

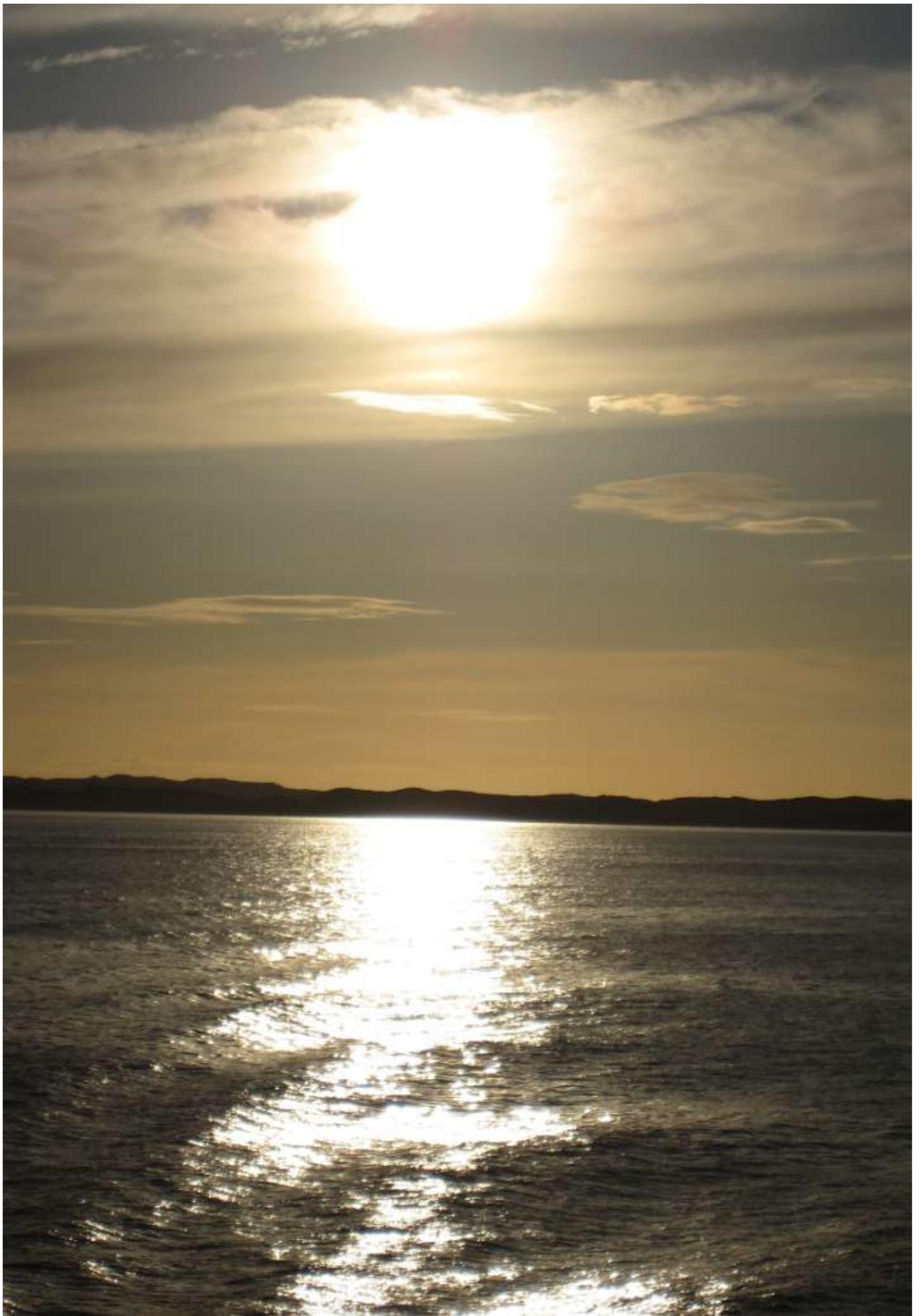


Tiree Onshore Scenario Mapping

Executive Summary

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On behalf of

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Executive Summary

Climate Change, Renewables Policy and the Argyll Array

The Argyll Array is a proposed offshore ScottishPower Renewables (SPR) wind farm project located 5km off the island of Tiree, the most westerly island of the Inner Hebrides on the west coast of Scotland.

Scottish Government policy seeks to take advantage of the extensive marine energy resources (wind, wave and tidal power) available in Scottish waters. To assist in meeting these targets, a Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters (Blue Seas - Green Energy, 2011) 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 to take forward the development of the Argyll Array (180-300 turbines) offering a potential generation capacity of up to 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. Technical studies are currently underway as part of the Environmental Impact Assessment/ Environmental Statement.

