pages (Part 7, 8 & 9). Your response will be used to evaluate and score the different sections of each proposal received.

5.1.2 Please note that the information provided in the Submission should **not** be in the form of marketing materials or project fact files, but should be tailored to this project.

5.1.3 It should be noted that the information contained in the Quality submission will be referred to and become part of the Contract.

5.1.4 Where the Consultant proposes to utilise sub-Consultant(s), they should demonstrate how the sub-Consultant(s) staff and procedures shall be integrated to ensure consistent service delivery. In terms of the assessment of the Quality Submission, sub-Consultants shall be treated as though part of the lead Consultant's project team.

5.1.5 Staff CVs should be included as an appendix to the quality submission, but each CV should be no more than 1 page. Tenderers are not precluded in their quality submission from discussing the relative individual experience of staff. This is in addition to the 30 page limit above (5.1.1).

5.2.1 CONTENT OF PROPOSAL

The key aspects to be addressed in the quality submission for each of the quality criteria will include, but not be limited to, the following:

5.2.1 Proposal A - Practice or company

Key Aspects
• Organisation • Quality systems • Management systems • Relevant experience of similar projects • References • Current workload • Health and Safety record • Benchmarking undertaken by the practice or company • Innovative techniques which the practice or company could bring to this commission

5.2.2 Proposal B – Project organisation – Please note that community consultation is a central component of this exercise

Key Aspects
• Organisation of project team

- Authority levels of team members
- Organisation experience of design issue
- Organisation experience of environmental issues (including scoping statements, environmental statements and environmental impact assessments)
- Organisation experience of community consultation in a rural context
- Planning and programming expertise
- Resources to be applied to the project
- Ability to deliver projects within tight timescales

5.2.3 Proposal C - Key project personnel

Key Aspects

- Organisation, configuration and location of team
- Qualifications and experience of team members especially on work relating to this type of commission relative to the anticipated scope of works in Section 4. This shall include evidence of experience and knowledge of the relevant disciplines requires as part of this exercise including planning, off shore renewables, community engagement, port and landside infrastructure.
- Understanding of strategic brief
- Compatibility with client and other team members
- Communication skills
- Publication of papers on relevant topics
- Appropriate level of staff resources

5.2.4 Proposal D – Project execution

Key Aspects

- Project method and approach
- Management and control procedures
- Environmental, health and safety matters
- Innovations to the approach / method

5.3 PRICING PROPOSALS

The Template reflects the contract requirement.

Prices which appear elsewhere in Tenderer's proposals but which are not summarised here or included in the template will not be taken into account.

The fixed price will be converted to an evaluation score, and the weighting set out in Part 7 will be applied. The score may be adjusted to reflect any pricing assumptions made.

This work will be paid for on a lump sum basis.

Lump sums are to be inserted against the items listed in the table included on page 3 of the price submission taking into account the information contained within this tender.

The Tenderer must complete the Price Submission. If the Tenderer feels that there are any items that are not sufficiently covered by the items listed within the price submission, they can enter additional items as appropriate.

The Employer may decide during the course of the contract to add, delete or substitute the work described in Section 4 of this tender.

The maximum budget available is £50,000.

5.4 PROPOSAL DOCUMENTATION

Proposals should be presented in A4 format with an easily readable font style and size.
Your proposal must follow the above defined structure and not exceed the page limits which have been set.

No further information or marketing material should be submitted

PART 6 – TENDER ASSESSMENT AND EVALUATION

6.1 Evaluation of Tenders

Submitted tenders will be subject to assessment, clarification and ranking by means of a structured process in order to determine the tender(s), from suitably qualified and experienced businesses, that offer(s) best value to the Council.

If, during the initial assessment phase, it is apparent that a Tenderer has submitted:

a. A fundamentally non compliant tender or;
b. An overall response that is clearly unaffordable or lacking in quality,

Then the Council reserves the right to reject that Tender and continue to assess the other proposals as appropriate. Tenders who pass this initial screening process will thereafter be subject to further assessment as detailed below in Section 6.2, Evaluation Criteria

6.2 Evaluation Criteria

The evaluation of tenders will be based on the following ***evaluation criteria***:

a. Price – 30%
This will be determined by examination of the **Pricing Schedule** submitted by each tenderer. The Council is under no obligation to accept the lowest bid or any bid and will not be liable for costs or expenses incurred in connection with the appointment process.

b. Quality/Capability – 70%
The quality/capability element will be based on the tenderer's completion of the proposals requested in Part 6**.** The Council will consider the content of the responses from each tenderer and will make a judgement based on each tenderers submission in relation to the

criteria below, please note a minimum pass mark of 60% is required for each individual section that a weighting is applied to:

Criteria	**Weighting (%)**
Practice or company	15%
Project organisation	20%
Key project personnel	25%
Project execution	40%
Questionnaires (Part 8)	Pass/Fail
Forms (Part 9)	Pass/Fail

Failure to meet or agree with requirements of the following sections will automatically remove your response from the tender process:

- Race Relations
- Non-collusion certificate

6.3 Evaluation Process

The evaluation process will be systematic, thorough and fair.

6.4 Clarification Interview

The Tenderers will be invited to attend an interview with members of the Steering group on 17th June 2011. The interview will consist of the tenderer giving a short presentation on their quality submission (15 minutes), followed by a general discussion on the main issues and outputs required. It is envisaged that the meeting will take 30-45 minutes.

Tenderers should ensure that the representative/s of their company attending the interview is the key personnel identified as part of their quality submission in paragraph

Following the interviews the Steering Group may alter the Tenderers quality submission score to reflect their findings at the interview.

6.5 Questionnaires

The quality/capability element of this tender will be based on the tenderer's completion of three separate questionnaires below.

Only information provided as a direct response to the questionnaire will be evaluated. Information and detail which forms part of general company literature or promotional brochures etc. will not form part of the evaluation process. **Marketing material should not be included.**

Supplementary documentation may be attached to the questionnaire. Such material must be clearly marked with the name of the organisation and the question to which it relates. All questions must be answered.

Please note that the Council may require clarification of the answers provided or ask for additional information.

The response should be submitted by an individual of the organisation, company or partnership who has authority to answer on behalf of that organisation, company or partnership.

Should the response be found to be erroneous or in any other way incorrect, the Council reserves the right to disqualify the candidate from the Tender.