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 Highlands and the North of Scotland Public Health Network, and ScottishPower Renewables.



Operations and Maintenance (O&M)

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.

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 at an early stage to assess the potential environmental, socio economic and health/wellbeing impacts.

This 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.

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Tiree Onshore Scenario Mapping

The project sought to map the onshore implications arising from the 4 O&M scenarios identified by the developer relating to the associated construction, operational and maintenance requirements of the offshore wind farm development, looking 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.

Consultation

A Communications Strategy was developed with an aim 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 was 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 Highlands – Northern 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.

Consultation Summary August—December 2011

■ 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
■ Representations to Report	10

Review of 4 O&M Scenarios

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.

Scenario 1

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 on Tiree 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
- Direct Employment - 150 Array jobs (50% increase in current jobs base of island)
- Indirect Employment - 50 net additional jobs

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. Potential for Converter Station on the island still to be confirmed by SPR.

- Harbour upgrade would be required including breakwater
- 800-1200m² O&M Buildings with associated parking and lay-down space.
- Direct Employment - 150 Array jobs (50% increase in current jobs base of island)
- Indirect Employment - 50 net additional jobs
- Estimated population increase of circa 140
- Between 26 and 33 new homes with others refurbished
- Helipad – 7-12 return flights per day
- Additional 9 primary and 7 secondary pupils estimated

* SCADA - Supervisory Control & Data Administration

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Scenario 2

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
- 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

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. Potential for Converter Station on the island still to be confirmed by SPR.

- No O&M facilities on Tiree – all based on offshore platform
- 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
- Estimated population increase of circa 5
- 2-3 new homes
- Helipad – anticipated to be limited to emergency use although may be opportunity for fortnightly flights for Tiree based employees.
- No requirement for additional school places. School leaver / adult skills will be advanced.

Scenario 3

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. Potential for Converter Station on the island still to be confirmed by SPR.

- Direct Employment - 25 Array jobs, (8% increase in current jobs base of island)
- Indirect Employment - 5 net additional jobs on Tiree
- Estimated population increase of circa 24
- 4-6 new homes
- Helipad – anticipated to be limited to emergency use although may be opportunity for fortnightly flights for Tiree based employees.
- Helipad – 1-5 return flights per day
- Additional 2 primary and 1 secondary pupils estimated

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Scenario 4

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
- Direct Employment - 59 Array jobs (19% increase in current jobs base of island)
- Indirect Employment - 30 net additional jobs

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. Potential for Converter Station on the island still to be confirmed by SPR.

- Harbour upgrade would be required including breakwater
- 800-122m² O&M Buildings with associated parking and lay-down space.
- Direct Employment - 59 Array jobs (19% increase in current jobs base of island)
- Indirect Employment - 30 net additional jobs
- Estimated population increase of circa 56
- Between 10 and 13 new homes with others refurbished
- Helipad – 1-5 return flights per day
- Additional 4 primary and 3 secondary pupils estimated

Developing Mitigation & Capturing Potential Benefits

This study has highlighted a range of measures 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 of any Tiree based O&M facilities in line with A&BC Sustainable Design Policy and Guidance

- Planning – Appropriate planning for new housing and associated community infrastructure through Argyll and Bute Local Development Plan (LDP)
- Service Demand – Services e.g. healthcare, education and transport connections would be required to respond in relation to any increases in population
- Infrastructure – New Harbour/Breakwater may be required (harbour will be required for Scenarios 1&4) and should seek to capture wider benefits to the island

Structuring Community Benefits

SPR have advanced discussions through the Tiree Community Development Trust on potential Community Benefits - this process is ongoing and minutes of meetings. 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

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).

Need for Regular Information / Updates

A key item raised during the study was the need for regular consistent information and update from all key parties including the SPR and Steering Group Members relative to their individual areas of focus e.g. Marine Scotland Licensing Process, Environmental Impact Assessment etc. An Tirisdeach, the Tiree Newsletter, the Argyll Array Website, SPR Public Information Days and the No Tiree Array website all provide sources of information on the proposed development.

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Future Steps

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 and others in consultation with Marine Scotland, Crown Estates 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:

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. We understand that the Converter Station is to be discussed at the SPR Public Information Day in October 2012.
- **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.

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 for Tiree. These will include:

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

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 and 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 License 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.

The Tiree Onshore Scenario Mapping Report sought to allow stakeholders to comment and make representation on the potential issues associated with Operations and Maintenance support related to the proposed Argyll Array.

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.

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